Volume 26
Numero 2-3
AGOSTO-DICEMBRE 2012

MR

GIORNALE ITALIANO DI MEDICINA RIABILITATIVA

Rivista di Formazione, Informazione, Aggiornamento professionale della SIMFER

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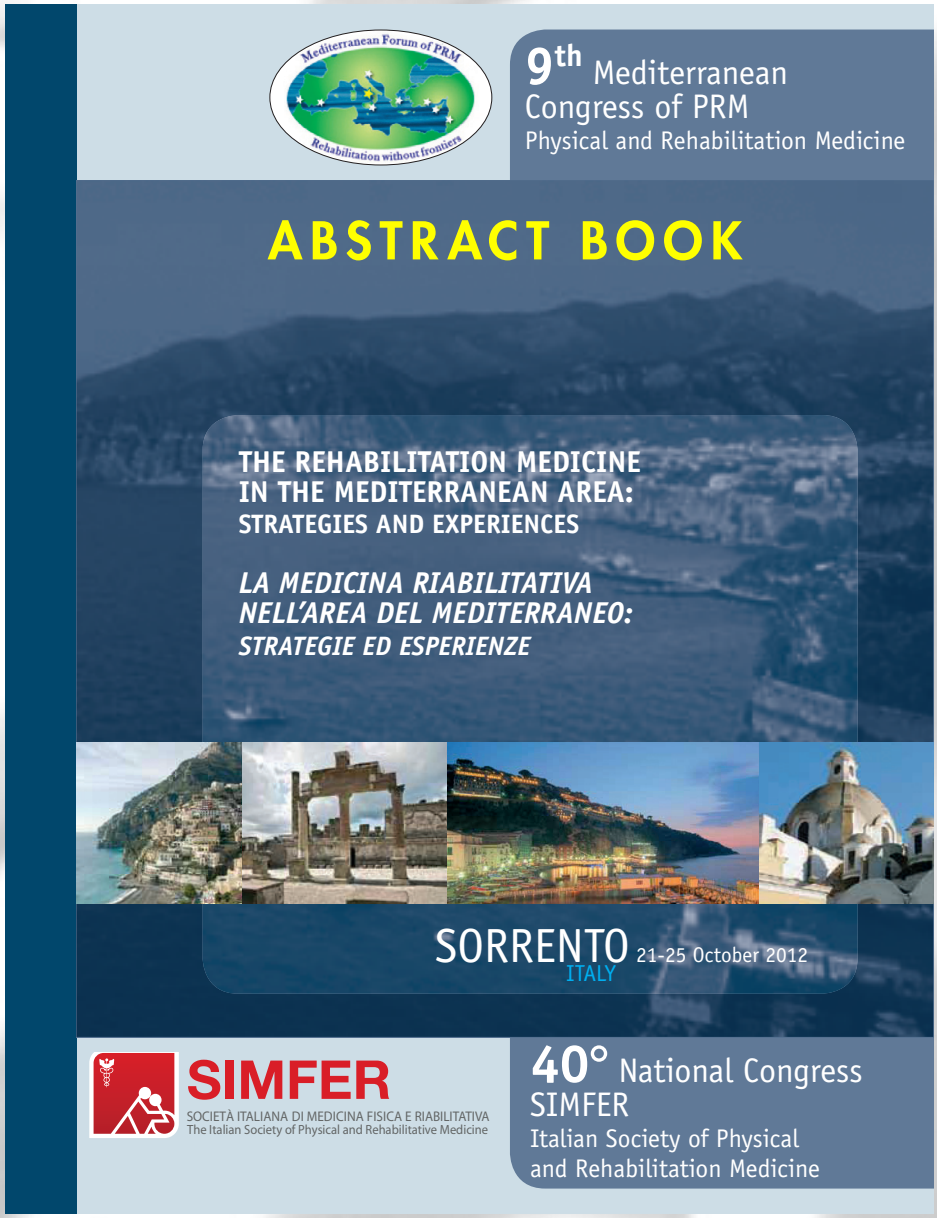

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Pubblicazione periodica bimestrale - Poste Italiane S.p.A. - Sped. in a. p. - D.L. 353/2003 (Conv. in L. 27/02/2004 n° 46) art. 1, comma 1 DCB/CN - ISSN 1827-1995 - Taxe Perçue

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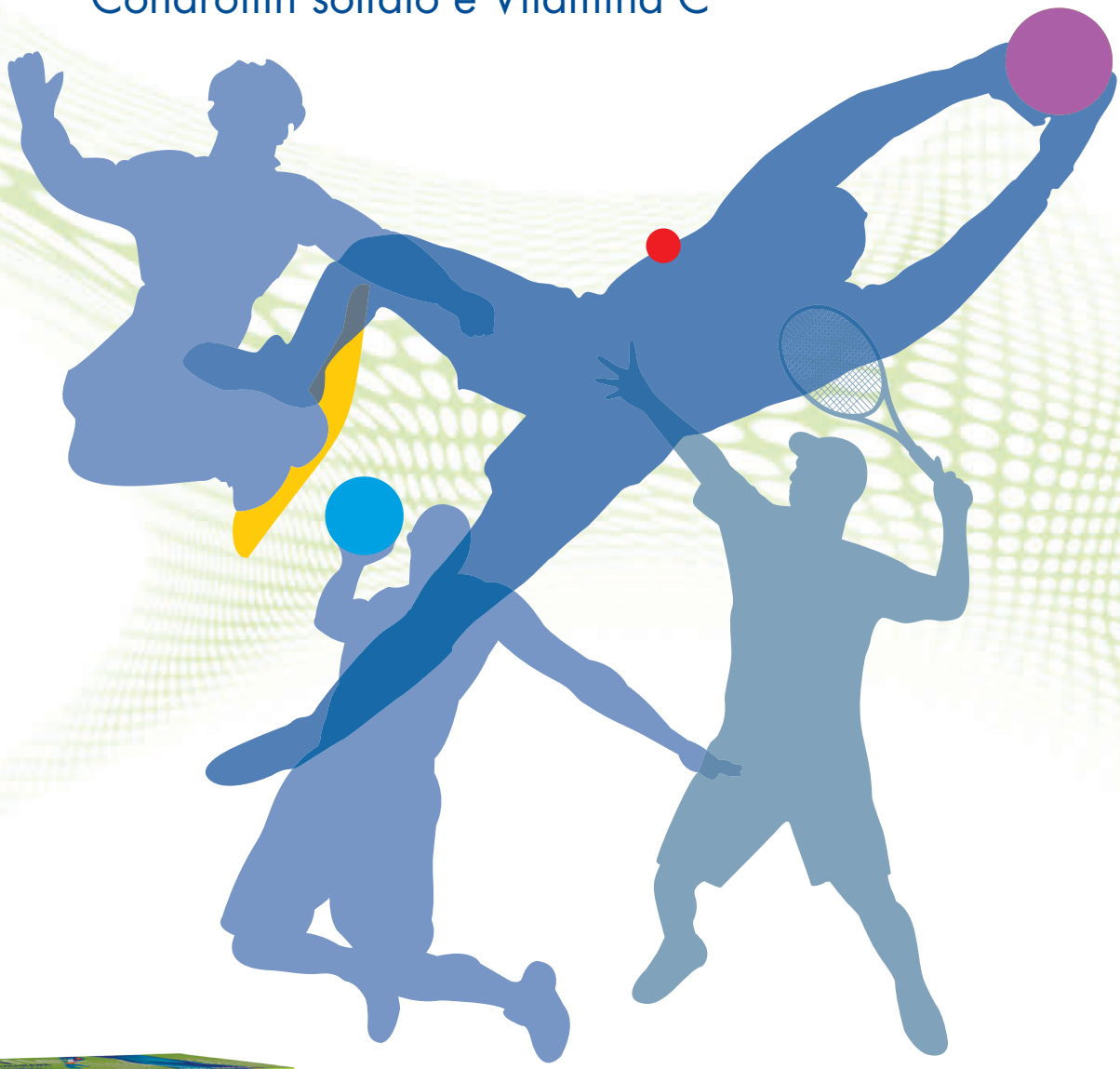

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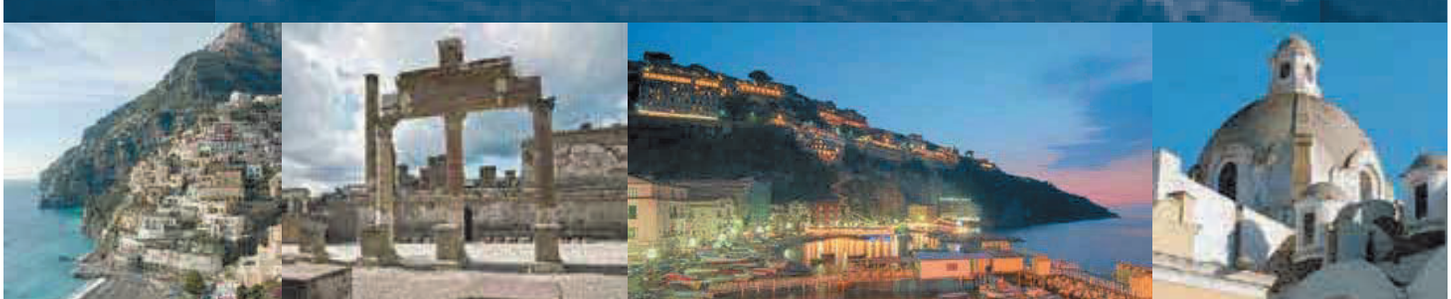

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Indice

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005

DISABLING OBESITY: FROM DETERMINANTS OF DISABILITY TO CARE MODELS

CAPODAGLIO PAOLO (1)

ISTITUTO AUXOLOGICO ITALIANO IRCCS, OSPEDALE S. GIUSEPPE, PIANCAVALLO (VERBANIA), ITALIA (1)

Obesity is a clinical condition characterised by significant clinical implications, such as co-morbidities and somatic fragility, which seriously affect independence, psychological well being and overall quality of life. The most frequent approach to obesity is based on a nutritional perspective but, given the figures of obesity worldwide, there is a need to develop a proper rehabilitative approach originating from the functional limitation, disability and clinical needs of obese patients. Our knowledge of the multifactorial pathogenetic causes of obesity has grown over the last decades but it is only quite recently that the functional impact of the condition has started to be unveiled. The lecture will first provide an up-to-date vision on the aetiology (environment, genetics) and epidemiology of obesity and then a current vision on obesity from a rehabilitative perspective. Excess weight *per se* imposes abnormal mechanics on body movements, which could account for the high incidence of musculoskeletal disorders in these subjects. Pain and osteoarthritis, both known determinants of disability, are often correlates of obesity, in particular at knee, hip and spine level, which shows a limited flexibility and increased dorsal stiffness. Despite greater muscle mass, when normalized to body weight, strength appears 10% lower in obese subjects as compared to their lean counterparts [1]. Obesity appears to be linked to an increased risk of falling [2]. As for cardiovascular response, obese subjects show a lower oxygen consumption in relation to body mass and perform early anaerobic work during exercise. Obese subjects basically adapt their gait and select lower walking speed so as to reduce the load at knee level and the metabolic expenditure. Cutting-edge research on the physiological determinants of functional limitation in obesity will be presented and the biomechanics of basic activities in obesity will be described. Disability associated with obesity may be predominantly due to a combination of motor or cardiorespiratory complications according to the coexistence of a range of related conditions (i.e. osteoarthritis, cardio-respiratory disorders, etc.). Functional status measures (i.e. the Barthel Index) assess only physical disability as reflected by ADL or Instrumented ADL scales and thus fails to detect functional status changes until disability is extreme. The FIM scale does not appear to be suited for the assessment of obesity-related disability, which appears to be an entity backed by a consistent body of recent literature, independent of recent acute events. Several experiences with the use of ICF in a clinical context exist, and an ICF-Core Set for obesity has been developed. A recent study [3] demonstrated the validity of a new questionnaire, significantly correlated with functional and quality of life parameters, as a tool able to measure the aspects of disability described by obese subjects. This represent an important instrument for the description of obesity-related disability and for planning and measuring the effectiveness of rehabilitation programmes in obese subjects. The lecture will also discuss feasible care models for disabling obesity, illustrating current protocols in musculoskeletal, cardio-respiratory and psychological rehabilitation and reviewing the existent evidence on effective rehabilitation treatments. This will explain what can be done rehabilitation wise based on the latest scientific evidences. Being obesity and related conditions a major concern all over the world and a burden for all national health services, an evidence-based discussion on effective care models adequate for their rehabilitation and clinical needs appears a hot topic in rehabilitation.

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INFLUENCE OF THROMBOLYTIC THERAPY AND LOW MOLECULAR WEIGHT HEPARIN (LWMH) ON THE EFFECTS OF EARLY REHABILITATION OF THE PATIENTS WITH ACUTE ISCHEMIC STROKE

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Background and aim. Complications, especially thromboembolic complications exert a considerable effect on the outcome of an early stroke rehabilitation. The prevention of complications plays a great role in the early treatment and the final outcome of rehabilitation. The aim of the study was to examine the effects of the application of thrombolytic therapy and LWMH on the outcome of early rehabilitation of patients after acute ischemic stroke.

Materials and method. Prospective study included 60 patients divided into 3 groups. Group A – 20 patients who received thrombolytic therapy (0,9mg/kg rTPA,max 90mg:10% IV bolus during 1 min, the rest IV infusion during 1hour), Group B – 20 patents who received LWMH (Clexan) – 4,000IJ per day, during 3 days, and group C – 20 patients who didn't receive thrombolytic therapy or LWMH. Early rehabilitation started on average 24-36 hours after ischemic stroke. The level of neurological deficit was determined by FIM score on the admission to hospital and after 14 days. Standard statistisal tests were used. Level of signifance were 0,05 in all methods.

Results. Average FIM score at the admission was 49.1(SD20.338) in Group A, 47.88 (SD18.72) in Group B, and 46.65(SD17.388) in Group C, without statistically important difference between the groups. After 14 days average FIM score was 92.5(SD30.7) in Group A, 75.9(SD30.50) in Group B, and 59.3(SD19.663) in Group C. In all three groups there was statistically important difference in average FIM score after 14 days compared to the day of the admission. After 14 days of rehabilitation there was statistically important difference between average FIM score between groups A and C and between groups B and C, and no statistically important difference between groups A and B.

Conclusion. Application of thrombolytic or LWMH therapy considerably reduces length of treatment, which significantly reduces the number of complications stemming from a long-term immobilization. In our study, in all three groups the effects of early rehabilitation lead to improvement of neurological deficit. In groups in which patents received thrombolytic or LWMH therapy the effect of functional independence at the beginning of the treatment was immediately visible and it is seen through early rehabilitation. Thrombolytic and LWMH therapy applied according to the protocol for treating acute stroke leads to faster functional recovery of the patients, and patients fast return to everyday activities.

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008

DEPARTMENT FOR ACUTE GERIATRIC AND REMOBILISATION UNDER THE DIRECTION OF A SPECIALIST OF PHYSICAL MEDICINE AND REHABILITATION; A RANDOMIZED CLINICAL TRIAL

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Introduction. In Austria the first and unfortunately still the only Department for Acute Geriatric and Remobilisation under the guidance of a specialist in physical medicine and rehabilitation was launched in May 2006. Currently the department is made up of 20 beds. The care for hospitalized patients takes place around the clock by a team consisting of six specialists who show them responsible for the on-call duties. The average workload at the department in 2011 was more than 96%, the average age of patients was 79,74 years and the average durance of stay 17.9 days.

Purpose. Is it possible to reach for all patients no matter from witch department they come from the same therapeutic progress in outcome?

Materials and methods. The retrospective study includes all the patients from 2011 witch we took over from the neurologic, traumotologic, orthopedic and internal/cardiological departments. The development was measured with the FIM (functional independence measure). The FIM was taken inside 72 hours after take over and was controlled 48 hours before discharge.

Results. The study includes 355 patients. 96 neurological patients with an average age of 79,24 years, an average stay of 21,67 days and an average fim development from 73 to 93 points, 93 traumatologic patients with an average age of 82,43 years, an average stay of 18,9 days and an average fim development from 82 to 102 points, 98 orthopaedic patients with an average age of 77,15 years, an average stay of 16,4 days and an average fim development from 103 to 115 points and 68 internistic/cardiological patients with an average age of 81,88 years, an average stay of 18,1 days and an average fim development from

78 to 96 points. The development of all the patients was 1,20 (+/- 0,22) per therapeutic day.

Conclusions. It is possible to do the same progress for all patients on the department for acute geriatric and remobilization under the direction of a specialist for physical medicine and rehabilitation independently from witch department they were overtaken from.

009

EVALUATION OF THE ROLE OF ULTRASONOGRAPHY IN THE DIAGNOSIS OF THE MYOFASCIAL NECK PAIN

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Introduction. The myofascial pain is a very common pathology and the most frequent localization of this pain is the neck region. The diagnosis is actually only clinical. With this study we tried to objectivate the diagnosis of myofascial pain with ultrasonography.

Materials and methods. We compared the morphometric and clinical data of 25 healthy subjects and 28 patients with cronic neck pain. We analyzed with 10Mhz ultrasonography the fascia thickness of sternal ending of the SCM and of scalene medio muscle. Some authors have described as the deep fascia is a multilayer structure. These sub-layers are possible to recognize in most of the region of the body, but not in the scm. All the subjects were analyzed also with the goniometer (for the active and passive cervical ROM) and administered the Neck Pain Questionnaire before treatment, after physiotherapy and at 3 and 6 months follow up.

Results. In the patients the mean value of the fascial thickness in the upper and lower side were respectively 0,157 cm; 0,124 cm in the left scm; in the left scalene were respectively 0,1 cm; 0,105 cm; in the right scm were respectively 0,151 cm; 0,114 cm; in the right scalene were respectively 0,118 cm; 0,130 cm. There were significant statistical different with the normal subject in the thickness of the upper side of the scm fascia (p value 0,06 lf; 0,035 rt) and of the lower and upper side of the rt scalene fascia (p=0,031; p=0,031). At the end of the treatment and at 3 and 6 months follow up the patients refer a significant decrease of the pain. We observed a significant decrease of the thickness o of the fascia at the end of the treatment (p<0,05) and at the 3 (p<0,005) and 6 months (p<0,005). The analysis of the thickness of the sub-layers of the fascia showed a statistical decrease of the loose connective tissue at the end of the treatment (p=0,0001) at 3 months (p=0,0003) and a 6 months (p=0,0003). There wasn't any variation in the thickness of the collagen layers of the fascia.

Conclusions. The ultrasonography is helpful in the diagnosis of myofascial pain. Visualizing a thickness of the scm fascia bigger then 0,15 cm is correlated with stiffness and myofascial etiology of chronic neck pain. The increase of the fascia thickness is correlated only at the thicker layer of loose connective tissue.

010

THE EFFECT OF ANTI-TNF THERAPY TO BONE MINERAL DENSITY IN PATIENTS WITH SPONDYLOARTHROPATHIES

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Introduction. Pro-inflammatory cytokines in inflamatory rheumatic diseases have different effects to tissues among them negative effect to bones. Tumour necrosis factor (TNF) has effect to bones with activation of osteoclasts which leads to quicker bone destruction.

Objective. The aim of this research was to investigate the effect of anti-TNF therapy to bone mineral density (BMD) in patients with spondyloarthropathies.

Methods. The research included 78 male patients with ankylosing spondylitis and psoriatic spondyloarthropathies. The respondents were devided into two groups: group A (48 patients) recieved treatment with anti-TNF medicines (Etanercept-50 mg/week; Adalimumab-40 mg/ 2 weeks) and the group B- control group (30 patients) was not given the anti-TNF therapy. In both groups there were few patients who were treated with DMARD (disease modifying anti rheumatic) drugs, but none of them recieved glucocorticoids. For measuring of BMD we used DXA method (dual-energy X-rays absorptiometry) with Lunar Advance Prodigy. Measuring was performed on hip at the beginning of the research and repeated after 18 months. Responders didn't receive therapy for osteoporosis. In processing the obtained data: SPSS and Student's *t* test and Mann-Whitney rank test.

Results. The groups were comparable by age (group A:40 ± 11,0 years, group B:43,2 ± 10,8 years), duration of illness (group A:9,3±6,1, group B:10,5±5,7 years) and number of patients who recieved DMARD therapy (group A:12,5%, group B:11,4%). The average value BMD (g/cm^2) was not significantly different between groups at the beginning of the research (group A:0,938, group B: 0,927, p=0,775). After 18 months, we recorded significant increase of BMD in the group A (1,017 g/cm^2, p<0,001) and significant decrease in the group B (0,846 g/cm^2,p<0,05). At the end of this research we detected statistically significant increase in the group treated by anti-TNF medicines in compariconto the controle group (p<0,05).

Conclusion. 18 months long treatment with anti-TNF-alfa therapy at our patients with spondyloarthropaty caused significant improvement of bone mineral density.

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011

BONE MINERAL DENSITY IN PATIENTS WITH RHEUMATOID ARTHRITIS BEFORE AND AFTER ONE YEAR OF TREATMENT WITH TNF BIOLOGICAL THERAPY

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Introduction. To determine the effect of one-year of treatment with TNF biological therapy on bone mineral density (BMD) in patients with rheumatoid arthritis (RA) treated with Methotrexate (MTX).

Materials and methods. The 120 patients (100 female, 20 male) with RA (ARA criteria) were analyzed. Patients were previously received MTX therapy (a minimum of 5 years) and corticosteroid therapy (a minimum of 3 months, doses greater than 5mg daily). Patients were divided into two groups: group A (70 pts.) who received etanercept apart from MTX therapy and B (50 pts.) who received monotherapy MTX continuously. The demographic data were following and were comparable according to age, sex, body mass index and duration of RA. BMD (g/cm2) was measured at the lumbar region of the spine. Dual-energy-Xrays absorptiometry (DXA) scan was done in two terms in both groups of pts. at the time of initiation of anti-TNF therapy and one year after. Patients were not taking osteoporosis therapy. They have no co-morbidities which significantly affect bone metabolism either. All female patients were in the generative period. The SPSS,Student's and Mann - Whitney rank test were used in processing data.

Results. Analyzed BMD values in group A at baseline and after one year (1.153±0.14g/cm^2 vs.1.146 ±0.15g/cm^2) were decreased, but the difference was not statistically significant (p=0.112). In group B of pts. the BMD values were a statistically significant reduced (p=0.001) between the initial and repeat DXA scan (1.112±0.11g/cm^2 vs. 1.091±0.11g/cm^2). There was a statistically significant difference in the reduction of BMD values between A and B groups of patients (Mann-Whitney test, p=0.012).

Conclusions. Our study has shown no statistically significant reduction of BMD values between groups of RA patients who were treated with MTX and anti-TNF therapy in contrast to patients treated with MTX during one year following period. But, patients who received anti-TNF therapy had a significantly lower reduction of bone mineral density compared to patients treated with MTX only.

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012

FUNCTIONAL RECOVERY AFTER HIP FRACTURE IS SEX-ASSOCIATED: AN OBSERVATIONAL STUDY OF 1094 SUBJECTS.

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Introduction. Hip fractures in older people result in 10% to 20% excess mortality within one year, and approximately 20% of hip fracture survivors

require long-term nursing home care, whereas only 40% fully regain their pre-injury level of independence. Male sex has been consistently associated with higher risk of complications, institutionalization, and mortality. However, the role of sex in affecting the functional recovery after hip fracture is controversial. We hypothesized that male sex may negatively affect recovery of ability to function in activities of daily living in hip-fracture patients referred for acute inpatient rehabilitation [1].

Materials and methods. We retrospectively evaluated 1134 white cancer-free patients with a fragility fracture of the hip, admitted consecutively to our Physical Medicine and Rehabilitation division. Forty patients were excluded from the study, because they either died or were transferred to other hospitals. The final study sample included 1094 people (970 women and 124 men). Functional evaluation, both at rehabilitation admission and at discharge from the rehabilitation hospital, was performed using the Barthel index (original version unchanged). Barthel index efficiency (improvement per day of stay length) and effectiveness (proportion of potential improvement achieved) were calculated.

Results. The median Barthel index score at discharge from inpatient rehabilitation was 85 in the 970 women and 75 in the 124 men (interquartile range from 65 to 95 in women and from 60 to 95 in men, p=0.001). Both Barthel index efficiency and effectiveness were significantly lower in men (p=0.030 and p=0.007, respectively). After adjustment for six confounders (i.e., age, cognitive impairment, pressure ulcers, neurologic impairment, infections needing antibiotic treatment during the length of stay, and Barthel Index score at admission to inpatient rehabilitation), we confirmed that men had lower Barthel index scores (p=0.030), Barthel index efficiency (p=0.024) and Barthel index effectiveness (p=0.040) than women. The risk of achieving a low Barthel index score (i.e.,<85) at the end of acute inpatient rehabilitation was higher for men than for women (adjusted odds ratio = 2.055; 95% CI from 1.212 to 3.483; p=0.007).

Discussion. Data shows that Barthel index scores at the end of acute inpatient rehabilitation were lower in men than in women in a large sample of patients following a fracture of the hip. Notably, both Barthel index effectiveness and efficiency were consistently reduced in men. Two strengths of our study are large sample size and adjustments for multiple confounders. Limitations include lack of long-term follow-up, outcome evaluation by a single scale, and selection of the patients who were referred for acute inpatient rehabilitation. Some very recent observations from our group on between-sex differences in emerging prognostic factors (i.e., parathyroid hormone response to vitamin D deficiency [2] and sarcopenia prevalence [3]) may contribute to explain the unfavorable functional outcome found in men.

Conclusions. Models aimed at predicting the functional outcome in hip fracture survivors may benefit from inclusion of sex. Resources needed for recovery and rehabilitation strategies may differ between men and women to optimize ability to function following a fracture of the hip. Sex-specific rehabilitation protocols should be considered in future randomized controlled trials to optimize functional recovery in men and women.

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013

THE ABILITY OF POSTURAL CONTROL FOR A 12-MONTH INTERVENTION HIP ARTHROPLASTY: RETROSPECTIVE EVALUATION OF 40 CASES AND COMPARISON WITH HEALTHY SUBJECTS

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Introduction. The posturometric evaluation after the intervention of hip arthroplasty (THA) is not expected in a normal clinical practice, and is not present in the literature studies that indicate these parameters in these patients..

Materials and methods. The aim of this study was to evaluate the postural control in the 12 months' intervention with THA and to compare it with that of healthy subjects. Among all patients undergoing elective unilateral THA at our facility from 2007 to 2012 were retrospectively selected 40 patients (27 THA right and 13 THA left) with stabilometric and posturometric control to 12 months postoperatively. It was then performed for comparison purposes the posturometric and stabilometric test in 23 healthy controls.

Results. The two groups were homogeneous for age, sex, Body Mass Index (BMI), and BMI classes. The stabilometric and posturometric values (speed, speed per square meter, area, length, coordinates of center of pressure) did not show a statistically significant difference (p> 0.05) between the operated and healthy controls. There were no statistically significant even for the variable sex, weight and age regardless of laterality of the operated limb. An obvious difference of borderline significance in the global load distribution between operated and healthy controls was shown.

Conclusions. The hip replacement surgery does not affect the ability of postural control at one year follow up. The individual variables analyzed such as sex, Body Mass Index (BMI) group, age, laterality of the operated limb does not affect stabilometric and posturometric values. Evident even minor tendency to shift your weight on the limb not operated at 12 months postoperatively.

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014

AGE INFLUENCE ON FUNCTIONAL OUTCOME OF PATIENTS WITH SEQUELAE OF TRAUMATIC SPINAL CORD INJURY

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Introduction. Spinal cord injury (SCI) can severely compromise the quality of life of an individual, and traumatic spinal cord injury (TSCI), is one of the major cause of SCI. Almost all studies show that the incidence of TSCI is higher among 16-30 years, with a decline thereafter. It has also been found an increased incidence of TVM in the elderly over the decades. Lesions occur mainly in men, and traffic accidents are the leading cause described. In the elderly, falls are a frequent event and an important cause of morbidity and mortality. They are the leading cause of TSCI in this population. Functional recovery is dependent on the level and severity of the lesion, but is also influenced by other factors. Besides allowing a reduction in mortality and mortality in patients with TSCI, functional rehabilitation has a role in improving their independence and reintegration into society. The objective of this work is to evaluate the relationship between age and functional outcome in patients with sequelae of TSCI.

Materials and methods. Retrospective study, with a 88 patients sample that were admitted as inpatients in the Service of Physical Medicine and Rehabilitation (PMR) in Hospital de Braga, between the years 2007 and 2011, with sequelae of TSCI. Clinical processes were consulted and two age groups (<65 and ≥ 65 years) were compared. The Functional Independence Measure (FIM) was used to quantify the functional outcome by calculating the variation between the values at admission and at discharge, in 68 of the 88 patients. For gait evaluation were used Modified Functional Ambulation Classification (MFAC) and the Walking Index for Spinal Cord Injury II (WISCI-II).

Results. The group <65 years was composed of 65 (73.9%) patients and the group of ≥ 65 years with a total of 23 (26.1%) patients. The mean age was 49.67. Fall was the most prevalent cause of TSCI. Cervical injuries were more frequent, as well as incomplete lesions. The average hospital stay was 94.89 days. The MIF average was 66.32 points (<65 = 67.2, ≥ 65 = 63.38) at admission and 97.09 (<65 = 100.89, ≥ 65 = 83.4) at discharge. The variation of MIF showed an average of 30.19 points (<65 = 33.36, ≥ 65 = 19). The MFAC showed an average of 0.33 and 1.57, at admission and discharge, respectively. The WISCI-II showed, respectively, averages of 1.60 and 8.55. There were no significant relationship between age at the time of the accident and the FIM scales, MFAC and WISCI-II at admission and discharge. However, it was found a statistically significant relationship between age at the time of the accident and the FIM variation.

Conclusions. In this population there was a predominance of males, and age at the time of the accident of <65 years. There was an influence of age on functional outcome in patients with TSCI during hospitalization in a Service of PRM, and patients aged ≥ 65 years showed a lower functional outcome, highlighting the importance of age on functional recovery after TCSI.

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015

NEUROMUSCULAR DYSFUNCTION ASSOCIATED WITH DELAYED WEANING FROM MECHANICAL VENTILATION IN PATIENTS WITH RESPIRATORY FAILURE

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Introduction. Mechanical ventilation offers essential ventilatory support, while the respiratory system recovers from acute respiratory failure. Yet, invasive mechanical ventilation is associated with risks and complications that prolong the duration of mechanical ventilation and increase the risk for death. Therefore, safely weaning the patient from the ventilator as soon as possible is paramount. There are innumerable factors responsible for failure of weaning from mechanical ventilation. Neuromuscular dysfunctions acquired during intensive care unit (ICU) stay are considered to be one of the important factors that impair weaning process. Up to 62% of difficult-to-wean patients, who do not have preexisting neurologic disorders, show evidence of neuromuscular dysfunction that is significant enough to account for these patients' persistent respiratory failures.

Materials and methods. The study included 19 patients with difficult weaning from mechanical ventilation from Alexandria medical respiratory intensive care unit (ICU) during the period from May 2009 till May 2010. The selected patients included patients who need mechanical ventilation for medical reasons, Patient fulfilling the parameters for weaning, with failed spontaneous breathing trial. In the present study EMG and sensory-motor nerve conduction study was done.

Results. 26% show normal study, 63% showed moderate to severe axonal sensory motor peripheral neuropathy and 11% showed picture of myopathy. The study revealed that 33% of the patients with peripheral neuropathy failed weaning trials and finally died. It is also found that drugs taken during ICU stay as corticosteroids and electrolytes disturbances (hypocalcaemia, hypophosphatemia, and hypomagnesaemia) may be related to the occurrence of neuromuscular dysfunctions. The present work also revealed a significant relationship between hypoalbuminemia and neuromuscular dysfunction.

Conclusions. The present study stresses on the importance of neuromuscular assessment in all cases with difficult weaning as this may be an important contributing factor for difficult weaning and prolonged mechanical ventilation (neuropathic or myopathic in origin). EMG and nerve conduction study may be of help for detection of such disturbances. So, proper assessment of the neuromuscular apparatus and management of any disorder may put a great step towards successful weaning.

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016

DOES A SPECIFIC INSPIRATORY MUSCLE TRAINING PROGRAM INCREASE SURVIVAL IN AMYOTROPHIC LATERAL SCLEROSIS?

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Introduction. We have implemented a specific inspiratory muscle training (IMT) program in a selected population of early-affected amyotrophic lateral sclerosis (ALS) patients and showed that IMT promotes a transient improvement in the respiratory subscore of the functional ALS scale (ALS-FRS), in sniff maximal inspiratory pressure (SNIP), maximal voluntary ventilation (MVV) and peak expiratory flow (PEF). With the present study we aimed to study the impact of the same IMT training on survival of ALS patients.

Materials and methods. Eighteen consecutive early-affected ALS patients without oro-facial paresis (group 1 – G1) were followed in our Unit and performed IMT training for 4 months. They were compared with a historical control group (group 2 – G2), including 16 ALS patients matched for gender, age, disease presentation, disease duration, ALS-FRS and functional respiratory tests. We evaluated ALS-FRS, including bulbar (ALS-FRSb) and respiratory (RofALS-FRS) subscores, forced vital capacity (FVC) and the amplitude of the diaphragmatic motor responses by phrenic nerve stimulation (PhrenAmpl) at study entry (T0) and after 4 months (T1), including their decay. Survival analyses were evaluated by Kaplan-Meier log rank test and multivariate Cox proportional hazards. Event was defined as death or need for non-invasive ventilation (NIV).

Results. All variables studied decayed significantly except for ALS-FRSb and RofALS-FRS in both groups but there was a significantly lower ALS-FRS decline in G1 (4.3±5.6 vs 11.3±9, p=0.005). G1 patients had a significantly higher values for PhrenAmpl in T1 (0.71±0.3mV vs 0.52±0.13mV, p=0.035) and survived longer (37.6±3.3mo vs 24.1±2.7mo, log rank p=0.022). However, exercise was not an independent predictive factor of survival. Negative predictive factors of survival were male gender, short disease duration, lower values of ALS-FRS, ALS-FRSb and RofALS-FRS as well as lower values of PhrenAmpl.

Conclusions. IMT in early affected ALS patients presenting with well-preserved respiratory function is associated with transitory benefit, but without a clear independent benefit on survival. Larger studies are recommended to approach this rehabilitation method.

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017

THE APLICABILITY OF THE JUVENILE ARTHRITIS FUNCTIONALITY SCALE IN EVERYDAY CLINICAL PRACTICE

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Introduction. The physical function is very important component in clinical evaluation of the activity of juvenile idiopathic arthritis (JIA). For its assessment, so far, the most widely used was the Childhood Health Assessment Questionnaire (CHAQ). In standard clinical practice CHAQ is not quite applicable (routinely administered) because of its complexity and large number of questions. The objective of the study was to assess applicability of the new, short and simple questionnaire -The Juvenile Arthritis Functionality Scale (JAFS)[1] in everyday clinical practice.

Materials and methods. The study included 80 consecutive children treated in the Institute for Rheumatology from January 2010. till April 2011., all diagnosed JIA, 56 (70%) girls and 24 (30%) boys, mean age 10.17±4.91years, disease duration 3.68±3.19 years. All parents and children older than 12 years completed both questionnaires (CHAQ and JAFS), and children older than 8 years (52 of the total 80) completed only JAFS. The time required to complete both questionnaires was recorded. The parents and the children older than 12 years were asked to indicate the preferred questionnaire. Spearman correlation coefficient (r), Wilcoxon test and X^2 test were used for statistical analysis.

Results. The mean JAFS value was 2.74±3.66 for parents and 2.67±3.2 for children and CHAQ value 0.372±0.524 for parents and 0.313±0.428 for children. High correlation was demonstrated between functional tests, CHAQ and JAFS completed both by parents and children (r=0.846 for parents; r=0.898 for children). The mean time for completing questionnaire JAFS was 1.54±0.93 min for parents, 1.91±1.09 min for children, and for CHAQ 3.96±2.42 min for parents and 3.93±2,51 min for children, which represents highly statistical important difference in the speed of completing ($p<0.01$). JAFS was more preferable for 46.8% of the parents, CHAQ for 31.6%, and 21.3% were neutral ($p<0.05$). There was no difference in the preference of either of questionnaires among children ($p>0.05$).

Conclusions. JAFS showed high level of correlation with CHAQ. Considering the short time for completing and fact that parents pointed out JAFS as more appropriate than CHAQ, it could be concluded that JAFS is very applicable questionnaire for use in everyday clinical practice.

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018

FUNCTION, PARTICIPATION AND QUALITY OF LIFE OF WOMEN WITH FRACTURE OF PROXIMAL FEMUR ONE MONTH AFTER THEIR DISCHARGE FROM REHABILITATION DEPARTMENT

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Introduction. As life expectancy rises, the proportion of elderly people in the general population increases. The increase in the number of elderly people also increases the number of elderly patients who suffer from fractures of proximal femur. The majority of these patients are women. Many elderly wom-

en also suffer from varying degrees of cognitive impairment. The aim of the present study was to investigate whether elderly women, who suffered fractures of proximal femur, with preserved cognition will function better than elderly women with mild cognitive impairment one month after discharge from the rehabilitation center. Functioning was evaluated with regard to performing tasks of everyday life, levels of participation, health related quality of life and existential well-being. The main hypothesis of this study was that function, participation, health related quality of life and existential well-being of elderly women with preserved cognition is generally higher than that of women with mild cognitive impairment.

Materials and methods. The study population consisted of 60 women, aged ≥ 65 years, admitted to two rehabilitation centers in Jerusalem after an operation due to a fracture of the proximal femur. The women were divided into two groups: one group included 30 women with preserved cognition and the other group included 30 women with mild cognitive impairment. Each subject was required to answer six questionnaires: on admission to the rehabilitation centre, a demographic questionnaire, a questionnaire to identify symptoms of depression – GDS (Geriatric Depression Scale) and the FIM (Functional Independence Measure) scale for functional evaluation. One month after discharge, subjects were interviewed at their homes where they answered the FIM and GDS questionnaires again and were also required to answer the Israeli Adults Assessment of Participation (IAAP) questionnaire, the SF-12 questionnaire and the MQOL (McGill Quality of Life) questionnaire.

Results. No significant differences were found between the levels of functioning of subjects from the two groups. Women with preserved cognition performed better in self care, taking care of home and family, physical activity and quiet activities. However, no differences were found with regard to recreational activities, studies and self enrichment. The two groups displayed similar health related quality of life and existential well being. The level of the functioning on admission to the rehabilitation centre has a significant influence on the level of functioning one month after discharge. The level of depression one month after discharge also has a significant influence on the level of participation and health related quality of life.

Conclusions. This study shows that women in both groups can improve everyday functioning even with mild cognitive impairment. The multi-professional team should be aware of the importance of rehabilitation in order to enable functioning and living in the community, even for patients with mild cognitive impairment. Identification of the unique needs of patients with mild cognitive impairment will improve the efficiency of the rehabilitation process. Finally, it is recommended to enable rehabilitation in order to preserve and improve the functioning.

019

OUTCOMES AFTER SHOULDER ARTHROPLASTY IN PATIENTS WITH OSTEOARTHRITIS - THE EXPERIENCE OF A PORTUGUESE REHABILITATION SERVICE

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Introduction. Shoulder arthroplasties have been used in the last few decades as a therapeutic option to treat severe osteoarthritis of the shoulder since Neer in 1955. Outcomes at long term are controversial and patient satisfaction with rehabilitation isn't usually assessed. There is no epidemiological data about this subject at national level, and only a few data in European studies. The purpose of this study was to assess the functional outcome of patients with shoulder arthroplasties due to severe osteoarthritis of the shoulder, as well as patient satisfaction, in a Portuguese Rehabilitation Service.

Materials and methods. We conducted a review of patients who had rehabilitation treatments in the Department of Physical Medicine and Rehabilitation of Hospital de Curry Cabral from 2000 to 2011, following shoulder arthroplasty due to severe osteoarthritis of the shoulder. We excluded from this review patients with severe or systemic decompensated disease and compromised collaboration. Data collection was made through patient consultation and a standard form was filled by a physician. We made the analysis of the population (age, gender, functionality) and applied a general shoulder measure (Score of Constant) for pain assessment, functionality, range of motion and strength. Patients with post-op complications were described and analysed in separate groups. We also quantified the number of physical therapy sessions carried out in the post-operative period and searched for correlation with the outcomes. The statistical processing of data was carried out using SPSS 17.0.

Results. A total of 23 patients with shoulder arthroplasties (6 hemiarthroplasties, 10 total arthroplasties and 7 reverse total arthroplasties) who had rehabilitation treatments in our department were assessed. Patients with total shoulder arthroplasty had, on average, less pain during activities of daily living (ADL) and better Constant Scores (CS). Patients with reverse total arthroplasties had greater ROM and less nocturnal pain, but were associated with more post-op complications and the need of more physical therapy sessions until discharge. We found statistic correlations ($p < 0,05$) between the patient satisfaction with PMR and their ability to perform ADL with less pain. In this population we found no correlation between age, gender and the Normalized Constant Score.

Conclusions. Shoulder arthroplasties have functional results that vary greatly, being the type of implant and post-operative complications constraint factors of the outcomes. Patients with reverse total arthroplasties were associated with more post-op complications and longer time in rehabilitation. Satisfaction with rehabilitation was higher in patients able to perform their ADL with less pain. Although the small sample size, some results had statistical significance and are in accordance with international studies that used the same methodology. Further studies at national and international level over a longer period of time using standard pre and post-operative forms, including functional and contralateral shoulder evaluation, are necessary for a more complete and precise assessment of these patients.

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020

EARLY REHABILITATION AFTER POLYTRAUMA- CASE REPORT

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Introduction. Polytrauma refers to trauma in which the patient suffers two or more major injuries which may cause physiological instability. As the most common complications in these patients may develop DVT, pulmonary embolus or fat embolus, athelectasis and pneumonia.

Because the treatment of these patients is difficult, often long lasting, implementation of early rehabilitation prevents the occurrence of complications due to inactivity. We present a case of a 20-yr-old man who hurt in the traffic accident. Surgical is treated pelvic injury and fracture of the right femur as well as rupture of the spleen. Patient was intubated, with a GCS of 10. Early rehabilitation is started on the first postoperative day including positioning and passive exercises of the limbs. From the fifth to the ninth day, patient is conscious but still intubated and active exercises are conducted in order to preserve ROM and muscle strength. On the ninth day patient is separated from the ventilator and started intensive physical treatment using the aerosol therapy, chest massage, deep breathing exercises, assisted expectoration and gradual verticalisation. In the next 25 days, we continued active exercises and started verticalisation with crutches without relying on the right foot. At discharge, patient is able to ambulate 100m and to perform self-care tasks without any kind of assistance.

Summary. Early rehabilitation after polytrauma may prevent the occurrence of numerous complications and enables quick recovery of these patients.

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021

DOPAMINERGIC AND GABAERGIC MODULATION OF STIMULATION- INDUCED PLASTICITY IN HEALTHY HUMAN SUBJECTS

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Introduction. Administration of pharmacological agents with specific actions on neurotransmitter systems is a powerful drive of functional cortical reorganization. Plastic reorganization of the motor cortex in humans studies by the use of non-invasive stimulation protocols, which mimic the Hebbian model of associative plasticity. Aiming to explore pharmacological modula-

tion on human motor cortex plasticity, we tested healthy subjects after each dosage of diazepam, levodopa i placebo administration, using paired associative stimulation protocol (PAS) that induce fenomena similar to a long-term potentiation and depression, as defined on the synaptic level.

Materials and methods. We analyzed effects of benzodiazepines (10 mg), levodopa (200 mg) and placebo on PAS protocol in 14 healthy volunteers, using a double-blind placebo-controlled study design. PAS consisted of electrical stimuli pairs at n.medianus and magnetic pulses over the scalp (transcranial magnetic stimulation) in precisely defined intervals (ISI was 10 and 25 ms) for a total of about 15 minutes (200 pairs). MEP amplitudes before and after (0, 10, 20 and 30 minutes later) interventional protocols were compared.

Results. When protocols were applied with placebo depending on ISI (10 ms – inhibitory, 25 ms – facilitatory effects), MEP amplitudes decreased or increased, while values in the postinterventional period (0, 10, 20 and 30 min) were compared with initial values before the use of SAS. The use of benzodiazepines caused the occlusion of LTP-like effect, in contrast to amplification effects recorded after the administration of levodopa. With respect to the LTD-like protocol, the reverse was true (ANOVA for repeat measurements $p<0.001$).

Conclusions. Administration of GABA-ergic agonist diazepam interferes with the induction of associative plasticity in the motor cortex of healthy individuals, as opposed to the use of levodopa, which stimulates these processes. The observed effects point at a potential role of pharmacological modulation of plasticity in humans.

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022

COMBINATION OF ALPHA LIPOIC ACID AND SUPEROXIDE DISMUTASE LEADS TO PHYSIOLOGICAL AND SYMPTOMATIC IMPROVEMENTS IN DIABETIC NEUROPATHY

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Introduction. The management of diabetic neuropathy is still a challenge for physicians. The aim of this study was to assess the efficacy of. a new combination of alpha lipoic acid and superoxide dismutase for the treatment of diabetic neuropathy.

Materials and methods. Methods: The setting of this study was ambulatory (outpatient) care. A prospective, non-randomized, open-label study was conducted in 50 patients with diabetes mellitus and with a deficit in both motor and sensory nerve conduction. Treatment was with a new combination of alpha lipoic acid and superoxide dismutase (ALA600SOD_) for 4 months. Electroneurographic. parameters and perceived pain were assessed at baseline and after treatment.

Results. After 4 months of treatment, patients significantly ($p < 0.001$) improved their electroneurographic parameters and their perception of pain. Best improvements were observed in sensory nerve conduction.

Conclusions. Conclusion: The combination of two powerful antioxidant agents leads to improvement in both subjective and objective parameters in patients with diabetic neuropathy. New profitable directions for investigations are opened for a non-invasive treatment of diabetic neuropathy in the future.

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024

NORMOCALCEMIC HYPERPARATHYROIDISM IN REHABILITATION UNIT

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Introduction. Primary hyperparathyroidism (PHPT) is a common disorder of mineral metabolism characterized by excessive secretion of parathyroid hormone, kidney stones, bone disease and marked hypercalcemia. With the advent of new technology in PTH dosage, the classic presentation of primary hyperparathyroidism with hypercalcemia is not *always present*. The Third International Workshop on the Management of Asymptomatic Primary Hyperparathyroidism described the entity of normocalcemic primary hyperparathyroidism in which the serum calcium is normal but the serum PTH is elevated, in the absence of any secondary cause for PTH elevation (1). Our aim was to evaluate the prevalence of Normocalcemic Hyperparathyroidism in patients admitted to our rehabilitation hospital for fracture or for osteoporosis.

Materials and methods. 184 patients admitted to Habilita Hospital of Sarnico (Bergamo) for fracture or for osteoporosis from January 2010 to December 2010 were studied. At admission we examined the level of serum calcium, phosphate, intact PTH (iPTH assay on the Advia Centaur range 12-72 pg/ml), albumin and creatinin. Calcium concentration was corrected for serum albumin. Vitamin D (HPLC CHROMSYSTEMS range10-20 mcg/L) were also determined. Patients functional outcome was assessed by the Barthel index Score.

Results. In 184 patients (Female 84%, age 78±11, Barthel Index at admission 52±30/100) recovered for osteoporosis (33%) or fracture (67%) we found 42 subjects (23%) with hyperparathyroidism. About 42 subjects with hyperparathyroidism: 36 patients (85%) presented hyperparathyroidism due to chronic renal failure (44%), and vitamin D deficiency (56%). 6 patients (15%) presented normocalcemic primary hyperparathyroidism. Of these patients with normocalcemic primary hyperparathyroidism, 5 presented osteoporosis (83%), and one pelvis fracture.

Conclusions. Our results indicate that about 23% of fractured and osteoporotic patients had hyperparathyroidism, suggesting that this condition may be closely associated with fracture or osteoporosis in elderly people (2). The deficiency vitamin D is largely present in secondary hyperparathyroidism as reported in the literature (3). In our experience we found that all the subjects with primary hyperparathyroidism were normocalcemic so the plasmatic calcemia is not enough to exclude hyperparathyroidism. We suggest to include PTH level in evaluation of osteoporosis and fractures even if the serum calcium is within normal limits. In fact in our experience normocalcemic primary hyperparathyroidism is present in 3% of subjects with fracture or osteoporosis. New information about the natural history of normocalcemic primary hyperparathyroidism are necessary to better understand the effects in bone metabolism and therapeutic management (4).

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025

CLINICAL EFFECTS OF ORTHOTIC FOOT STIMULATION AND POSTURAL THERAPIES ON THE QUALITY OF LIFE IN WOMEN WITH OSTEOPOROSIS

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Introduction. The aim of this observational study was to evaluate whether the use of neuro-sensory stimulation orthotics in continues over time, and administered to the patient in an upright position, is a valid therapeutic option in the treatment of postural imbalance in women with osteoporosis with at least one vertebral collapse, and subsequent modification of physiological biomechanics of the spine.

Materials and methods. The study is an observational study with one year of follow-up. We enrolled 120 patients women with a mean age of 72 years in our study. The patients selected according to eligibility criteria were then divided into two groups named group A and group B. Group A (60 patients) is a control group and group B (60 patients) is experimental group.

Results. Among patients who completed the study, the experimental group there were statistically significant differences between the beginning and end of treatment is about the assessment of pain and disability. For the control group there were improvements but no significant results. In comparing the two groups are also statistically significant differences on the BPI and the Mini OQol, also on the Oswestry Disability Questionnaire. The two groups are also statically significant differences on improving a postural control and the modification of physiological biomechanics of the spine.

Conclusions. This is the first multicentre study about Clinical Effects of stimulation with foot orthotic devices and postural therapies on improving the quality of life in women with osteoporosis. In this study, the correction of foot orthotics with elastic and neurosensory stimulation showed a statistically significant activity on the reduction of pain and disability, improving the quality of life. These results are consistent with our study hypothesis and confirm that stimulation of the foot with a device that acts on receptors in the skin, subcutaneous tissue and muscle, can be a treatment option to improve welfare and reduce the time of illness, also for change the posture of the body system. In addition there have been no side effects.

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026

BODY FATNESS INFLUENCE ON TREATMENT EFFECTS IN PATIENTS WITH SUBACUTE LUMBAL PAIN

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Objective. to assess the influence of the body fatness on the effect of treatment in patients with syndroma lumbale subacutum.

Materials and methods. Prospective study included 73 out-patients (14 male and 59 female), aged 54,71 (12,72) years with lumbal pain. Patients were treated at the Institute of Rheumatology, Belgrade, year 2008/09. The amount of body fat was calculated as body mass index (BMI), as recommended by the World Health Organisation. All patients underwent the same (physical and medicational) two-weeks terapy. The level of pain was measured on a Visual Analogue Scale (VAS) and the functional status was measured on disability Kvebes scale. All measurements were done before and after the specific treatment. Analyses were carried out using SPSS 16.0 (descriptive methods: mean, standard deviation and analytic methods: Wilcoxon and Mann Whitney test).

Results. According to BMI, patients were divided into two groups: Group1 included 17 (23,29%) patients with normal weight (mean BMI 22,95) and Group2 included 56 (76,71%) overweighted patients (mean BMI 35,02). Mean VAS was 71,4 before and 29,05 after the specific treatment for the Group1 and 70,2 before and 36,6 after the specific treatment for the Group2 (p=0,000 and p=0,002 respectively). Mean Kvebes scale was 61,9 before and 36,41 after the treatment in the Group1 and 60,10 before and 34,82 after the treatment in the Group2 (both p=0,000). Comparing the two groups after the specific treatment, there were no differences concerning pain level (p=0,146) and functional status (p=0,123).

Conclusions. The level of pain was decreased and functional status was improved in both of the groups after the treatment. In the investigated group of patients with subacute lumbal pain, comparing patients with normal and increased BMI after the specific treatment, there were no differences with regard to the pain level, as well as to the functional status.

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027

SPONTANEOUS CSF LEAK MIMICKING MOTOR NEURON DISEASE

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Introduction. Bilateral upper limb muscle weakness and atrophy (bibrachial amyotrophy) sometimes referred to as dangling arm syndrome, can be one of the initial presentations of ALS. Spontaneous CSF leaks sometimes may cause extensive elongated intraspinal epidural fluid collections which often appear in the ventral aspect of the dura. In this communication three patients with documented CSF leaks and extensive ventral epidural fluid collections are reported who presented with bibrachial muscle weakness and atrophy resembling motor neuron disease.

Materials and methods. Three patients, a 19 year old woman and two men age 48 and 28 years, presented with weakness and atrophy of upper extremity muscles. The duration of symptoms at the time of initial evaluation by us was approximately two years for each patient. Myotomal involvement along with chronic neurogenic changes on EMG were present at C4-C8 (with C4,C5 predominating) in one patient, C7-T1 in another patient and C5-C7 in the third patient. Two patients also had orthostatic headaches. There no sensory symptoms, no pyramidal tract findings, problems with sphincter control. On head MRI there was imaging evidence of brain sag in two patients and spine imaging showed extensive ventral epidural fluid collections extending from cervical to the lumbar area with reduced anteroposterior diameter of the cervical cord. Dynamic CT-myelography revealed the site of the CSF leak at T12-L1 in one patient, at L1-L2 in another and atL4 in the third patient.

Results. Response of the orthostatic headaches to epidural blood patches had been at best partial and not durable. Each patient eventually underwent surgical repair of the leak. Surgical treatment has been recent in one of the patients and follow up is pending. The other two patients showed notable improvement in upper limb weakness along with resolution of epidural fluid collections.

Conclusions. Bibrachial muscle weakness and atrophy that might mimic motor neuron disease can sometimes be seen in connection with extensive ventral epidural fluid collections as the result of a spontaneous CSF leak. Repair of the leak will be beneficial in halting the progression and reversing at least some of the weakness.

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028

REHABILITATION OF SEVERE BRAIN INJURY: EXPERIENCE IN ASL 8

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Introduction. The healthcare rehabilitation approach for people in a vegetation state represents social and medical important problem. The rehabilitation of patients (vegetative state, minimum consciuos), have to guarantee rehabilitative interventions, intensive, focused and proportional to the need of the difference evolution phases of the pathological process with the objective to guarantee the highest functional recovery. By the synergy of the different departments, operating on the severe brain injury, has permitted, in the last years, good results with a vegetative state reduction during the rehabilitation. The effectiveness of the specialized rehabilitative activity is subject to a strong integration between hospital and territory.

Materials and methods. The critical moments in the management of patients with severe acquired brain injury (GCA) occur in two stages: Early transfer from the Critical Area (Neurosurgery and resuscitation) to the department of rehabilitation of the CGA. Resignation from the rehabilitation phase and reintegration in the residence area. The rehabilitation of CGA requires skilled professionals and an health rehabilitative network that accompanies the patient from the acute phase to return at home.

Results. The rehabilitative professionals of our AUSL, acting with the involvement of families, works in team (Equipe rehabilitation) to elaborate individual rehabilitative projects. These individual projects, are brought to conclusion with individual programs related to the overall critical situation of the patient. The rehabilitation path, are shared by professionals and family members.

Conclusions. The CGAs are an important cause of residual disability, an acute disease that affects many functions and that requires a complex intervention specialist, a specific organization health-social rehabilitation and territorial assistance. The objective of our activity is to guarantee the maximum recovery to the subject with severe CGA and the mission of our units is to rehabilitate the subject in its own context of life.

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029

THE IMPORTANCE OF RESPIRATORY REHABILITATION PRETERM NEWBORN- CASE REPORT

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Introduction. Preterm newborn child is born before the 37 weeks of gestation. Complications that most commonly occur in these children were from the respiratory system and are manifested as respiratory distress or bronchopulmonary dysplasia. Afebrility child's, respiratory rate below 60/min., SaO2> 9, the absence of intracranial hemorrhage were prerequisites that must be met to start a respiratory rehabilitation. With the procedures of respiratory rehabilitation in premature newborn starts while the child is in an incubator. We present a case of a newborn gestational age 30 weeks born emergency Caesarean section in the second pregnancy complicated gestational diabetes mellitus. Body weight at birth was-1550gr and Apgar scores 5/7. The child was 16 days in the intensive care unit in respiratory support, 9 days in a mode of mechanical ventilation was applied and 7 days HOOD oxygen therapy. Respiratory rehabilitation is started, by the stabilization of general condition, including gentle massage of the chest, turning on side and exercises for the chest expansion. Respiratory rehabilitation program was carried out twice a day. On the tenth day the child is separated from the ventilator. HOOD oxygen therapy was continued and started intensive physical treatment using the aerosol therapy, chest massage, positional drainage, breathing exercises. The child was dismissed after 28 days of hospitalization with satisfactory gas analysis in good condition.

Summary. Use of respiratory rehabilitation with the premature newborn intensive care and treatment measures, shortens stay in intensive care and improving recovery of these small patients.

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030

ANALYTICAL LOOK AT YOGA SPINAL FLEXION POSITIONS AND RISK OF VERTEBRAL COMPRESSION FRACTURE IN OSTEOPENIA OR OSTEOPOROSIS

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Introduction. Through analytical look at biomechanics of yoga flexion exercises we can raise awareness of the effect of some of these strenuous positions on osteopenic or osteoporotic spines. We previously described subjects with known osteoporosis in whom vertebral compression fractures (VCFs) developed after commonly prescribed spinal flexion exercise (SFE) and recommended that SFEs not be prescribed in patients with spinal osteoporosis.

Materials and methods. This report describes several cases of healthy persons with low bone mass and yoga-induced pain or fracture. The development of pain and complications with some yoga positions in the patients with osteopenia leads to concern that fracture risk would increase even further in osteoporosis. Although osteogenic exercises have been shown to be effective for improving bone mineral density and decreasing fracture risk, our subjects had development of VCFs and neck and back pain with well intended yoga exercises. This finding suggests that factors other than bone mass should be considered for exercise counseling in patients with bone loss and age related challenges. The increased torque pressure applied to vertebral bodies during SFEs may be a risk. Exercise is effective and important for treatment of osteopenia and osteoporosis and should be prescribed for patients with vertebral bone loss. Some yoga positions can contribute to extreme strain on spines with bone loss. Also reduction of resilience of spine with aging exaggerates the compression forces applied to the vertebral bodies.

Results. Assessment of fracture risk in older persons performing SFEs and other high-impact exercises is an important clinical consideration. All patients had osteopenia, were in good health and pain-free, and had started yoga exercises to improve their musculoskeletal health. New pain and fracture areas occurred after participation in yoga strenuous position exercises.

Conclusions. Spinal curvature and the intensity of compressive forces on spine are determined by the shape of the vertebral bodies and back muscle strength. Vertebral fractures can occur more readily in persons with osteoporosis as a result of bone loss and postural changes when spinal flexion forces are applied.

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031

THE RELATIONSHIP BETWEEN THE PSYCHOLOGICAL EFFECTS AND THE HAND FUNCTION IN PATIENTS WITH TRAUMATIC HAND

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Introduction. The nerve and tendon injuries may cause activity limitation and decrease in participation, as well as psychological interactions due to trauma (1,2,3).

Purpose: To evaluate the effects of trauma in acute and chronic period, and the relationship between the improvement of the hand functions and the degree of the person's influence from the accident in patients with hand injury due to trauma.

Methods. Age, duration of trauma, the injured hand and the incident causing the trauma was recorded. The functional states of the patients were evaluated with Disabilities of the Arm, Shoulder and Hand Quastionnare (DASH), and the psychological interaction was evaluated with Beck Depression Inventory (BDI), and the influence from the accident was evaluated with Impact of Event Scale-Revised (IES-R) at both the acute and chronic periods.

Results. The study was finalized with 54 patients (50 male, 4 female). The age average was 31.04±9.8 years. 30 patients were injured in their dominant, the other 24 were injured in their nondominant hand. The incident causing trauma was identified as self inflicted injury for 16 patients, work related accident for 20 patients, house chores related accident for 13 patients, hobby related accident for 4 patients and trafic accident for 1 patient. The DASH, BDI and IES-R scores were found statistically significantly low at the chronic as compared to acute period ($p<0.05$). Comparing patient groups with injuries in either their dominant or non-dominant hand, we observed that while there was no significant difference in average improvement of BDI and IES-R ($p>0.05$) for both groups, patients with injuries in their dominant hand exhibited significantly better ($p<0.05$) average improvement of DASH as compared to the other group. It was observed that the average improvement IES-R hyperarousal subscale and BDI were significantly higher ($p<0.05$) in patients with self-inflicted injuries by punching glass as compared to patients with injuries due to accidents at home or while performing a hobby. All other avearage improvements did not show any significant difference ($p>0.05$).

Conclusions. Our study shows that the effect of the accident decreases at the chronic period in patients with traumatic hand injuries, and as the functional usability of the hand increases, the psychological interaction decreases.

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032

RELATIONSHIP BETWEEN DISABILITY RATES AND QUALITY OF LIFE IN PATIENTS WHO APPLIED TO THE HEALTH COMMITTEE FOR THEIR IMPAIRMENT IN THEIR LOWER EXTREMITIES

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Introduction. The disability rates of patients with disabilities of any reason are calculated by the health committe in our country. According to these rates, tax allowance, disabled person Identification Card, disability pension, retirement, and special education are offered.

Aim. To evaluate the relationship between disability rates and quality of life for patients applying to the health committee regarding impairment in their lower extremities.

Material and Methods: Our study considered 100 patients; 38 female, 62 male. Relationship between calculated disability rates and quality of life were examined via Health-Related Quality of Life 15D (HRQoL 15D).

Results. Compared to females, male scores were significantly higher for mobility, sleeping, usual activities, vitality, discomfort, depression, distress and total score. Compared to non-workers, workers scores were significantly higher for usual activities, mental function, depression, distress, sexual activites and total scores ($p<0.05$). There was no relationship between education, marital status, age and qualiy of life ($p>0.05$). Severity of disability rate was correlated with mobility, breathing, sleeping, eating and excretion subgroups ($p>0.05$), while there was no relationship with the total score ($p>0.05$).

Conclusion. We think that disability rates calculated by the physiatrist assess the patients' organic disorders that maps to a subset of quality of life subgroups such as mobility or usual activities, however as mental and cognitive functions are not present in these assessments, they fail to reflect quality of life of the patients in its totality.

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ASSESSING FUNCTIONAL RECOVERY IN EARLY REHABILITATION SETTINGS FOLLOWING CORONARY ARTERY BYPASS GRAFT SURGERY

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Introduction. Assessment of patient's functional status in early postoperative period is a delicate task. Measures that can be used for that purpose are walk tests and functional status questionnaires. Objective: To determine correlation of different functional tests administered preoperatively and two minute walk test (2MWT) done postoperatively. To detect predictors of early functional recovery measured with two minute walk test.

Materials and methods. We examined ninety eight consecutive patients hospitalized for an elective coronary artery bypass graft surgery. Functional status was assessed preoperatively using Duke Activity Status Index questionnaire (DASI), generic health related quality of life questionnaire and two minute walk test. Prior to discharge from the hospital, two minute walk test was repeated along with VAS for intensity of pain. Statistical analyze was done using Pearson's correlation coefficient, T test and multivariate regression analysis.

Results. Distance walked in 2 minutes decreased significantly postoperatively ($p< 0.001$). There was significant correlation between DASI and SF -12 preoperatively ($r=0.6$ $p<0.001$) and DASI preoperatively with 2MWT postoperatively ($r=0.4$ $p<0.001$). 2MWT postoperatively showed good correlation with intensity of pain ($r= -0.42$ $p<0.001$) and age ($r= -0.35$ $p<0.001$). There were no significant correlation with comorbidity, number of bypasses or postoperative complications. Multivariate regression analysis showed that the age was the strongest independent predictor of functional recovery ($\beta= - 0.33$ $p<0.05$) and that values of DASI preoperatively had moderate importance in prediction of functional status ($\beta=0.238$ $p< 0.06$).

Conclusions. 2MWT was sensitive to change postoperatively. Significant correlation of 2MWT postoperatively with DASI preoperatively, age and VAS, as well as prediction capacity of age and DASI, gives us possibility to utilize these parameters in early rehabilitation program in order to achieve maximal functional recovery of patients.

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035

THE REHABILITATION OF COLLES FRACTURE: LITERATURE REVIEW

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Introduction. A Colles fracture is a transverse linear fracture of the distal radius, 20 to 35 mm proximal to the articular surface, with dorsal angulation of the distal fragment. Among the scientific community treatment and rehabilitation of Colles fracture remains a topic of much discussion. This work consists of a literature review of scientific evidence that supports the role of rehabilitation in the treatment of Colles fracture.

Materials and methods. In carrying out this bibliographic review we proceeded to search for original articles in scientific databases (Pubmed / Medline, Science Direct, Cochrane Library) using different keywords: Colles' fracture, fracture of the distal radius, rehabilitation.

Results. It is generally accepted that early mobilization of joints intercarpal increases mobility and radiocarpal ligaments and articular capsule prevents the adherence of soft tissue and decrease edema, speeding recovery of muscle strength and range of motion. However there are still some reservations about the role of rehabilitation in the prevention of some sequelae of such fractures, such as reflex sympathetic dystrophy, tenosynovitis of the extensor carpi ulnaris, median nerve neuropathy and early arthrosis of the radiocarpal joint.

Conclusions. Thus, we conclude that early rehabilitation shortens the time of functional recovery. Yet they are still needed more studies to establish protocols for action in this type of fracture.

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036

EARLY REHABILITATION OF PATIENTS WITH ELECTIVE RECONSTRUCTION OF ABDOMINAL AORTIC ANEURYSMS (AAA)

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Introduction. Abdominal Aortic Aneurysm (AAA) is a focal dilatation of the greatest blood vessel in abdomen. AAA is usually the consequence of atherosclerosis, infection or trauma. Smoking and high blood pressure fasten the formation of AAA. The main target of this research is to indicate the difference between postoperative recovery (after surgical operation of AAA) the groups of smokers to the groups of nonsmokers, using measures of early rehabilitation.

Materials and methods. Comperative clinical retrospective study dealth with 224 patients devided into two groups, who were electively operated of AAA from january to december 2011. at the Institute of Cardiovascular Diseases – Dedinje, Serbia, on the Department of Vascular Surgery. The firs group consisted of 164 patients who were smokers or former smokers (with different damage of pulmonary function because of long term use of nicotine) where resection of AAA in infrarenal region and interposition of graft was done. The second group consisted of 60 patients non smokers. All patients had AAA larger than 50 mm in diameter or the presence of intramural thrombus in the wall of abdominal aorta, which is also the indication for surgical operation.

Results. The study showed statistically significant shorter stay on unit for mechanical ventilation non smoker than smoker (4-6hours) because of less presence of mucus and better gas excange there was no need of the use of inhalation therapy. Number of days spend at the unit of intensive care less than 48 hours. Of total numberof patients,188 were men average age 65,71, women 36 their average age 68,42, exitus letalis 3 (1,34%).

Conclusions. Patients which had elective operation AAA and belonged to a group of smokers, spent more time on the unit for mechanical ventilation. They needed aplication of inchalation therapy with bronchodilatators and sekretolytica. They had extended stay at the unit of intensive care. Those patients also extended the total number of days at the department of Vascular Surgery.

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A COMBINED ULTRASOUND (US)-GUIDED PERCUTANEOUS TREATMENT OF EPITROCHLEITIS: A RANDOMIZED CONTROLLED TRIAL

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Introduction. Epitrochleitis is a common cause of elbow pain in golf players. The treatment of this disorder varies considerably and ranges from conservative treatments to surgical intervention. The purpose of our work was

to compare patients with clinical diagnoses of epitrochleitis treated with a combined US-guided percutaneous approach, based on dry needling and local steroid injection and similar patients treated with either local steroid injection or dry needling.

Materials and methods. IRB approval and informed consent were obtained. 30 patients suffering from epitrochleitis underwent to US-guided percutaneous treatment: 10 (7 males, 3 females; age 38.7±7.4[mean±standard deviation]) were treated with dry needling and local steroid injection together, 10 (6 males, 4 females; age 43.2±6.8) with dry needling only and 10 (3 males, 7 females; age 35.2±9.4) with local steroid injection only. A visual analogue scale (VAS from 0 to 10) was used to evaluate the degree of pain at baseline and at 2, 12, 24, 36, and 48 weeks after the procedure; US scanning was performed at baseline, at 24, and 48 weeks. Kruskall Wallis test was used.

Results. No immediate or delayed complications were observed. Patients who underwent steroid injection only had a prompt pain decrease but limited effects on a long-term basis (at baseline VAS=6.9±0.3, at 2 weeks VAS=1.8±0.5, at 12 weeks VAS=4.0±0.3, at 24 weeks VAS=4.8±0.7, at 36 weeks VAS=5.3±0.6 and VAS at 48 weeks=7.1±0.3). Patients treated with dry needling only had a delayed decrease of symptoms but permanent long-lasting effects (at baseline VAS=7.6±0.4, at 2 weeks VAS=7.4±0.3, at 12 weeks VAS=3.1± 0.5, at 24 weeks VAS=1.1±0.8, at 36 weeks VAS=0.8±0.4 and at 48 weeks VAS=0.2±0.3). Patients treated with the combined procedure had a faster and more permanent decrease of symptoms (at baseline VAS=7.1±0.4, at 2 weeks VAS =2.3±0.6, at 12 weeks VAS= 2.6, at 24 weeks VAS=1.0±0.9, at 36 weeks VAS=0.7±0.6 and at 48 weeks VAS=0.1±0.5; p<.01 for all).

Conclusions. Patients treated with the US-guided combined procedure had a better outcome than other groups and pain relief was faster and more permanent.

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038

ONE-YEAR OUTCOME OF ULTRASOUND (US)-GUIDED PERCUTANEOUS TREATMENT OF ACHILLES TENDINOPATHY: RESULTS OF A RANDOMIZED CONTROLLED TRIAL

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Introduction. Achilles tendinopathy is a common cause of lower calf pain in general population. The purpose of our work was to compare the short- and long-term outcome of US-guided percutaneous treatment based on dry needling and peritendinous injection of steroid in these patients, compared with similar patients treated with simple steroid injection or dry needling.

Materials and methods. IRB approval and informed consent were obtained. Among 45 patients referred for US-guided treatment of Achilles tendinopathy, 15 (8 males, 7 females; age 45.7±8.6 [mean±SD]) were treated with dry needling and local injection of steroid together; 15 (7 males, 8 females; age 47.2±11.8) were treated with dry needling only; 15 (11 males,14 females; age 50.7±10.0) were treated with local injection of steroid. Pain was assessed using the visual analogue scale (VAS) at baseline and at 7, 14, 30, 90, 180, 360 days after the procedure. Kruskall Wallis test was used.

Results. Patients treated with the combined procedure had a faster and permanent decrease of symptoms (VAS at 7 days=1.1±0.5 and VAS at 360 days=0.0± 0.1). Patients treated only with injection of steroid had a quick decrease of pain that was not permanent on a long-term basis (VAS at 7 days=1.1±0.6 and VAS at 360 days=5.4± 0.4). Patients treated with needling only had a permanent but slower decrease of symptoms (VAS at 7 days=5.6±0.6, at 30 days VAS=2.8± 0.4, at 90 days VAS=0.4±0.8, and at 360 days VAS=0.1±0.2). Difference was statistically significant (p<.001). No immediate or delayed complications were observed.

Conclusions. Patients treated with the combined procedure had a better outcome than other groups. Pain relief is faster and more permanent compared with slower or not stable results obtained in the other patients.

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039

ULTRASOUND-GUIDED TREATMENT OF TRIGGER FINGER: AN ALTERNATIVE APPROACH

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Introduction. Trigger finger is a common disorder of the hand, characterized by snapping or locking of the flexor tendon of the affected finger, associated with dysfunction and pain. Steroid injection or surgery are currently considered the standard of treatment. Recently, an ultrasound-guided injection technique of hyaluronate has been described. Our aim was to compare such a technique to a different US-guided approach.

Materials and methods. Twenty-six patients (13 females; mean age 42±7.6 years) who presented at our department to be treated for trigger finger were included in our study. They were treated by US-guided intra-sheath injection of steroid and a 15-day delayed US-guided intra-sheath injection of hyaluronate. Patients were priory randomized into two groups. Group A (xx females,, mean agexx) was treated using an already-described technique, injecting the drugs using the needle parallel to the tendon course, while group B was treated with a new technique, that implies the injection of the drugs using the needle perpendicular to the tendon course. For each patient, we noted the efficacy of the treatment at 15,30, 60, and 120 days by a semi-quantitative scale (from 0 to 3), pain during procedure evaluated using a VAS scale (pain score from 0 to 10), and the time of the procedure. K and U Mann-Whitney statistics were used.

Results. No immediate or delayed complication were observed. No differences were observed in terms of treatment efficacy between group A and B at all time-points (median value=3 for both groups, p=n.s.). Pain during procedure was significantly lower in group B (mean VAS score=5.8±2.2) than in group A (7.2±2.4; p<.012). Procedure time was significantly lower in group B (mean time= 84±24 s) than in group A (122±32 s; p<.021).

Conclusions. US-guided treatment of trigger finger is effective using both parallel and perpendicular approach. This latter allows for a significant reduction of procedure time and pain perceived by patients during the procedure.

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040

MODEL OF PMR RESIDENCY CURRICULUM PRESENTATION BASED ON ICF

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Introduction. Physical Medicine and Rehabilitation (PMR) is a recent specialization that has some concepts developed before the twentieth century. The two World Wars were the trigger points to this branch of medicine evolve as a response to the need of obtaining the fastest recovery for the injured soldiers. Therefore there is now a consensus that we should find a common conceptual body to our specialty that would allow us to improve to communicate better in different ways, including the residents' curriculum presentation. The state of art analysis of PMR points out the current importance of ICF (International Classification of Functioning). The curriculum presentation is traditionally based on the International Classification of Diseases (ICD-10) which is no longer adjusted, so the authors of this paper defend that a new model based on ICF should be performed. This model should reflect more the need of a PMR specialist to know the disease consequences divided by domains (impairment, activity limitation and participation restriction).

Materials and methods. Starting from the classical model of curriculum presentation, being aware of the new challenges presents on PMR graduation (in terms of diagnostic and therapeutic procedures), we tried to organize them based on a new model (ICF).

Results. Concrete models of curriculum presentation will be presented and discussed. We will show the advantages on improving the comprehension of the different abilities that the PMR resident is supposed to handle during the graduation.

Conclusions. ICF is the most correct conceptual model to clarify the particularities of PMR on their different fields of action.

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International Classification of Functioning, Disability and Health (ICF).

041

COGNITIVE STYLES IN PATIENTS WITH ACQUIRED BRAIN DAMAGE

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Introduction. The present study give a first contribution about the preference stated by patients in the use of cognitive strategies after acquired brain injury. The first aims of the study was to acquire preliminary data in patients with brain lesions associated with cognitive impairment. More precisely, we investigated first the cognitive style on the basis of cognitive deficit following a diffuse/focal lesion. After these preliminary observations about cognitive deficits, we aimed to acquire preliminary descriptive data of an eventual link between cortical localization and use of visual or verbal cognitive styles in patients.

Materials and methods. *Participants:.*

– A group of 53 patients with acquired brain injury and consequent cognitive deficit.s.

– A group of 48 patents with focal and diffuse brain damage.

– All patients had been submitted to a clinical neuropsychological assessment by administering the same set of standardized tests devised for a preliminary first-level evaluation and tests for a second-level evaluation; this led to classify patients on the basis of seven kinds of deficits: attention deficit, memory deficit, executive function impairment, visual neglect, other deficits in visuo-spatial cognition, language deficit and apraxia. Patients were administered three instruments.:

– The *Verbalizer-Visualizer Questionnaire* (VVQ) was submitted to assess whether they were verbalizers or visualizers. The *Questionnaire on Visual and Verbal Strategies* (QSVV) was administered to measure the "pure" preference for (but not the efficacy in) the verbal/visual mode of thinking, concerning everyday-life activities in which respondents might think in propositions or in pictures.

– The *Battery on Imagination and Perception* (BIP) was administered to evaluate the presence of possible perceptual and imaginative deficits in different domains by patients with neglect or other visuo-spatial deficits after some years from the triggering event and after the application of the rehabilitation training.

Results. We highlighted the existence of relations between cognitive deficits and flexibility in the use of visual and verbal strategies and relations between the lesion site and the tendency to use such strategies. Concerning the relationship between cognitive strategies and deficits, results showed a high tendency to mentally visualize in patients with visuo-spatial neglect and a low tendency toward visualization in patients with attention and memory deficits. Concerning the relationship between cognitive styles and focal lesion, decreased use of visual strategies, as well as preference for verbal strategies, occurred only in patients with diffuse lesions in the parietal and occipital lobes and sub-cortical areas. Focal lesions failed to interfere with the use of visualization.

Conclusions. The study enabled us to give a first contribution about the preference stated by patients in the use of cognitive strategies after brain injury. We highlighted the existence of significative relations between flexibility in the use of visual and verbal strategies and the lesion site. Damage in a specific area dedicated to managing a given strategy does not lead to its extinction, but the use of this strategy seems to be bounded more to the necessity to compensate for a deficit rather than to the injury in the corresponding brain area. Results are important because this study suggested that patients can benefit from an imagery training, that someone might believe to mismatch with the cognitive features of the patients' cognitive functioning.

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042

IDIOPATHIC SCOLIOSIS REHABILITATION TREATMENT: STATE OF THE ART

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Introduction. In the field of idiopathic scoliosis, for a long time conservative treatment has been quite neglected. In the last years, a new Scientific Society (international Society on Scoliosis Orthopaedic and Rehabilitation Treatment) has born to deal with a scientific approach to patients with this spinal disease. As a consequence, scientific papers has increased and Clinical Guidelines has been produced, that are of interest for PRM specialists.

Aim. of this paper is to verify the actual situation of the literature in this field, and present the most up-to-date evidence based clinical approach to idiopathic scoliosis.

Materials and methods. A bibliometric review, based on GoPubMed web site, has been performed. Moreover, a systematic review of the literature of the most important papers with results on rehabilitation approaches (bracing and exercises) has been conducted. The search included also Clinical Guidelines.

Results. The actual situation of research in the field shows an increase of interest since 2000, after a continuous decrease started in the mid 80ies. Two systematic Cochrane Reviews has been identified; 5 Clinical Guidelines, one of which published in 2011 and resuming the previous ones. Moreover, some other systematic reviews have been found, and some studies of high clinical impact, respecting the best methodological criteria for bracing. According to these results, a comprehensive painting of the state of the art can be given, resuming the best evidence literature with a clinical practice approach.

Conclusions. Scoliosis rehabilitation is not any more a neglected area of rehabilitation treatment. An evidence based clinical practice approach can be offered on reliable basis.

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043

EARLY REHABILITATION AFTER LUNG DECORTICATION

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Introduction. Pleural empyema commonly affecting younger, radon viable population, mostly males. In these patients, with the goal of treatment is performed dekortikacja lungs.

Materials and methods. We retrospectively followed 54 male patients, average age 46 ant pain, treated and operated in the period from 2010 to 2012 at the Clinic for Thoracic Surgery, KCS. 43 of them were smokers over 20 years. All patients had early respiratory rehabilitation from day one, carried out by the doctors and therapists with the Department of Physical Medicine and Rehabilitation, KCS.

Results. Early postoperative complications occurred in 6 patients (11%), of which 4 lobe atelectasis, and bronchopneumonia 2. Respiratory function in 52 patients (measured one month after surgery) returned to normal predicted values, and only 2 patients remained mild restrictive pormećaj. Within the first 3 days bolenicima returned full range of motion with the hand operated hand, except for 4 of them in which the range of motion back in the second week of operation.

Conclusions. Early rehabilitation is largely preventable, ail and treat postoperative complications. Today, thanks to modern techniques and devices that reduce the number of multiple complications compared to a decade ago.

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044

THE INFLUENCE OF LOCOMOTOR TREATMENT USING ROBOTIC BODY-WEIGHT-SUPORTED TREADMILL TRAINING ON REHABILITATION OUTCOME OF PATIENTS SUFFERING FROM NEUROLOGICAL DISORDERS

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Introduction. Locomotor treatment using a robotic-assisted gait training (RAGT) device is evolving as a promising treatment concept for patients with severe neurological diseases. Usage of RAGT could potentially augment recovery of ambulation in neurological impaired patients by increasing duration of training and reducing the labor-intensive assistance provided by the physical therapists. Herewith we describe our experience using a RAGT in the rehabilitation treatment of stroke, spinal cord injury (SCI) and multiple sclerosis (MS) patients.

Materials and methods. We conducted 3 controlled studies; a non-blinded prospective, randomized, controlled study in subacute stroke patients, a single experimental group of SCI patients with matched historical control and a prospective randomized controlled trial included 32 MS patients with EDSS between 5 to 7. In the stroke study 29 patients were treated by RAGT and 27 were treated by regular physiotherapy. RAGT treatment was administered 3 times a week for 30 minutes, combined with regular physiotherapy for 6 weeks. In the SCI study, 28 patients were treated by RAGT, 2-3 times a week, concomitantly with regular physiotherapy. As control, for each patient, we matched a comparable patient treated in the same department in previous years. In the MS study, 15 patients were treated by the RAGT and 17 treated by conventional physiotherapy. Both groups received 12 treatment sessions over six weeks and all tests were performed at baseline, post treatment, 3 and 6 months thereafter by a blinded rater. The main outcomes were the ability to walk independently, assessed by the Functional Ambulatory Capacity scale (FAC) in the stroke study, the ASIA impairment scale (AIS), the spinal cord independence measure (SCIM) score, the walking index for spinal cord injury II (WISCI II) and gait, functional and quality of life parameters in the MS study.

Results. In the stroke trial, in comparison with the control group, the RAGT group exhibited significant improvement in their ability to walk independently, as expressed by a higher FAC score ($p<0.01$) and in their neurological status according to NIHSS ($p<0.01$). In the SCI trial, both groups showed a significant improvement in both the FAC score and WISCI II score ($p<0.01$) without differences between the groups. The SCIM score improved significantly better in the RAGT patients (30 ±20 points) as compared to the controls (21±14 points, $p=0.05$). In the MS trial, some gait parameters improved significantly following the treatment however at each time point there was no difference between the groups. Both FIM and EDSS scores improved significantly after the treatment without difference between the groups. At 6 months, most gait and functional parameters returned to base line. There were no side effects of the RAGT treatment and the patients reported subjective improvement in spacticity and gait ability.

Conclusions. Our studies showed that in 3 different populations the treatment with RAGT was beneficial. In stroke patients, RAGT treatment combined with regular physiotherapy was superior to regular physiotherapy alone. In SCI patients the combination of RAGT with regular physiotherapy allows severely affected SCI patients to perform locomotor training efficiently and in MS patients we found that RAGT is feasible and may be an effective therapeutic option**.** Although some of the results were encouraging, there is still uncertainty regarding proper patients' selection, timing and protocol for RBWTT treatment. More large randomized controlled studies are needed in order to answer these questions.

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045

FIELD TEST OF A HOME-CARE ROBOT FOR ELDERLY ASSISTANCE: FIRST EXPERIENCES

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Introduction. Growing number of the old people living alone in their homes requires to develop assistive technologies so as to help them to remain longer and safer at their own home. The DOMEO-project of the Ambient Assisted Living Joint Programme of the European Union and its member states aims to develop a companion robot, named Kompaï, giving cognitive help to the elderly. Functions provided by the robot are: navigation in the apartment including obstacle detection and avoidance, automatic docking to the charger, carrying small objects, control by voice and touch commands, speech recognition and synthesis, emergency signal, video or audio-call, weather forecast, entertainment, agenda, writing a shopping list, possibility of remote controlling for the caregiver, monitoring blood pressure and body weight. Users can communicate with the robot by voice commands or using a simplified touch screen.

Materials and methods. Field tests of the robot are going on under real conditions. Robots are deployed at old people's home for a three-month-long period. This presentation summarizes the experiences of the first tests at four old persons (mean age 81.5 years). Two of them have never used a computer.

Results. Subjects used the robot altogether 322 days. The agenda, the web browser and the navigation function were most often selected. The weather forecast, the web browser and the audio-video call function proved to be the most reliable. The use of the emergency signal was not necessary during the testing period. The old users turned to the robot with some fear at the beginning, but during the use the acceptance of the device increased highly. Technical problems occurred with the navigation and the Hungarian speech recognition at the start of the tests.

Conclusions. Home-care assistive robots can provide services for the elderly in several fields. Certain functions of the tested robot, like speech recognition, self-localization of the robot must be improved according to the experiences of the field test. Authors expect after overcoming the present weaknesses, such robots can become useful companion of the old people.

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046

EFFECTIVENESS OF PHYSICAL THERAPY PROGRAMS IN IMPINGEMENT SHOULDER SYNDROME

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Introduction. The aim of this study is to demonstrate the effectiveness of physical therapy programs on patients' daily living activities, which is administered to patients with impingement shoulder syndrome. Material method: A physical therapy program consists of hotpack, ultrasound, transcutaneous electrical nerve stimulation, and exercise. For the functional assessment of the shoulder, Constant Scale, Shoulder Disability Questionnaire (SDQ), Shoulder Pain Disability Index (SPADI) and Western Ontario Rotator Cuff index (WORC) were used. The clinical evaluations were performed at baseline, at the end of the treatment. Result: In this study, 44 patients (33 females, 11 males) received. All patients showed statistically significant differences as compared to baseline for all parameters at the end of the treatment ($p<0.001$).

Conclusions. These results suggested that physical therapy modalities are effective on daily living activities.

047

COMPARISON OF EFFICIENCY BETWEEN HIGH INTENSITY LASER THERAPY (HILT) AND INTERFERENTIAL CURRENT (IC) IN PATIENTS WITH KNEE OSTEOARTHRITIS

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Osteoarthritis is a multifactorial joint disease with the onset of pain, deformity, disability and reduced quality of life. The knee osteoarthritis is the most frequently affected sites of osteoarthritis. The effect of High Intensity

Laser Therapy (HILT) are stimulates deep tissue and metabolism of the cells by photocemically effects, slows down transmission of the pain and increase productions of endogenous opiates which results in reduced the pain. Interferential Current (IC) also have analgetic, antiinflamatory and antiedemic effects. The analgetic effects is based on stimulation of sensoric "AB" neurofibers which activate the interneurons in the back horn of the spinal column, which blocks the pain stimulus towards the higher parts of the CNS. The main goal of this article was to compare the efficiency of High Intensity Laser Therapy (HILT) and Interferential Current (IC) on pain and functional ability in patients with knee osteoarthritis. All patients had X-ray scans of the knee joint and stage of knee osteoarthritis was gradueted by the Kellgren-Lawrence 0-4 scale. Patients were divided into two groups. In both groups was unilateral knee osteoarthritis, grade 2 and 3 by the Kellgren-Lawrence scale. Group "A" had 50 patients who were treated with High Intensity Laser Therapy - HILT (wave lenght, frequency, and duration by the protocol). In group "B" there was 50 patients treated with Interferential Current (IC). Both groups had medical exercise of thigh muscles, massage with ice and treatment lasted for ten days. Specific test were given for testing the efficiency of both therapies before and after the treatment. Pain intensity was evaluated with horizontal visual analogue scale (VAS) and specific Lequesne functional index we used for review physical function. The results have shown a stastistically greater analgetic efficiency and functional improvement in patients treated with High Intensity Laser Therapy (HILT) compared to patients treated with Interferential Current (IC). Nonpharmacological therapies are part of all protocols for treating knee osteoarthritis. So in physical therapy of the knee osteoarthritis we find the aplication of High Intensity Laser Therapy (HILT) is reliable and efficient option.

048

COGNITIVE FUNCTIONS AND PRESBYPHAGIA

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Introduction. Aging causes physiological and biological alterations in the oro-pharyngeal-laryngeal system which lead to presbyphagia. Furthermore, cerebral atrophy and metabolic decrement in the nerve structure impair cognitive functions. This study presents cognitive and swallowing evaluation and also investigates the correlation between this two competences.

Materials and methods. 16 people were involved (15 women and 1man) whose age ranges from 69 to 97. The people were selected according to criteria of inclusion/ exclusion established. The sample submitted to screening for cognitive deterioration with MMSE and to swallowing evaluation with Protocollo di Valutazione Morfo-funzionale (Amitrano) sensitized with oxygen saturation monitoring and with M.D. Anderson Dysphagia Inventory, MDADI.

Results. All the people examined showed cognitive alterations with different levels of gravity. The evaluation of morpho –functional aspects of swallowing has confirmed the data reported in medical literature. Alterations occur in the whole of oral cavity and affect motility and sensitivity and reflex responses. The data collected from eating tests clarify the deglutition behavior of the elderly patients and its characteristics. The semisolid consistency were more suitable and better accepted by most patients while the solid one was rejected by 78%of the sample.

Conclusions. Statistical data of correlation (p= 0,599) reveal that there is a strong connection between cognitive functions and swallowing which demonstrates that the greater is the alteration of the cognitive functions the more seriously deglutition functions are affected. On the contrary the results collected from the self-evaluation questionnaire and cognitive evaluation do not reveal a significant correlation. The limits of the present study lie in the small and homogeneous gender sample and in the absence of instrumental evaluation.

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050

TRAPEZIOMETACARPAL OSTEOARTHRITIS: PAIN RELIEF AND FUNCTION RECOVERY AFTER INTRA-ARTICULAR INJECTIONS WITH SODIUM HYALURONATE (MW 500-730 KDA)

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Introduction. Hand osteoarthritis (OA) is a highly prevalent disease, and TMCJ is commonly targeted by OA. With respect to the long-term results, Hyaluronic Acid (HA) seems to be the better alternative in the treatment of TMCJ OA, even with a single injection (1). HA injections were found to be effective in reducing pain and improving fine hand function. The purpose of this retrospective open-label study was to evaluate the efficacy and tolerability of i.a. injections of HA for the treatment of pain and disability due to TMCJ OA. Data from the study were discussed based on a review of the current news on the physiological effects of HA.

Materials and methods. Fifty-eight patients, 50 women (86.2%) and 8 men (13.8%), aged between 40-75 years, suffering from TMCJ OA and classified as K-L grades 2-3 as per standard X-ray, were included. The cases with known inflammatory arthritis, previous thumb trauma and intra-articular (i.a.) injections with corticosteroids were excluded. Primary endpoints were: pain (VAS), NSAID intake, radial and palmar abduction of thumb (degrees), pinch strength (Kg/hand dynamometer). Between Jan. 2000 and Dec. 2002 the patients received an i.a. injection of 0.8 ml of Hyaluronan saline, Hyalgan (10 mg/ml, MW 500-730 KDa) once weekly for three consecutive weeks, using a dorsolateral approach. Control examinations were carried out one, three and six months after the first treatment.

Results. Intra-articular HA injections significantly reduced spontaneous and provoked pain and improved hand function and motion range in comparison with baseline values. In particular after 1, 3 and 6 months following the first injection, the spontaneous and provoked pain revealed a statistically significant improvement ($p<0.0001$). In addition hand functionality, in particular pinch strength, showed a significant improvement after the treatment. NSAIDs intake also evidenced a statistically significant reduction against baseline ($p<0.017$). The adverse events occurring during the study (20.7%) are expected and related to local symptoms such as pain during or following the HA administration.

Conclusions. This open-label study shows that i.a. HA injection for TMCJ OA leads to a significant improvement in all the investigated parameters, which is still present after six months from baseline. There are currently two broad categories proposed for the mechanism of action by which HA may elicit short-and long-term pain relief: rheological or biomechanical and biological (anti-inflammatory, anabolic, analgesic, chondroprotective and anticatabolic) effects (2.3) through interactions between HA and its receptors CD44, RHAMM, ICAM-1 (4.5). It is possible that one of the functions of CD44 in stem cells may be to facilitate the endocytosis of HA which then may act as a protector of their DNA from oxidants (6). Our study confirms that i.a. injections of HA in TMCJ are easily administered, and may give symptomatic benefit with minimal side effects.

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051

VITAMIN D AND THE ELDERLY

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Vitamin D deficiency is now being recognized as one of the most common medical conditions in the world. Vitamin D plays an important role in skeletal development, bone health maintenance and neuromuscular functioning. Since the signs and symptoms of vitamin D deficiency are insidious or nonspecific, it often goes unrecognized and untreated. Frank vitamin D *deficiency* is defined as 25(OH)D below 10 ng per milliliter (ng/ml) and has long been recognized as a medical condition characterized by muscle weakness, bone pain, and fragility fractures. Vitamin D *insufficiency* is defined as 25(OH)D between 10-30ng/ml and levels equal or more than 30ng/ml is considered as *optimal*. The assessment of vitamin D deficiency/insufficiency prevalence is being hampered by the different threshold levels used in different studies. Vitamin D deficiency is common among community-dwelling elderly in countries at higher latitudes and very common among institutionalized elderly, geriatric patients and patients with hip fractures. Older people are especially at risk of developing vitamin D deficiency due to low exposure to sunshine, decreased capacity of the older skin to synthesize vitamin D, and low dietary vitamin D intake. The prevalence of vitamin D deficiency among elderly people living in residential homes has been estimated to be at least 50%, and prevalence up to 75% has been reported. Vitamin D deficiency has been shown to be associated with myopathy in subjects

of various ages, with body sway in osteoporotic and fall-prone subjects and with falls in elderly, institutionalized subjects. Studies investigating the effects of vitamin D supplementation and correlation between low 25(OH)D levels and physical performance have inconsistent results. Favorable effects of Vitamin D supplementation on muscle strength, physical performance and falls are shown in some studies, whereas other studies have failed to show an increase in muscle strength. Compliance to oral vitamin D replacement is usually low. Only one in two postmenopousal women with osteoporosis who take calcium and/or vitamin D have good therapeutic adherence to this treatment. Patients often find large tablets difficult to swallow and effervescent tablets combined with calcium may have gastrointestinal side effects. Considering the suggested gastrointestinal and cardiovascular side effects of calcium, we are reluctant to prescribe combined effervescent preparations safely in the elderly. It is needed to find a safe, practical and well-tolerated way of supplementation. In this lecture the importance of vitamin D deficiency in the elderly will be emphasized and different approaches for supplementation will be discussed in the light of new literature.

052

ROBOT-ASSISTED PRACTICE OF GAIT AND STAIR CLIMBING IN NONAMBULATORY STROKE PATIENTS

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Introduction. Stroke annually affects approximately 180 per 100,000 inhabitants in the industrialized world; it is the most common cause of persisting disabilities. Currently, a task-specific repetitive approach, i.e., numerous practices of complex gait cycles, is regarded as the most promising to restore motor function after stroke. To ease therapist effort, the gait robot G-EO System based on the end-effector principle was designed. This work presents the clinical results of a controlled pilot study on non ambulatory patients with subacute stroke allocated to two groups.

Materials and methods. The study enrolled 30 patients with stroke. 15 patients were assigned to the experimental group, which had 60 minutes sessions of individual physiotherapy every workday for 4 weeks, totalling 20 sessions. Within the first 30 minutes, they practiced on the G-EO System. Therapy time included donning and doffing and breaks; the intended net therapy time on the G-EO System ranged from 15 to 20 min. The 15 patients of the control group received 60 minutes of physiotherapy every workday for 4 weeks, for a total of 20 sessions, with the same physiotherapist as for the experimental group. The primary variable was the FAC, where 0 = could not walk at all and 5 = could walk independently anywhere, including climbing up and down one flight of stairs (8 steps) irrespective of whether in an alternate or non alternate fashion.

Results. All but one control group patient completed the study. During the intervention, the experimental group patients improved to a larger extent regarding FAC, gait velocity, Rivermead Mobility Index and Motricity Index ($p < 0.025$). During follow-up, the superior effect in favor of the experimental group persisted in regard to the FAC. At the end of the study, seven experimental group patients and one control group patient regained the ability to climb up and down at least one flight of stairs independently (FAC score of 5). At follow-up, 11 experimental group patients and 6 control group patients had achieved an FAC score of 5.

Conclusions. The novel gait robot offers to non ambulatory patients with stroke the ability the opportunity of a repetitively practice of both, simulated floor walking and stair climbing. Because of the higher training intensity, the experimental group patients reached a superior gait and stair climbing ability after the intervention and at follow-up. At present, no definite conclusions on the G-EO System's effectiveness are warranted and a robust randomized controlled trial should follow.

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DEVELOPMENTAL WRITING DISORDERS: UNDERSTANDING TO REHABILITATE

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Introduction. Writing ability, considered as the result of a coding process of arbitrary and conventional graphic signs, is an. important cognitive ability for school-aged children. To write properly, the child has to integrate visual and fonological information processing, in order to activate an adequate programming and coordination of motor sequences. Moreover, he has to focus attention on his duty and not on other stimuli. In our clinical work, we serendipically observed an improvement in the correctness of writing (orthography) after a training aiming only at improving motor aspects of writing (from pen's grip to arm trajectories). Therefore we decided to analyze in detail motor components of a writing precursor gesture in children with Developmental Dysorthography and/or Developmental Dysgraphia in order to point out anomalies differentiating these two disorders and to be treated with specific rehabilitative interventions.

Materials and methods. The gestural exercise proposed consisted in controlling with a wireless mouse the path of a marker inside a geometrical figure (labyrinth) generated on a computer screen and projected in front of the child to simulate drawing on a school blackboard. We administered the test to a sample of 25 children affected by Developmental Dysortography (ICD 9 CM: 315.09; ICD 10: F81.1) and/or Developmental Dysgraphia (ICD 9 CM: 315.2; ICD 10: F81.8) (mean age 9.1 years, range: 6.3-11.4 years). Data regarding angular excursions, execution times and gesture inaccuracy (an error was recorder when the marker touched the labyrinth's walls) were collected and elaborated using Dartfish 6.0 software and the labyrinth generating program (PRINC). Statistical analysis has been performed using MedCalc and SPSS softwares.

Results. All parameters were compared with normative data previously obtained from a sample of 226 healthy children of the same age and grade. The statistical analysis didn't evidence significant differences regarding gesture structure (trajectories of arm segments and angular excursions of interested joints). However angular and temporal execution patterns were reached in delay compared to children of the non-pathological age-matched sample. Cognitive (Raven Progressive Matrixes) and visuo-motor integration (VMI) skills didn't correlate with results obtained in our test; a deficit of visual attention (Modified Bell Cancellation Test) was instead associated with significantly poorer motor performances compared to subjects with normal attentive skills. None of the parameters studied could reliably discriminate between children with Developmental Dysortography and those with Developmental Dysgraphia.

Conclusions. Data obtained from this study evidence that the presence of a Developmental Writing Disorder involves a time delay in the development of motor patterns involving arm control. An adequate motor control was reached with a significant delay, thus differentiating these disorders from Developmental Coordination Disorder (where patients experience a disruption of motor strategies). It is possible to speculate that the prolonged need to voluntarily control motor strategies could result in a loss of resources to be devoted to the orthographic aspect of writing, especially when visual attention is poorly developed as well. This could be a basic mechanism interfering with the process of learning how to write in children with Developmental Writing Disorders.

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ANALYSIS OF OUR EXPERIENCE IN PATIENTS FROM THE ICU IN A COMA, VEGETATIVE STATE OR MINIMALLY CONSCIOUS STATE

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Introduction. Admission of patients from the ICU in a coma, vegetative state or minimally conscious state increased in 2011 in our intensive rehabilitation center. An individual and personalized rehabilitation project that involved the rehabilitation team in all its components (physician, neurologist, urologist, internist, nurse, physical therapist, occupational therapist, psychologist, speech therapist) has been set for these patients, in order to get an internistic stabilization, a good prevention of complications and simultaneously groped the recovery of the maximum possible functional independence through training of caregivers in the management of disability.

Materials and methods. Twenty-two patients (18 men and 4 women) with altered vigilance, disorders of consciousness (GCS score scale between 4 and 8), presence of tracheostomy and O2 therapy were admitted in our study. 18 of

these patients have had severe brain injury, 4 cardiovascular events. We evaluated: Respiratory failure: it was assessed by blood gases using Phox plus device (Naos Biomedical); Body weight: patients were weighed with weighing scales with chair monthly. Bedsores: with Norton scale. Clinical instability: the need to stop / change the rehabilitation project.

Results. At the end of the study seven patients died, thirteen were stabilized (although still in a minimally conscious state), and redirected to home or extensive rehabilitation center, two returned home with sufficient functional autonomy. In four cases it was possible to remove the tracheostomy tube and O2 therapy; in two cases the total weaning from mechanical ventilation, in two cases the removal of nasogastric tube with return to oral feeding.

Conclusions. The analysis of our experience has revealed a *prevalence* of respiratory complications that required a change in the personalized rehabilitation project with the use of additional resources. Therefore we propose to evaluate and treat respiratory disease more strongly in patients with severe brain injury .

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CORRELATIVE RELATION BETWEEN ARTERIAL HYPERTENSION AND PARAMETERS OF RECOVERY OF THE HEMIPLEGICS

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Introduction. Ischemic brain illness with its occurrence, mortality rate and invalidity of the survived represent a significant medical, social and economical problem of the modern society. Arterial hypertension is the most common risk factor and it influences the functional recovery of the patients with hemiplegia.

Materials and methods. To establish the correlative relation between prognosis and recovery parameters of the hemiplegics with arterial hypertension. Methodology: retrospective study was done at the Institute for Rehabilitation at "Selters", Mladenovac. 100 patients with hemiplegia were included. They were treated with magnetotherapy, kinesis treatment and work teraphy. The prognosis scale of spontaneous recovery was done before PT. The parameters of functional recovery which were used are: Brunstroms classification, FIM scale, MMSE and DMAS scale which were established at the admission and after 30,60,90 days and 6 months.

Results. Arterial hypertension was diagnosed at 89 patients with hemiplegia. The prognosis scale of spontaneous recovery was worse with hypertensive patients 21.627, the normotensive had 21.455. FIM score and MMSE score was significantly lower at the hypertensive patients (FIM score 38.133, 47.618, 56.499, 64.011; MMSE score 21.506, 23.449, 24.708, 25.023).

Conclusions. Patients with hypertension have prognostic low grade recovery. It is proved by FIM and MMSE score at the admission and after the rehabilitation.

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OSTEOPONTIN IN PATIENTS WITH PRIMARY KNEE OSTEOARTHRITIS: RELATION TO DISEASE SEVERITY

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Introduction. To investigate the role of plasma and synovial fluid Osteopontin in primary knee osteoarthritis in relation to disease severity grading.

Materials and methods. Forty patients aged 52-85 years with knee osteoarthritis and 15 healthy controls were enrolled in this study. The radiographic grading of knee osteoarthritis was performed by using the Kellgren-Lawrence-criteria to determine the disease severity. Osteopontin levels were measured using enzyme-linked immunosorbent assay.

Results. Osteoarthritis patients had higher plasma Osteopontin concentrations compared to healthy controls (171.37±15.96 vs 15.6±3.41ng/mL,P<0.0001), There was a highly significant positive correlation between plasma levels of Osteopontin and severity of the disease (r=0.923, p=<.0001) and a positive correlation between synovial levels of Osteopontin and severity of the disease (r=0.627, p=<0.05). Through ROC curve, results showed that to determine Osteoarthritis cases through measuring plasma Osteopontin levels it should be equal to or higher than the cut-off value, 83±4.25 ng/ml. To identify K-L grade 2 osteoarthritis from plasma Osteopontin levels must be equal to or more than, 132.25±3.1 ng/ml, to identify K-L grade 3 osteoarthritis it must be equal to or more than, 159.25±1.5 ng/ml, to identify K-L grade 4 osteoarthritis it must be equal to or more than, 183±0.9 ng/ml, with sensitivity 100% at these values.

Conclusions. Measurements of plasma and/or synovial levels of Osteopontin could possibly serve as a biochemical parameter for determining grades of different disease severity and may be predictive of prognosis with respect to the progression of osteoarthritic disease process.

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SCOLISIS AND LEG LENGHT DISCREPANCY CORRELATION: AN EVIDENCE BASED MEDICINE APPROACH

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Introduction. The aetiological aspects as well as postural attitude implications represent an open question in scoliosis evaluation and treatment. Leg length discrepancy (LLD) is often recognised in scoliotic patients, but surprisingly still controversial is the use of underfoot wedge corrections in order to compensate pelvis tilt.. In fact, literature reports conflicting results on the efficacy of LLD equalization also given the argued uncertainty of LLD clinical assessment and limitations related to X-ray measurements. Moreover concern is about anatomic and functional LLD and associated estimation of the pelvic torsion.

Materials and methods. In such a topic, a significant helpful tool has been demonstrated to be 3D kinematic optoelectronic measurements and other useful data obtained from force platforms and/or baropodographic systems. 135 (94.4%) out of 143 Scoliotic patients sample (av. age 16.4±10.2 Y range 4-66 Y), have been found to improve posture when LLD was corrected.

Results. The 143 patients showed a mean lower limb discrepancy of μ=10.2±5.2mm associated to a mean main scoliotic curve μ=16.4°±9.4° Cobb (frontal plane), mean Spinal offset μ=7.5±5.5mm and mean Global offset μ=10.1±7.1mm. The applied paired t-test comparison (indifferent vs. corrected orthostasis) showed significant ($p < 0.05$) postural improvements could be obtained in the whole or in a part of the considered postural parameters, after the application of suitable under-foot wedge.

Conclusions. The present investigation confirm results of a previous study demonstrating the efficacy of under-foot wedge use in leg asymmetry correction, posture re-balancing and spine deformities reduction, pointing out the significant contribution of the 3D opto-electronic measurement approach in the critical process of assessing the correct under-foot wedge size, therapy planning and monitoring.

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LBP AND LOWER LIMB DISCREPANCY: 3D QUANTITATIVE POSTURAL OUTCOME OF HEEL LIFT CORRECTION

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Introduction. Leg Length Discrepancy (LLD) is very often associated to Low Back Pain (LBP), but still controversial is the use of underfoot wedge correction (heel rise) to re-balance pelvis and trunk posture.

Materials and methods. In a review of our last 5 years clinical activity we observed that more than 70% out of 300 LBP patients presented a LLD. In more than 80 % we ascertained, via Baropodography, the presence of underfoot asymmetric load, during standing. More durable therapy recovery effect has been observed when LLD correction had been adopted. These reasons led us to start a study to assess if a Full 3D multifactorial Posture evaluation approach, by means of Opto-electronic device associated to foot pressure maps recording, was able to quantitatively discriminate the clinically observed phenomena.

Results. On a 94 LBP (av. age 46.3±16 Y range 15-82 Y) patients sample, 83 (88%) have been found to improve posture when LLD was corrected. The 94 patients showed a mean lower limb discrepancy of μ=8±3.2mm associated to a mean scoliotic lumbar curve μ=10.5°±5.1° Cobb (frontal plane), mean Spinal offset μ=6.6±4.9mm and mean Global offset 10.7±8.8mm. The applied paired t-test comparison (indifferent vs. corrected orthostasis) showed significant ($p < 0.05$) postural improvements could be obtained in the whole or in a part of the considered parameters, both in rebalancing and in spine deformities reduction after the application of suitable under-foot wedge.

Conclusions. The joint 3D opto-electronic and foot pressure map approach proved to be effective to control several clinical parameters with statistical significance.

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063

GRADE II MUSCLE INJURIES; ACUTE TREATMENT WITH CRYO MAG: A PILOT STUDY

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Introduction. Acute muscle injuries are commonly observed in many different sports and their incidence is between 10 and 30%[1]. Properties required in sports for muscular tissue are strength, endurance, responsiveness, speed, and flexibility; they're often obtained with intense workout at the limit of muscles elastic resistance. 90% of injuries in sports is made up of muscle injuries[2]. It was found an incidence of 30% in professional football players where the injury occurs often on quadriceps and hamstring muscles[3]. Muscle injuries can be divided into direct trauma injuries and indirect trauma injuries. Indirect injuries are classified, according to the American Medical Association, in: elongations and 1st, 2nd, and 3rd grade depending on: amount of muscle fibers involved, extent of injury, condition of surrounding connective tissue and vascular structures. The healing of the lesion occurs with replacement of the destroyed tissue through two stages: lesion contraction and loss of substance mechanical reduction. Tissue replacement occurs with cells migration (repair) or division of adjacent cells (regeneration) with production of granulation tissue which evolves in a scar.

Aim. of our study was to assess the ability of Cryo Mag applicators in reducing time recovery in athletes with grade 2 muscle injuries. Cryo Mag allows to use synergically: Cryotherapy, Compression and Magneto-therapy. Compression prevents the expansion of hematoma and edema. Cryotherapy reduces spasm and pain, induces local vasoconstriction with fibrin contraction and extravasation reduction, reducing the extent of the lesion, it also exerts antiphlogistic and anti-edema effect by systemic vasoconstrictive action. Magnetotherapy induces an increase in the peripheral blood flow, which leads to better cell oxygenation, with anti-edema and anti-inflammatory action.

Materials and methods. The treatment protocol was performed on 5 male soccer players aged between 18 and 34 years (mean age 25 years) with grade 2 muscle injury. In all patients ultrasound examination was performed at the beginning and after 14 days. We assessed: pain level (with VAS), functional impairment (active and passive goniometric ROM), muscle strength (MRC) at the beginning and at the end of treatment. All athletes were treated with 10 daily sessions with Cryo Mag with the following protocol: 160 Gauss magnetic field strength, frequency up to 50 Hz; ice for 20 minutes, 10 minutes of compression alternating with 5 minutes decompression for a total duration of 60 minutes.

Results. Ultrasound control performed after the treatment period showed complete recovery of edema and blood effusion, an excellent tissue repair without fibrotic phenomena in all patients, significant pain reduction (mean VAS T0: 7 – mean VAS T1: 1), increase in active and passive ROM without pain, increase in muscle strength as noted in tests for strength (MRC T0: 4 + - MRC T1: 5).

Conclusions. Cryo Mag therapy can take advantage of the positive effects of cryotherapy, compression and magnetic therapy in muscle recovery after injury and proved to be an excellent therapeutic tool in terms of effectiveness, ease of use and resolution of pain.

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065

THE EFFECT OF FOCUSED HIGH-FREQUENCY VIBRATION AT 300 HZ ON MUSCLE BASAL TONE

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Introduction. Muscle basal tone represents the degree of residual slight contraction of the muscle at rest. The aim of the study was to evaluate the effect of focused high-frequency vibration at 300 Hz on quadricepts muscle basal tone. Vibrational stimulation (VS) can induce non-voluntary muscular contraction, and is often used in athletic training.

Materials and methods. Ten sporting subjects were divided into 2 groups random:

– Group A (5 patients): 18 sessions of ViSS (VISSMAN, Italy) at 300 Hz, for 15 min, in 6 weeks (5x2, 3x2, 1x2), on quadricepts muscle;
– Group B (5 patients): 18 sessions of ViSS (VISSMAN, Italy) at 300 Hz, for 15 min, in 6 weeks (1x2, 3x2, 5x2), on quadricepts muscle.

Patients were evaluated by surface electromyography (Neuromuscolar 4) at the beginning and end of each session, and myoton and isokinetic test every two weeks.

Results. The results obtained demonstrate that any had been the starting condition of the two heads of the quadriceps muscle examined (rectus femoris and vastus medialis), the ViSS system tended to return the muscle basal tone always towards the same value. By electromyography, rectus femoris tone has reached an interval between 100 and 150 uV, and vastus medialis tone has reached an interval between 60 and 80 uV. By myoton, rectus femoris frequency has reached 13 Hz, and vastus medialis frequency has reached 11 Hz.

Conclusions. The Vi. SS used at 300 Hz for 15 min does not have a tendency in all subjects to increase or decrease the basal tone of the muscle (in our case the quadriceps), but tends to normalize, or to bring it to a standard value of normality for muscle group. This means that, regardless of the status of the subject to which we will apply the therapy, we will have a functional improvement in the sense of increased muscle tone, in a sedentary person and hypotonic, and relaxation of muscle tone, in a athletic subject with muscular overload, with an advantage as regards the elasticity and strength fast.

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066

CHRONIC ULCERS: TREATMENT WITH UNFOCUSED ESWT; MEAN FOLLOW-UP AT 8 MONTHS.

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Introduction. Chronic ulcers are complex wounds that do not heal spontaneously even for local and systemic predisposing factors[1]. In literature it has

been shown that shock waves are effective in stimulating several endogenous growth factors and nitric oxide production, inducing angiogenesis and promoting tissue healing process[2,3].

Materials and methods. The aim of our study was to evaluate the effectiveness of the treatment of chronic ulcers with unfocused shock waves. Between March 2009 and February 2012 we collected and evaluated 62 patients, aged between 28 and 80 years, with difficult wounds arisen over three months and who met the inclusion criteria for treatment. The patients were treated with dermagold unfocused probe. The average energy applied for each impulse was equal to 0.10 mJ/mm2 per cm2 with total energy density equal to 1250J. The pulses were administered at a frequency of 4 Hz. Wounds were classified according to: location, width, length, percentage of granulation tissue, necrotic tissue, fibrous tissue, presence of bacterial exudation and pain (assessed by VAS), their evolution was monitored by photo capture. The patients were treated with a frequency of 1 session every 7 days for 7 weeks. During the treatment period was monitored the possible occurrence of side effects. Before treatment the 62 wounds had an average area equal to 3.85 cm² and it was found an average value of the VAS pain scale equal to 5.8 (range 2-9). We performed a follow-up after 6 months up to 10 months from the end of the treatment protocol (average 8 months).

Results. At the end of the treatment protocol the mean area was decreased by 80% (final mean area 0.93 cm²), and there was an average reduction of pain on VAS scale by 79%. None of the treated patients experienced adverse reactions to treatment. In none of the wounds treated was observed developing of infection during treatment. The mean follow-up at 8 months showed a stabilization of results in 48 patients, a further improvement in 11 patients, an unchanged situation in 3 patients.

Conclusions. In conclusion, we can say that shock waves can act on wounds with compromised healing, promoting resumption of the reparative physiological process and therefore represent an effective and safe tool in accelerating healing process, reducing the operating costs and the need for more complex interventions with the potential to provide a durable improvement over time.

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067

EFFECTS OF HIGH INTENSITY LOCAL ACUSTIC VIBRATIONAL TRAINING ON STRENGTH, CELLULAR AND MOLECULAR MODIFICATIONS IN AGED HUMAN SKELETAL MUSCLE

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Introduction. Sarcopenia is a scientific term indicating the physiological reduction of skeletal muscle mass and strength in older people. Sarcopenia has a multifactorial origin linked to: oxidative damage of fibers, mitochondrial damage reduced levels of GH, IGF-1, steroids and reduced myogenesis.

Aim. Regular training programs are a concrete means to prevent and/or reduce functional decline due to aging (1), although the optimum regime specific for older adults remains unclear.

Materials and methods. Ten subjects (6♂ and 4♀) of 75±10 years old with a diagnosis of grade 3 Sarcopenia (CDC) were assigned to 3 day/wk for 12wk, high intensity local acustic vibrational program (intensity:300hz) by VISS (Vissman, Italy). Before and after the training programs muscle samples were collected by biopsy from the vastus lateralis muscle in order to analyse: (i) the specific tension development of single fibers and the expression of myosin heavy chain proteins; (ii) the transcriptional profile and (iii) the regenerative capacity of satellite cells. At the same time, the Isometric lower limb force was measured by dynamometer. The Myoton-2 equipment was used to describe the viscoelastic parameters of the skeletal muscles. As follows-up the subjects were tested 4 months after protocol end.

Results. The single fiber strength development does not change after a training protocol. Considering the gene expression profiles, vibrational training shares a stimulation of a specific metabolic pathway; increases the aerobic metabolism and stimulates the creatine metabolism. The training stimulates the expression of sarcomeric and cytoskeletal proteins and in particular stimulates proteins linked to Z-line. We studied also the behavior of satellite stem cells after the training and their contribution to the regeneration process and to fiber trophism. Our results indicate that vibrational training improves muscular strength ($p<0.05$) this result persists after 4 month. The muscular tension increases, correlated with muscular strength, the muscular elasticity increases, any significant variation in muscular stiffness is shown.

Conclusions. In conclusion, our results suggest that vibrational training counteracts Sarcopenia progression and that it is able to stimulate a specific molecular signaling.

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BALANCE AND POSTURE IN THE ELDERLY: AN ANALYSIS OF A PROPRIOCEPTION ELLIPTIC REHABILITATION PROGRAM

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Introduction. Regular training programs are a concrete means to prevent and/or reduce functional decline due to aging. A proprioception elliptic training approach seems to obtain better results in the elderly with regard to both balance and quality of life.

Materials and methods. Forty subjects (age 65±10 years, height 165±4 cm, weight 73.0±4.6 kg) were randomized into two groups (GrPE and GrCl). Participants in the GrPE group received 3 months of balance and postural training, 3 sessions per week, with the use of a specific proprioception training (I-Moove Allcare, France). Those in the GrCl group received 3 months of training with a classical rehabilitation protocol that included isotonic training for the lower limbs and spine.

Results. With regard to walking, there was an improvement in step symmetry for participants in the GrPE group compared to baseline (0.93±0.09 vs. 0.84±0.1; $p<0.05$). Further, all subjects in the GrPE group showed a significant reduction in the energy used during a 4-min walk. Analysis of stabilometry data also showed a significant improvement in balance for those in the GrPE group, which was independent of age or gender.

Conclusions. The proprioceptive elliptic training approach yields an improvement of balance in the elderly, which reduces the risk of falls. The observed improvement is significantly greater than that seen with the classical training program.

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EARLY PHYSICAL THERAPY REDUCES PAIN AND EDEMA IN PATIENTS WITH ANKLE SPRAINS

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Introduction. Ankle sprains are one of the most common musculoskeletal injuries. The aim of the study is to evaluate the effects of low level laser (LLL) therapy and pulsed electromagnetic field (PEMF) therapy on pain and edema in patients with acute lateral ankle sprain.

Materials and methods. The study included 40 patients with grade 2 acute lateral ankle sprain, 32 men and 8 women, with mean age of 36.8 years. Two weeks of external ankle support (bracing/bandaging) for each patient was implemented. All patients were adivised to rest and to use ice, compression and elevation, and NSAIL (5-7 days) was used for pain and edema reduction. The experimental group (group A) consisted of 20 patients and they were treated by LLL therapy and PEMF therapy. The control group (group B) consisted of 20 patients, and they had no other therapy. In each patient intensity of pain was assessed before and after treatment by use of the 100 mm visual analogue scale (VAS). Ankle edema was expressed in cm as the difference between circumferences of both ankles.

Results. After two weeks we noted significant improvement both in pain scores and edema. Mean pain at rest improved from 25.6 (± 22.3) to 3.8 (± 8.3) in group A, and from 26.2 (± 23.6) to 9.7 (± 7.6) in group B. Mean pain on activity improved from 60.4 (± 26.1) to 18.6 (± 16.9) in group A, and from 57.9 (± 25.7) to 27.1 (± 19.5) in group B and edema improved from 2.3 (± 1.9) to 0.5 (± 0.7) in group A and from 2.1 (± 1.7) to 1.1 (± 1.1) in group B.

Conclusions. After two weeks pain and edema were significantly reduced in both groups, but the results were better in group with LLL and PEMF therapy.

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AUDIT ON URINARY TRACT INFECTION (UTI) IN A REHABILITATION DEPARTEMENT

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Introduction. The purpose of this study was to reduce the incidence of urinary tract infection (UTI) in patients in the department of rehabilitation of Trescore Balneario (BG). To this aim, an audit was established about the prevention of UTI in order to adopt a standardized evidence-based from all health professionals involved with less variability in the management.

Materials and methods. In August 2011 we formed an audit group for the control of UTI's incidence in our structure consisting of a physiatrist, a registrar in physical medicine and rehabilitation, 2 nurses and an urologist from another institution. From August to October 2011, we evaluated the incidence of urinary tract infections of hospitalized patients in the department of rehabilitation of Trescore Balneario (BG) for a total of 64 patients. We defined the infection of the urinary tract in the presence of a positive urine culture with bacterial count greater than or equal to 10^5. We excluded the positive urine cultures due to bacterial contamination and / or urine cultures with a charge below the 10^5. We also considered the type of illness for which they were hospitalized, age, presence of indwelling catheter or incontinence defense/protection, the urinary pH when urine culture was compared.

Results. Patients discharged from our unit in the three months were above 64. Among these 20 patients (31.2%) had a urinary tract infection relatedissue. From August to October 2011, the incidence decreased by 40% (value considered "sentinel event") to 18%. 75% of the patients were affected by neurological disorders (severe brain injury) and 25% by orthopedic diseases (one patient undergone hip replacement surgery of choice). Of the 20 patients with UTI, 11 patients (55%) were carriers of indwelling bladder catheter, 5 patients (25%) carriers of incontinence pads (adult diapers), 4 patients (20%) did not use any kind of protection for incontinence. 8 patients (40%) had polymicrobial infections of the urinary tract, the remaining 12 (60%) presented infection by a single microorganism. The microorganism involved were: E. Coli (46.66%), Klebsiella pneumoniae (33.33%), Pseudomonas aeruginosa (33.33%), Morganella, Hafnia alvei, Citrobacter Koser, Enterococcus faecalis in a small percentage (6.67%). The average pH during infection was found to be 6.01. We interpreted the data using the evidenced-based recommendations for the prevention of urinary tract infections in hospitalized patients in particular considering the recommendations of type A. The high incidence of UTI observed can be attributed to the severity of the patients who are mostly bedridden, high rate of catheter-related infections, and the increase in infections during the summer months. The decline in the incidence during the months following August 2011, partly attributable to climatic factors, suggests that investigating the IVU incidence leads to an improvement of the procedures. The number of urinary tract infection was found by screening, but according to the guidelines reported in the bibliography, this procedure is not recommended in clinical practice. The urine culture in carriers of indwelling catheter with biofilm does not reflect the real bacteriology of the urine in the bladder: the concentration of Pseudomonas aeruginosa, Enterococcus decreases to 10^5 after replacement of the catheter, but this is not the case for E. Coli and Klebsiella pneumoniae. Finding in our patients a higher percentage of single-germ infections, does not reflect data from the literature showing that in patients with indwelling bladder catheter prevailing polymicrobial flora in 95% of cases. As reported in the literature, E. coli is the most frequent bacteria found in urine coltures. The recommendations of type A to prevent and treat urinary tract infections derived from the guidelines are:

– Limit the unnecessary catheterization and remove the catheter as soon as possible.
– Intermittent catheterization as an alternative to indwelling catheterization.
– Condom-system as an alternative to short-term catheterization.
– Educate the medical and paramedical staff about the procedures and guidelines for using the catheter, the technique of placement, maintenance, replacement and removal.
– There were no sufficient evidence for routine use of systemic antimicrobial prophylaxis and acidification of the urine with cranberry-based products.
– A sample of urine for culture should be taken before starting antimicrobial therapy.
– The recommended duration of treatment of urinary tract infection is 7 days and 10-14 days in presence of delayed response.

Conclusions. The Audit group has reported/handed the recommendations to all health personnel. Every 3 months we intend to evaluate the effectiveness of interventions based on process indicators (number of patients with indwelling bladder catheter, number of patients with intermittent catheterization, number of evaluations of post-micturition residual, number of patients discharged with a urinary catheter) and outcome indicators (number of urinary tract infections treated).

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INTERVENTIONAL TREATMENT IN LOW BACK PAIN

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Low back pain (LBP), arising from the spinal or paraspinal structures in the lumbosacral region, is the second most common symptomatic reason for physician visits after upper respiratory symptoms. LBP extends approximately from the iliac crests to the coccyx. There is also radicular leg pain, which may accompany LBP. LBP can arise from anterior, midline or posterior structures. These are the discs, vertebral bodies, ligaments, muscles, spinal cord, nerve roots, and facet and sacroiliac joints. Appropriate management involves formulating an accurate diagnosis. History taking is important to find out if mechanical LBP is present and to exclude the "red flags", i.e. tumors, fractures, infections, and cauda equina syndrome, that could be life-threatening if not urgently treated. History, physical examination and if necessary imaging techniques and electromyography will probably yield the diagnosis in the majority of cases with LBP, and find out the most probable source of it. Nonspecific LBP often radiates to the buttocks, hips, groin, and thighs. Radicular pain below the knee suggests nerve root compression, especially if it follows a dermatomal pattern. For patients with acute, nonspecific LBP, the primary emphasis for treatment should be conservative management, including patient education. Only 1% of LBP sufferers could require a surgical intervention. Surgery should be reserved for patients with an identifiable pathology on imaging studies that is consistent with history and physical examination findings. Immediate surgery is reserved for patients with progressive neurologic deficits, impaired bowel or bladder function, cauda equina syndrome, or tumors and infections. Interventional treatment is usually reserved for people with LBP unresponsive to conservative treatment, but also don't require a surgery. Epidural steroid injections may be effective in patients with acute lumbosacral radicular pain. Injecting facet joints, sacroiliac joints, trigger points, ligaments may provide transient but significant pain relief during acute LBP episodes if the pain source is those structures.

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IMAGING STUDIES IN NERVE ENTRAPMENTS

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Entrapment neuropathies are a group of disorders secondary to compression of peripheral nerves at specific anatomical sites in the body. The diagnosis is usually based on clinical signs and symptoms and commonly used diagnostic tool for confirming the diagnosis is electrophysiological studies. The recent developments of imaging studies lead to increase interest about using imaging studies in diagnosis of nerve entrapments. Magnetic resonance imaging (MRI) provides excellent soft tissue contrast and can demonstrate the anatomy of a specific nerve region. It can also show secondary changes of denervation in affected muscles. Over the past 10 years, high-frequency

ultrasound (US) has been used increasingly by physiatrists for diagnostic and therapeutic purposes. US helps the diagnosis of musculoskeletal conditions such as tendinitis, tendon and ligament tears, arthritis, cysts, tumors, and also provides image guidance for therapeutic procedures such as aspiration or injection. US also can be adjunctive or alternative tool in the evaluation of neuromuscular disease. Nowadays, US has become a low-cost alternative to MRI for diagnosis of entrapment neuropathies. Nerve morphology and echotexture can be effectively assessed by US. Larger and superficial nerves such as median nerve and the ulnar nerve can be easily identified. However, smaller and deeper nerves require more technology because of penetration limitations and also more user experience. Therefore the literature of utility of US in diagnosis of nerve entrapment is focused on especially in carpal tunnel syndrome (CTS) and ulnar nerve entrapments. Recently there is meta-analysis about using US in CTS that demonstrates clinical utility of sonography as a screening tool as a compliment to electrodiagnosis and to suggest continued and future research. There are also some studies with ulnar nerve entrapments showed that US could be an alternative or adjunctive diagnostic tool to electrodiagnosis. There are also literature about diagnosis of brachial plexopathy, hereditary neuropathies and peroneal nerve entrapments by using of US. The challenging issue for US is about training. The training standards for US have not been constituted. Good knowledge of anatomy, ultrasound physics, and a high level harmony with the device to minimize artifacts and get better quality is essential in training. The physiatrists are candidates for being user of musculoskeletal US especially in the field of neuromuscular diseases with their skills and knowledge.

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PHYSIOTHERAPY IN ANKYLOSING SPONDYLITIS; IS IT STILL LIFE-LONG IN THE ERA OF BIOLOGICS?

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Ankylosing spondylitis (AS) is a chronic inflammatory disease that mainly affects the sacroiliac joints and is characterized by restricted spinal mobility. Disease may be accompanied by peripheral joint symptoms and enthesitis or extraarticular involvement such as uveitis. Involvement of the spine as well as appendicular joints leads to structural damage and functional impairments and decreases health related quality of life. Ankylosing spondylitis primarily affects young male and female individuals at their most productive ages and at least one-third of patients with AS carry a heavy burden of the disease that leads to severe disability. The primary goal in the treatment of patients with AS is to control the signs and symptoms of the disease. To achieve this one of the most important facts is to reduce inflammation and maintain the highest possible or normal functional status and associated health-related quality of life. This strategy requires a combination of pharmacological and non-pharmacological (including education, exercise and physiotherapy) treatment modalities. Physical therapy has been used in the management of AS and, although scanty, evidence from the literature on the effectiveness of physiotherapy in AS continue to accumulate. Physiotherapy is an integral part of the management of AS and can be used in addition to any anti-inflammatory medicines. In this era of effective treatments like biologics, the need for physiotherapy continues to be a *sine qua non* in the management of AS and seems to be a life-long modality. In the recently published recommendations on the management of AS by the Assessment of Spondyloarthritis International Society (ASAS) in collaboration with the European League Against Rheumatism (EULAR), rehabilitation of patients with AS has been recommended but not explained in detail. Our group Anatolian Group for the Assessment in Rheumatic Diseases (www.angard.com.tr) initiated a series of expert meeting and proposed expert opinion and key recommendations for the management of AS. The report on this collaborative work has been published as a special article (1). In these recommendations we underscore the needs for more sophisticated researches and give a frame work for the rehabilitation of patients with AS. These key recommendations are summarized below:

– Physiotherapy and rehabilitation, as a non-pharmacological intervention, should be started as soon as ankylosing spondylitis is diagnosed.
– Physiotherapy should be planned according to the patients' clinical status, needs and expectations and should be commenced and monitored properly.
– Physiotherapy should be performed as inpatient or outpatient program in all patients independent of disease stage and should be carried out in conformity with the general rules and contraindications.
– Lifelong regular exercises are the mainstay of the treatment; a combined regime of inpatient spa-exercise therapy followed by group physiotherapy is recommended for the highest benefit, and group physiotherapy is also superior to home exercises.
– The conventional protocols of physiotherapy, including flexibility, stretching and breathing exercises, as well as pool and land-based exercises and accompanying recreational activities are recommended.
– Physiotherapy modalities should be used as adjunctive therapies based on the experience acquired from their use in other musculoskeletal disorders.

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PSICOFARMACI E POLIFARMACOTERAPIA COME FATTORI DI RISCHIO PER LE CADUTE IN RSA: UNO STUDIO RETROSPETTIVO OSSERVAZIONALE

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Introduction. Le cadute in età senile rappresentano un problema maggiore di Salute Pubblica, a causa della loro elevata incidenza e delle frequenti conseguenze in termini di mortalità e morbilità. Gli anziani istituzionalizzati sono particolarmente esposti alle cadute e alle loro conseguenze più serie: circa la metà (percentuale compresa tra il 45% e il 70%) degli ospiti di case di riposo cade annualmente, una proporzione che è due o tre volte superiore rispetto a quella calcolata nella popolazione geriatria non istituzionalizzata. Tra i numerosi fattori di rischio modificabili particolare attenzione è stata accordata alle consuetudini prescrittive che caratterizzano l'approccio alla patologia geriatria, con particolare attenzione agli psicofarmaci. Questa ricerca è stata condotta al fine di confermare i dati di letteratura riguardanti la relazione esistente tra l'utilizzo di farmaci psicotropi, un regime prescrittivi polifarmacoterapico e la prevalenza del fenomeno delle cadute all'interno di una popolazione anziana fragile istituzionalizzata.

Materials and methods. È stato condotto uno studio retrospettivo osservazionale prendendo in esame i pazienti caduti in un periodo di 30 mesi presso la Residenza Socio Assistenziale Fratelli Molina di Varese. Per quanto riguarda le variabili cliniche legate alla diagnosi medica e alla prescrizione di farmaci si è fatto riferimento direttamente alle cartelle cliniche dei pazienti. Si è quindi allestito un modello di regressione logistica utilizzando la modalità a blocchi successivi (metodo Stepwise Likelihood Ratio) che comprendesse le variabili esplicative associate alle variabile dipendente.

Results. Nel periodo in esame sono state registrate 695 cadute a carico di 293 residenti, 221 (75,4%) femmine e 72 (24,6%) maschi, 133 (45,4%) erano "recurrent fallers". 152 residenti non hanno riportato lesioni al momento della caduta, mentre infortuni sono stati subiti da 141 pazienti: minori in 95 (67,4%) e maggiori in 46 (32,6%). Solo la dinamica della caduta (p=0,013) e l'interazione tra farmaci antiaritmici o antparkinsoniani o un regime di polifarmacoterapia, inteso come assunzione di 7 o più farmaci, sembrano rappresentare un'associazione di rischio per lesioni (p=0,0024; OR=4,4; CI95% 1,21-15,36).

Conclusions. I risultati ottenuti confermano quanto noto in letteratura in merito all'azione di alcune classi di farmaci psicotropi quali sostanziali fattori di rischio per il determinarsi di una caduta. Questo deve imporre una maggiore accortezza nelle prescrizioni farmacologiche da parte dei medici dato che i pazienti anziani sono molto più suscettibili rispetto ai giovani adulti agli effetti collaterali da essi determinati. In particolare, accanto alle classi psicofarmacologiche piu' consuete nel impiego quali antipsicotici, antidepressivi e BDZ il nostro studio ha evidenziato alcuni riscontri, concordanti con la letteratura, circa l'impiego di farmaci stabilizzanti dell'umore come fattori di rischio indipendenti. Lo studio si allinea infine alle osservazioni di come la polifarmacoterapia non rappresenti un fattore di rischio caduta per sé, ma in relazione di farmaci o di associazioni di essi che innalzino il rischio di caduta.

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RIFLESSIONI SUL RUOLO DELLA RIABILITAZIONE IN RSA

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Introduction. La letteratura sostiene che esiste una grande eterogeneità nelle organizzazioni degli interventi riabilitativi in rsa sia per la tipologia di personale

dedicato, per il numero di pazienti arruolati nelle terapie quotidiane, per la frequenza delle dimissioni dai programmi e progetti riabilitativi, e per gli atteggiamenti adottati dalle amministrazioni degli enti gestori verso le attività di riabilitazione. Il problema che si pone in genere è quanta "riabilitazione" e per quanto tempo e con quali risultati attesi. Poiché come è noto la struttura condiziona il processo e quindi l'esito finale di outcome sembra ovvia la considerazione che anche nel contesto dell'argomento in discussione l'intervento riabilitativo in RSA, in quanto parte del processo sanitario, sia fortemente condizionato dall'assetto strutturale regionale. Sulla base di questi presupposti il primo obiettivo dello studio è stato di testare l'efficacia dell'intervento riabilitativo condotto nel migliorare il recupero funzionale del paziente. In secondo luogo sono stati indagati gli eventuali fattori, presenti all'ingresso del paziente, che più frequentemente si associano con la scelta del sanitario di impostare un programma riabilitativo.

Materials and methods. Lo studio è stato condotto nel 2011 sulla popolazione di 59 pazienti degenti presso una Residenza Sanitaria Assistenziale situata in provincia di Pavia e presa come modello del sistema organizzativo di RSA lombarde. Al fine di verificare l'efficacia dell'intervento riabilitativo standard praticato in questa struttura, è stato effettuato uno studio longitudinale pre-post che ha coinvolto i 22 utenti randomizzati sottoposti ad intervento riabilitativo. L'efficacia dell'intervento è stata testata rilevando il punteggio Barthel e il punteggio Tinetti (punteggio totale e nelle sottocategorie "equilibrio" e "andatura") all'ammissione e a 60 giorni dopo la terapia riabilitativa.

Results. L'intervento riabilitativo si è dimostrato efficace nel migliorare in modo statisticamente significativo l'andatura rilevata con scala Tinetti (p = 0,0407). In tali pazienti si è infatti osservato un miglioramento medio, benché lieve, del punteggio rilevato con scala Tinetti (punteggio medio per "andatura" pre-intervento pari a 8,2 vs. un punteggio medio post intervento pari a 8,9). L'intervento, invece, non risulta essere significativamente efficace nel modificare il punteggio Barthel, il punteggio Tinetti globale o il punteggio per l'equilibrio rilevato con scala Tinetti. Inoltre quando il paziente rientra nella classe 4 SOSIA o superiore, la probabilità di ricevere un intervento riabilitativo aumenta di circa 9 volte (OR 9,3 $IC_{95\%}$ 1,85- 46,53, p=0,037). Il modello così impostato risulta altamente predittivo e spiega circa il 33% della scelta di sottoporre il paziente ad intervento (p=0, 0001; pseudoR2 =0,33).

Conclusions. Derivando i concetti tipici della Psichiatria di comunità va reinteso il concetto di "fare terapia". Il paradigma terapeutico va reinterpretato attraverso la definizione del proprio campo di competenza, del tipo di intervento, del proprio obiettivo e degli esiti attesi all'interno di un costante atteggiamento di confronto multidisciplinare. Lavoro difficile nella complessità clinico assistenziale del paziente geriatrico dove predomina un vasto insieme di fattori che coinvolgono la persona ed il suo ambiente, sintomi psicopatologici, ridotto funzionamento sociale, netto peggioramento della qualità di vita e quasi scomparsa del potere contrattuale. Va quindi ripensata la comunità terapeutica come una funzione essa stessa cioè come espressione di uno stile di lavoro e non come un luogo in cui sistemare una persona che ha o crea problemi. Con questa modalità la rsa assume le sembianze di strumento operativo e diventa fondamentale esplicitare lo stile di quel gruppo di lavoro all'interno di un modello.

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REFERENCE VALUES FOR THE SIX-MINUTE WALKING TEST IN OBESE SUBJECTS

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Introduction. The six-minute walking test (6MWT) is widely used to measure functional capacity in various chronic conditions. Predictive equations have been proposed, but obese subjects consistently show a deficit in distance walked when compared to normal-weight subjects. Specific reference values would serve as realistic benchmark to assess baseline functional capacity and monitor changes after rehabilitation. The aim of this study was to develop a predicting equation for distance walked in 6 minutes in obese subjects to be used in the clinical practice.

Materials and methods. Participants and setting: 328 obese patients (age 20-60 years) admitted to our hospital for multidisciplinary rehabilitation and weight reduction programs. Design: randomization into two sub-groups: a) 70% of the sample (n=227) to develop the predictive model; b) 30% (n=96) to compare predicted vs measured values. Interventions:: not applicable. Main Outcome Measures: Distance walked in 6 min, heart rate, blood pressure, oxygen saturation, anthropometric measurements and level of dyspnoea.

Results. Distance walked during the 6MWT was significantly correlated to age (r= -0.43, p<0.001), gender (r= -0.41, p< 0.001) and BMI (r= -0.44, p<0.001). In the multiple linear regression analysis age, gender and BMI explained 48% of the total variance in 6MWT. The proposed reference equation was: $6MWT_m$= 894.2177 – (2.0700* age_{yrs}) – (51.4489*$gender_{males=0;\ females=1}$) -5.1663 * BMI_{Kg/m^2}; r^2= 0.48 (standard error of the estimate= 45.186 m). The average difference between predicted and measured 6MWT values did not reach statistical significance. The distance predicted by our equation was significantly different with that obtained by Gibbons' equation but not with the distance calculated according to Enright's equation.

Conclusions. This study provides a reference equation specific for the obese population which can be used in the rehabilitation setting to assess functional capacity, plan exercise intensity and monitor changes over time.

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AQUATIC EXERCISE IN REAHBILITATION OF CHILDREN AND ADOLESCENTS WITH CEREBRAL PALSY

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Introduction. Cerebral palsy is a condition that may arise in pediatric age and implies rehabilitation needs along life. Exercise, in particular aquatic one, gained importance in the rehabilitation process of children and adolescents with cerebral palsy. Still, their real effects are yet to be proven.

Materials and methods. The expression ("cerebral palsy" AND "aquatic") OR ("children" AND "aquatic exercise") was searched in PubMed, PEDro and Cochrane databases; and an analysis of data on population, therapeutic intervention, control and results was made within 13 studies.

Results. 102 children/adolescents with cerebral palsy engaged on an aquatic exercise program. Samples ranged between one and 46 elements aged between 5 and 21 years-old; all them had a pattern of spastic cerebral palsy with a variable form of presentation. All articles included a program of aquatic exercise to develop aerobic endurance and some of them also included muscle strengthening activities and/or other variants of physical fitness. Interventions lasted 30-60 minutes (1-3 times per week) for a period of 6 weeks to 8 months. None of the articles conducted sample randomization and only four compared groups with different interventions. The methodology used to evaluate the outcomes was diverse, but all included the effects of aquatic exercise program on functionality.

Conclusions. The characteristics of the aquatic environment provide an advantage for the rehabilitation of children and adolescents with cerebral palsy taking into account the spectrum of disease presentation. Despite the limited evidences of efficacy and safety of aquatic exercise on rehabilitation of children and adolescents with cerebral palsy, this type of exercise is a good alternative to improve levels of fitness, a basic parameter in the rehabilitation process of this population. The diversity of studies architectures difficult the demonstration of the aquatic exercise effectiveness in the rehabilitation of children and adolescents with cerebral palsy, but gives suggestions to overcome this limitation. Aquatic exercise reveals itself as a valid option for children and adolescents with cerebral palsy reach some benefits of active life style, optimize their functionality e improve their quality of life. Future studies about aquatic exercise programs on cerebral palsy rehabilitation should, among other aspects, recruit subjects by Gross Motor Function Classification System, use consensual evaluation scales e make considerations about participation barriers, rehabilitation program adequacy and aquatic environment safety.

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ACUTE INPATIENT REHABILITATION OUTCOME AFTER PERITONITIS IN GERIATRIC PATIENTS WITH END-STAGE RENAL DISEASE

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Introduction. End-stage renal disease (ESRD) is very significant and growing social and economical problem worldwide, and the numbers of pa-

tients requiring renal replacement therapy has increased dramatically and partially unexpectedly. Peritoneal/hemodialysis (PD/HD) is a successful life-sustaining therapy for patients with ESRD, and with its effectiveness largely judged by patient survival. As the dialysis population ages and experiences multiple co morbidities, it will become increasingly difficult to maintain a reasonable quality of life for these patients. Patient treated by long-term PD/HD therapy may have variety of medical problems and complications such as peritonitis that can interfere with their level of function and general deconditioning, those patients can have deficit in mobility, self care, general weakness, and metabolic problems and have large numbers of related issues which can be addressed with acute inpatient admission at nephrology department.

Materials and methods. Retrospective analysis of medical reports from 59 inpatients (of all 670 hospitalised) with ESRD of both gender from Institute for Renal Diseases Zvezdara University Medical Centre Belgrade, Serbia who were received acute inpatient rehabilitation programme after different reasons of inactivity from December 2009 to December 2010.

Results. From December 2009 to December 2010 we treated 59 inpatients for different reasons of inactivity. 17 of the 59 were inactivating patients with peritonitis. For the 17 patients who had peritonitis were both sexes treated by chronic HD/PD program at Institute for Renal Disease, UMC Zvezdara-Belgrade (9 male patients age from 50 to 80, average 64,4 years; 8 female patients age from 60 to 88, average 76,5 years). The most common reason for end stage renal disease was arterial hypertension 8 cases (47%), followed by diabetes mellitus and arterial hypertension 3 cases (17,6%), glomerulonephritis 2 cases (11,8%), diabetes mellitus 1 case (5,9%), HIV 1 case (5,9%), TBC 1 case (5,9%) and intoxicate 1 case (5,9%). The commonly proscribed treatment (therapy) were HD 9 cases (52,9%), followed by PD 6 cases (35,3%), no PD/HD 2 cases (11,8%). Average duration of dialysis treatment was 22 months (min/max 1 month-13 years). During the inpatient period 4 patients were died. From 17 cases who received inpatient rehabilitation program after peritonitis, 6 were full recovery, 3 were partial recovery – still need nursing facility at home, 8 no evidence of physical recovery.

Conclusions. According to our results we conclude that most of the patients get peritonitis in the early period of starting PD/HD. Repeating of infection is very common. In more than half of patients we got better condition and recovery. Early treatment might have resulted in better outcome and can make slower physical deconditioning and improve physical activities.

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COMPLEX PROGRAM OF REHABILITATION OF PATIENTS WITH THE SOFT ARTERIAL HYPERTENSION

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Introduction. Actual studying of indicators of functional reserves and adaptable possibilities of an organism at the persons inclined to development of a proof arterial hypertension, working out of complex programs the adapted influence constructed on principles of complementarily, strengthening of effects of their components, in our opinion, is.

Materials and methods. We survey 250 men at the age from 20 till 45 years. Complex of restorative correction:

- Bioenergymagnetic resonant therapy;
- Baths with Mitofen;
- Physical trainings with dosed out in steps accruing physical activities on cyclic and power training simulator (racetrack, ergometer, elliptical crossover);
- Psychological and relax therapy;
- An individual diet.

Mitofen - water-soluble polymeric structurally functional analogue natural coenzyme Q10. Unlike analogue the preparation is an effective water-soluble antioxidant. The preparation promotes increase of power supply of live cages at the expense of more favorable use of oxygen in a respiratory chain, and also will neutralize oxidizers which are formed at sharp oxygen insufficiency in organism fabrics.

Results. There were normalization of variability the arterial pressure is noted, especially during evening and night time (in 84% of cases), absence of incidental increase the arterial pressure during the evening and night time observed before treatment, is revealed decrease in the general vascular peripheral resistance at carrying out of loading test (62%), improvement microcirculation blood-groove (90%), normalization daily excretion catecholamine (30%), harmonization of functional activity cardio respiratory systems at physical activity (86%), reduction of degree of meteo sensitivity (54%), and also mood improvement, decrease in uneasiness and activity increase (94%).

Conclusions. The given complex program can be recommended for inclusion in programs of medical rehabilitation the patients with the arterial hypertension, restorative and improving establishment's centers.

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080

KINESIO TAPE APPLICATION IN NEURO-PEDIATRIC REHABILITATION

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Kinesio tape, an alternative taping technique, was introduced by Kenzo Kase in 1996. It is thin, latex free, anti-allergenic and can be stretched in the longitudinal axis. Therapeutic effects of kinesiotaping include decreasing pain, increasing muscle strength, improving blood and lymph circulation, and repositioning the subluxated joints by relieving abnormal muscle tension. Kinesio tape is currently used in rehabilitation as an adjuvant therapy method due to positive effects on pain and gait pattern. Although the exact mechanism of action is not clear, neurofacilitation and mechanical restraint have been proposed as possible underlying mechanisms. Different methods to increase the internalization and diffusion of BTX-A so as to enhance its effects have been described. Among these are various rehabilitative technologies, including stretching, functional electrical stimulation, taping, and therapeutic exercises. The sustained stretching of spastic muscles obtained by taping procedure can result in greater internalization of BTX-A (producing a muscular activation by elicitation of tonic stretch reflex) and even a positive action on the rheological properties of spastic muscles. In recent years, taping is frequently used in rehabilitation of children with cerebral palsy, spina bifida and obstetric brachial plexopathy. The main purposes of kinesio tape application in these groups are to reduce spasticity and to stabilize joint. Besides its effectiveness, the band is non-allergenic and not restricting movements.

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2. Ozkok O, Karadag-Saygi. "Kinesiotaping in hemiplegic cerebral palsy" Residency research thesis 2011.

081

HYALURONIC ACID INJECTIONS AND ADVERSE REACTIONS. A CASE REPORT

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Introduction to Hyaluronic Acid evidences. The pathologic changes of synovial fluid hyaluronic acid, with its decreased molecular weight and concentration, led to the concept of viscosupplementation. Viscosupplementation came into clinical use in Japan and Italy in 1987, and in the United States in 1997. Hylans are cross-linked hyaluronic acids, which gives them a higher molecular weight and increased elastoviscous properties. The higher molecular weight of hylan may make it more efficacious than hyaluronic acid because of its enhanced elastoviscous properties and its longer period of residence in the joint space (i.e., slower resorption). Hyaluronic acid (HA) injections relieve pain more than placebo. The effect is small but similar to results from oral nonsteroidal anti-inflammatory drugs (NSAIDs) or steroid injection (strength of recommendation **B**, conflicting meta-analyses). The various HA products all appear to be equally effective in reducing pain randomized clinical trials [RCTs]). Data concerning the effect of HA on functional ability are conflicting. The exact mechanism of action of viscosupplementation is unclear. Although restoration of the elastoviscous properties of synovial fluid seems to be the most logical explanation, other mechanisms must exist. The actual period that the injected hyaluronic acid product stays within the joint space is on the order of hours to days, but the time of clinical efficacy is often on the order of months. Other postulated mechanisms to explain the long-lasting effect of viscosupplementation include possible anti-inflammatory and antinociceptive properties, or stimulation of in vivo hyaluronic acid synthesis by the exogenously injected hyaluronic acid.

Materials/evidences about Adverse Reactions: In most of the trials of hyaluronan and hylan, rates of adverse reactions have been low (generally zero to 3 percent). No systemic reactions were attributed to hyaluronic acid. Most of the reported adverse reactions consisted of minor localized pain or effusion,

which was almost always resolved within one to three days. Case reports of induced pseudogout exist. It is unclear whether these local reactions were caused by the hyaluronic acid itself or by the injection procedure. No long-term side effects have been reported.

Case Report. we reporta clinic case with iconographic data of a 71 female patients affected by post-traumatic arthritis, treated with an injection of high molecular weight HA that had sudden severepain after knee injection. Pain lasted for 2 months constantly and required opioids and intrarticular morphine injection to be treated succesfully. After two months she decided to have a total knee replacement. We will presentclinical data, x rays pre-post surgery and photoes of the bone reactions taken intraoperatorially in the surgery theather.

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ERRORI DI SCELTA E DI PERCORSO RIABILITATIVO INFLUENZANO L'OUTCOME FUNZIONALE DI UN GIOVANE TRAUMATIZZATO CRANICO. RIFLESSIONI SU UN CASE REPORT

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Introduction. Severe spastic quadriplegia can lead to limbs triple flexion-adduction, muscleretraction and joint deformities. When anatomic deformities are definitively established only orthopedic surgery can restore joint mobility. For this reason deformities prevention is the main goal of the rehabilitation program. We describe a clinical case in which the untimely transfer of a patient to the UGC, an incorrect surgical intervention and a superficial assessment of "baclofen test" produced worsening of motor impairment and additional obstacle in the conduct of rehabilitation program for a severe traumatic brain injured patient.

Case Report. Severe brain injured male, 26 years old, polytrauma; GCS 3; SSPE: N20 bilaterally present; Brain CT scan: indirect signs of diffuse axonal injury and ESA. Multiple fractures and limbs dislocations surgically reduced. Week 14. Physiatric consulting: severe spastic tetraplegia, four limbs triple flexion contracture. Baclofen Test. Week 16. Injection o a 50 mcg single bolus of baclofen. Monitoring. Week 20. Physiatric consulting: recommended tenotomy of the right hamstrings to improve the sitting posture and postural changes. Week 22. Bilateral tenotomy of the knees flexor tendons and Achilles tendons; placement of knee braces. Week 26. Transfer to the UGC: the patient is cooperative, explores with eyes, answer YES / NO with nods. The prevalent postural pattern on bed is in triple flexion of the legs; the patient is able to rotate the trunk from both sides in response to queries and challenging contexts. The lower limbs and upper left show generalized spontaneous motor activity, while the right arm shows finalized motor activity. Left elbow and wrist present deformities in flexion. There is widespread spastic hypertonus. Adjustable tutors are placed in both knee. Proximal and distal stability of the plegic left lower limb are absent in standing posture. Flexion-extension are present in the right foot, as well as abduction and external rotation of hip and triple flexion of right limb, but there is not stability in upright posture. Tracheostomy and nasogastric tube are present; Barthel 0/100, DRS 21, LCF 3. Week 27. PEG placement; Week 29. tracheostomy tube removal. Week 34. Good recovery of orally nutrition, verbal communication, aligned sitting posture with head and trunk stability. It 'still absent lower limbs stability in the upright posture: the left limb is plegic, while the right shows both flexion and extension movements but too weak to counteract the force of gravity.

Discussion. The delayed transfer to UGC has produced no early planning of a multidisciplinary rehabilitation program, underestimation of residual neuromotor abilities and non-use of postures to counter triple flexion and retraction, lack of neuromotor and consciousness prognosis. The clinical picture of neuromotor double hemiparesis was erroneously considered as "quadriplegia". The wide bilateral tenotomy of the lower limbs, performed in opposition to the physiatric advice, has produced an inhibition of the right "better" lower limb function and caused additional difficulties for the rehabilitation project in a patient with good cognitive and motor recovery. Invasive procedure was performed before a precise definition of the functional neuromotor prognosis. The Baclofen Test has not been executed according to the published rules: progressive increasing of dosage from 25 to 100; post-injection efficacy assessment through Ashworth Scale.

Conclusions. Many Italian Regions have provided 3th level rehabilitation pathways for patients with severe acquired brain injury. We describe a case report where poor adherence to the rules of transfer to a specialized rehabilitation center, lack of proper perspective prognosis for neurological recovery and multidimensional assessment of cognitive and behaviour disorders, surgical intervention without agreement with the rehabilitation program, superficial and unreliable implementation of a diagnostic test have caused avoidable increased neuromotor impairment and sub-optimal disability outcome in a young brain injured individual.

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LINFEDEMA POST MASTECTOMIA, IL RUOLO DEL BRACCIALE ELASTOCOMPRESSIVO IN ASSOCIAZIONE AL TRATTAMENTO DECONGESTIONANTE COMPLESSO

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Introduction. Lo scopo di questo lavoro è valutare come l'introduzione della fornitura diretta da parte del Servizio Sanitario Regionale del bracciale elastocompressivo, in associazione al Trattamento Decongestionante Complesso, abbia inciso sull'outcome, in un gruppo di donne con linfedema dell'arto superiore post mastectomia o quadrantectomia. L'obiettivo principale è ottimizzare il percorso riabilitativo cercando di mantenere i risultati raggiunti, ridurre il numero di riacutizzazioni dell'edema e di conseguenza il numero di prestazioni riabilitative ripetute. In letteratura il bracciale elastico è fortemente indicato (1,2,3) ma il suo impiego non può essere svincolato dagli indispensabili trattamenti che lo precedono, essendo questo indumento l'atto conclusivo di un percorso complesso, personalizzato ed integrato.

Materials and methods. Sono state valutate 97 pazienti seguite nella SSD Riabilitazione del Distretto 4 in un ambulatorio dedicato alle donne operate al seno, dal 2005 al 2010, sulla base dei dati ricavati dalle cartelle cliniche. Tutte sono state sottoposte al Trattamento Decongestionante Complesso per linfedema dell'arto superiore conseguente a mastectomia o quadrantectomia. Variabili outcome: Differenza della circonferenza media del braccio (media delle misurazioni di 5 circonferenze) fra controllo e fine della terapia. Durata del periodo fra fine terapia e controllo. Variabili indipendenti: uso del bracciale, anno dell'intervento chirurgico, anno di presa in carico, durata della riabilitazione, effettuazione di chemioterapia, effettuazione di radioterapia, tipo di intervento chirurgico, dissezione ascellare.

Results. Una differenza della circonferenza media del braccio minore o uguale a 0 (non peggioramento dell'edema) fra controllo e fine della terapia riabilitativa è associata positivamente all'anno dell'intervento chirurgico ed alla durata del trattamento fisioterapico, negativamente all'aver effettuato chemioterapia. Una durata lunga del periodo intercorso fra fine della terapia riabilitativa e controllo è associata positivamente all'anno di presa in carico della riabilitazione e negativamente all'anno di intervento chirurgico ed all'intervallo di tempo fra questi due eventi. Il miglior modello di regressione logistica, pur non evidenziando associazioni statisticamente significative con l'uso del bracciale, richiede anche questa variabile.

Conclusions. I dati analizzati non permettono di evidenziare differenze dovute all'uso del bracciale elasto compressivo né in termini di mantenimento dei risultati dell'intervento fiosioterapico né come lunghezza del periodo fra fine della riabilitazione e controllo. Un aumento della casistica potrebbe fornire indicazioni circa l'utilità del bracciale nel prolungare gli effetti del trattamento fisioterapico.

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084

RELIABILITY OF IN-VEHICLE DATA RECORDER AS AN ASSESSMENT TOOL FOR DRIVERS

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Introduction. The aim of this study was to check the reliability of the In-Vehicle Data Recorder (IVDR) as an assessment tool for identifying drivers' behavior characteristics. Driving evaluation typically conducted by Occupational Therapists (OTs) includes both off-road and behind-the-wheel tests. Off-road assessments are conducted at the clinic rather than in the distracting arena of motor vehicle traffic, which renders their reliability as a predicator of driving ability suspect. Behind-the-wheel evaluation, however, although considered to have ecological validity, does not always succeed in obtaining information about personal attributes that are difficult to observe directly during the one hour of the test. These limitations clearly indicate the need for other, more reliable sources of information for drivers whose driving needs monitoring. The present study is aimed at finding the optimal use of the IVDR in analyzing driving patterns and changes in the behavior of drivers over time.

Materials and methods. Participants and Setting: This study was a short-term follow-up that used IVDR to assess actual driving quality. Sixty four volunteers who have professional driver's licenses and work as cab drivers were recruited. Mean age was 50±10.8. The drivers were monitored during a work period of about a month and a half. Design: IVDRs were installed in the vehicle of each participant and recorded detailed information about its position, speed, vertical and horizontal acceleration, and maneuvers. We stored trip information during the work-period as well as the type of undesirable events that occurred during the trip. Measures: We defined the rate of undesirable events as (a high rate indicating dangerous drivers). For each driver we computed a stable statistical estimate of the event rate. The total driving time was T hours. We computed the average event rate for every time between 0 to T. We also created a convergence index computed by dividing the number of events that exceeded of the eventual event rate by the nominal number of events (). We defined two tolerance lines at and at. Average rate within these lines was considered within tolerance. This model enabled us to identify anomalies in the rate and the time at which the rate "stabilizes" (where a reliable estimate for the event rate is reached).

Results. The analysis indicates that collecting a sample of about 300 hours per driver should result in a relatively stable and reliable measure for assessing the driver's average event rate (convergence index <.16). Sampling less than 100 driving hours per driver does not result in a reliable measure for assessing the driver's event rate (convergence index=.46).

Conclusions. In sum, the advantage of IVDR monitoring technology is that it enables the collection of accurate driving information. The availability of such a large amount of information may open new possibilities for the analysis of individuals' driving behavior. This will make it possible to evaluate changes over time and use the results to create personalized interventions. The method can be implemented by OTs on different driving populations such as older drivers, drivers with ADHD, new drivers, etc.

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FUNCTIONAL IMPROVEMENT IN UPPER LIMB IN LONG-TERM SPASTIC HEMIPARESIS WITH MULTIDISCIPLINAR TREATMENT

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Introduction. Botulinum toxin type A (BoNT-A) has been reported to be an effective treatment for limb spasticity for neurological disorders. However, the reduction in spasticity after BoNT-A injection alone does not ensure an improvement in the active motor function of the affected limb. Moreover, functional improvement in lower limb, as can be proved on gait evaluation, has not been usually observed in upper limb function.

Materials and methods. We present the case of a 38 year-old woman, with right spastic hemiparesis caused by cerebral palsy. She had always rejected any type of medical follow-up from adolescence since she had assumed her disability. We proposed her to undertake a multidisciplinary treatment at our spasticity unit to try to improve her spastic upper limb position. Physical examination: gait with mild limping due to minimal tibialis anterior paresia, which did not require orthesis. Right upper limb: fair mobility of the shoulder, limitation in flexion and extension of elbow, with flexum of 15 º, position in flexion, pronation and ulnar deviation of wrist, flexed fingers and included thumb. Minimum active pronosupination (5-10º). Modified Ashworth Scale 3. The patient had an active working life, and used her right hand only for support. She could eventually grasp but not ungrasp. After informed consent, the patient was treated with BoNT-A with electrical stimulation control (biceps brachii, pronator teres, flexor carpi radialis and ulnaris, superficial and deep flexor digitorum, adductor and opponent of the thumb). Treatment also included serial casting and daily occupational therapy. This last therapeutic approach was based on mirror therapy and implementation of modified constraint therapy at home.

Results. After 3 months, the patient improved both upper limb position and daily life activities such as eating, drinkingand so on. She also developed her ability of grasping and ungrasping that she had never had before. The patient was really collaborative and satisfied.

Conclusions. Multidisciplinary treatments, including BoNT-A can significantly improve function in patient with untreated long term hemiparesis. Spasticity management is a multi-disciplinary activity and should be undertaken when skilled personnel and appropriate facilities are available.

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SELECTIVE RISK FACTORS EVALUATION FOR THE DEVELOPMENT OF CEREBRAL PALSY IN PRETERM INFANTS IN SERBIA

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Introduction. Cerebral Palsy (CP) present non-progressive chronic neurological disorder that is often associated with preterm birth. Aim of our study was to evaluate frequency and influence of selective risk factors on CP onset in preterm babies.

Material and methods: We have evaluated 18 preterm children with diagnosed CP. Regarding gestational age, patients were divided into 3 groups: group below 28th gestational week (GW), group between 28th -31st GW and group between 32nd-36th GW. We assessed separately male and female gender; as well as convulsions presence. Patients with asphyxia were divided into: group with moderate and group with severe degree. Concerning intracranial hemorrhage (HIC) we observed 4 HIC degrees: first, second, third and fourth degree. We assessed as well cystic periventricular leukomalacie (CPVL) presence.

Results. There were 2 (11.1%) patients bellow 28 GW, 9 (50%) between 28th -31st GW and 7 (38.9%) between 32nd -36th GW. Male gender was significantly represented with frequency of 14 (77.8%) males versus 4 females (22.2%) ($p<0.05$). There were 10 (55.6%) patients with CP with neonatal convulsions ($p>0.05$). Moderate degree (14 (77.8%) patients) of asphyxia was significantly frequent then severe degree (4 (22.2%) patients) ($p<0.05$). First and second HIC degree was described in 15 (83.3%) patients while third and fourth degree in 3 (16.7%) patients ($p<0.05$). In 13 (72.2%) patients with CP was diagnosed CPVL ($p<0.05$).

Conclusion. In our study we found that majority of patients with CP belong to group between 28th -31st GW. We found that male gender and CPVL are significant risk factors for the development of CP in preterm infants.

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USE OF EARLY INDICATORS IN REHABILITATION PROCESS TO PREDICT ONE-YEAR MORTALITY IN ELDERLY HIP FRACTURE PATIENTS

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Introduction. Hip fracture (HF) in the elderly is associated with increased morbidity and mortality. There is clear agreement in literature that early prediction of outcome following hip fracture enables better allocation of resources and results in more efficient health care. Mobility has vastly been studied as an endpoint measure for recovery after hip fracture. However, its predictive value has been insufficiently addresse. The aims of this study were twofold: 1) to explore predictors of ambulation status at hospital discharge in patients ≥65 years of age operated on for fracture of the hip 2) to investigate the impact of ambulation status at hospital discharge on one-year mortality after hip fracture.

Materials and methods. We performed an open prospective cohort study of 344 patients who were admitted to the Clinics for Orthopedic Surgery and Traumatology (COST), Clinical Center Serbia with a HF over a 12 month period (January 1, 2010 to January, 1 2011). Multivariate regression analysis was used to explore predictive factors for ambulatory status at discharge, and 1-year mortality adjusted on important baseline variables.

Results. Cumulative one-year mortality was significantly lower for patients in the ambulatory group when compared to patients in the non-ambulatory group. Patients who were older, had severe cognitive impairment, lower functional level before injury, and in whom postoperative delirium, and pressure ulcers occurred had a higher chance of not recovering their gait ability at hospital discharge, and being dead 1-year after hip fracture.

Conclusions. Inability to walk at hospital discharge, and presence of delirium are independent predictors of one-year mortality. Every effort should be made to assure early mobilization after hip fracture surgery, and prevention, prompt recognition and treatment of postoperative complications in order to facilitate better short-and long term outcome after hip fracture.

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BOTULINUM TOXIN TYPE A (BOTOX) INJECTION TO IMPROVE SEATING IN DYSKINETIC CEREBRAL PALSY

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Introduction. Botulinum toxin type A is a well accepted treatment for spastic limbs consequences in cerebral palsy (CP). Certain muscles are preferable injected for this indication. Trunk and pelvis muscles other than iliopsoas for flexed hip deformity are less frequently reported to be injected.

Materials and methods. We present two cases of dyskinetic CP GMFSC V with trunk and pelvis postural deformities precluding an acceptable seating that were treated in several cycles with botulinum toxin to limit the consequences of rotational trunk deformity and opistotonus with the primary goal of improve seating in wheelchair.

Results. Case 1: A 11 years old girl who present rotational trunk deformity consisting in right head turning, left spinal scoliosis with trunk displacement to the right and hyper abduction posture of the right hip. She was treated in three times (October 2010, March 2011, October 2011) with Botox with doses between 120-200 U (body weight: 15 kg, 8,3-12,5 U/kg). The response was rated as good by parents achieving a subjective goal benefit of 60% in facilitating seating after all treatments. Nevertheless, in spite of dystonic postures persistence and temporary effect and needed reinjection, low dose diazepam was started in slow increase until 10mg day. Muscles injected were: biceps femoris, gluteus major, gluteus medius and paravertebralis (right side). Case 2: A 12 years old girl with opistotonus reaction and slight right trunk deviation that included bilaterally hip hyperextension and severe hamstring shortening (popliteal angle 80º bilaterally) that preclude seating at school, being necessary a reclined posture. She was injected in three times (October 2010, March 2011, January 2012) with Botox with doses between 160-200 U (Body weight: 13 kg, 12,3-15,5 U/kg). The reported benefit by parents was complete achievement of goal. After injections she could seat in wheelchair in scholar hours with hip flexion at 90º bilaterally and well trunk alignment. Muscles injected were: semitendinosus, semimenbranosus, biceps femoris, iliocostalis and gluteus major.

Conclusions. Other goals for injection in CP besides improving limb impairment or function can be achieved. Pain and facilitating care are more frequent indications in severe non-ambulating cerebral palsy. Trunk and pelvis postural deformities related to dyskinetic features can be essayed to improve to some extent with focal treatment.

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EFFECTS OF TRANSCRANIAL DIRECT CURRENT STIMULATION IN PATIENTS IN VEGETATIVE STATE AND MINIMAL CONSCIOUSNESS STATE: PRELIMINARY FINDINGS

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Introduction. The main disorders of consciousness, Vegetative State and Minimal Consciousness State, are usually the result of severe brain injury (GCLA), often of a traumatic or vascular (ischemic or hemorrhagic), and occur when, after a period of coma, the patient recovers the sleep-wake cycle but has a severe impairment of consciousness and responsiveness to external stimuli. Electrical stimulation with transcranial direct current (tDCS) has non-invasive, scientifically proven effects on the excitability of cortical neurons, modulating the long-term neuroplasticity with an excitatory effect (anodic stimulation) or inhibitory effect (cathodic stimulation) and in the outcomes of stroke it has been shown to have significant effects on higher cognitive functions such as language and on motor function.

Materials and methods. Two subjects with a diagnosis of vegetative state were recruited. The study was conducted by providing anodic stimulation with tDCS on the left DPFLC, dorsal prefrontal lateral cortex, with the cathode on the right supraorbitary cortex, for 20 minutes a day for 5 consecutive days at a current amplitude of 2 mA. We did a clinical assessment: physical examination and specific evaluation scales for disorders of consciousness: GCS (Glasgow Coma Scale), CNC (Coma Near-Coma), LCF (Levels of Cognitive Functioning), DRS (Disability Rating Scale); and an instrumental assessment (using fMRI, functional magnetic resonance imaging) of patients before and after treatment.

Results. The results obtained, although partial, indicate a better and more extensive activation of the cerebral cortex in functional magnetic resonance imaging; besides we have an improvement of about 10% of the score of all clinical rating scales administered.

Conclusions. These results confirm the hypothesis that transcranial direct current can significantly affect brain plasticity even in disorders of consciousness, thereby increasing the chances of clinical recovery.

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PROTOCOLLO SELETTIVO RIABILITATIVO IN RELAZIONE ALL'INNESTO PER LA RICOSTRUZIONE DEL LCA

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Introduzione. Vi sono numerose procedure chirurgiche per la ricostruzione del LCA e diversi protocolli riabilitativi. Vari innesti sono impiegati nella ricostruzione chirurgica del LCA, compresi quelli sintetici [1]. È clinicamente rilevante comprendere le differenze biomeccaniche peculiari ad ogni innesto. Nella ricostruzione con gracile e semitendinoso e con device sintetico LARS[â] (Ligament Advanced Reinforcement System) vi potrebbe essere indicazione a protocolli più aggressivi rispetto ai pazienti operati di tendine rotuleo, poiché il paziente lamenta minore dolore anteriore di ginocchio, minore limitazione funzionale ed è quindi anche maggiormente disponibile ad effettuare precocemente anche intensi esercizi di rinforzo della muscolatura. Lo scopo di questo studio è di indagare le differenze biomeccaniche in relazione all'impiego di innesti autologhi e devices sintetici, ai fini di concepire un selettivo protocollo fisioterapico [2].

Materiali e metodi. Otto pazienti maschi sottoposti a chirurgia ricostruttiva ligamentosa con innesto di tendine rotuleo con tecnica di Kenneth-Jones (K-J) (età media, 27 ± 3 anni; peso medio, 81 ± 7 kg; altezza media, 181 ± 4 cm), otto pazienti maschi sottoposti a ricostruzione del LCA con innesto autologo di gracile/semitendinoso (G-ST) (età media, 29 ± 6 anni; peso medio, 79 ± 10 kg; altezza media, 179 ± 5 cm), otto pazienti maschi sottoposti a ricostruzione del LCA con device sintetico LARS[â] (età media, 38 ± 5 anni; peso medio, 80 ± 6 kg; altezza media, 180 ± 5 cm) hanno partecipato allo studio. I pazienti sono stati valutati al primo ed al terzo mese post-operatorio. I dati di gait analysis hanno considerato i parametri cinematici e cinetici ottenuti con il sistema optoelettronico EL.I.Te. 3-D SMART (BTS, Milan, Italy) integrato da un sistema telemetrico (Pocket EMG, BTS, Milan, Italy) per l'acquisizione delle grandezze muscolari.

Risultati. Al termine della stance vi è una riduzione della flessione di ginocchio per i pazienti K-J, con una significativa Deviazione Standard della Differenza (SDD=10,7% e 12.5%) rispetto ai picchi delle curve cinematiche dei pazienti G-ST e LARS[â]. Nette differenze sono state osservate nei profili cinetici di ginocchio tra i differenti gruppi. I pazienti K-J hanno mostrato un ridotto momento flessorio esterno di ginocchio alla mid-stance con una significativa Deviazione Standard della Differenza (SDD=14,3% e 16,8%), rispetto ai picchi delle curve cinetiche dei pazienti G-ST e LARS[â], che hanno mostrato un ridotto momento estensorio esterno di ginocchio alla terminal-stance. Durante il cammino si è registrata attività ridotta del retto femorale, in particolare nei pazienti K-J. Vi è contrazione prolungata degli ischio-crurali, con un'accentuata attivazione all'inizio del carico, più evidente negli operati G-ST.

Conclusioni. Sono due i parametri di riferimento che consentono il monitoraggio della biomeccanica del post-operatorio: l'andamento dei momenti articolari flessori e l'attivazione della muscolatura peri-articolare. Le principali differenze tra i tre gruppi di pazienti operati riguardano i momenti articolari. La conclusione di questo studio è che i pazienti operati con tecnica di Kenneth-Jones richiedono tecniche fisioterapiche diverse ed anche più prolungate di tutela, rispetto agli altri due gruppi di pazienti operati [3]. I pazienti K-J devono evitare esercizi a catena cinetica aperta all'inizio della riabilitazione, perché ciò comporta uno stress eccessivo sul neo-legamento. Nei pazienti G-ST e LARS[â] vi è indicazione da subito ad esercizi a catena cinetica chiusa ed aperta, che richiedono tuttavia range articolari diversi di esecuzione nei due gruppi di pazienti e devono essere incrementati progressivamente.

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THE EFFECTS OF REHABILITATIVE TRAINING WITH PERCEPTUAL SURFACES IN PATIENTS WITH PARKINSON'S DISEASE: POSTURE AND BALANCE

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Introduction. The primary manifestations of Parkinson's disease (PD) are abnormalities of movement, including movement slowness, difficulties with gait and balance, and tremor: impairments in executive functioning are frequently observed. Balance and mobility problems are common for people with PD with an increased risk of falls. The aim of this case report study is to evaluate the efficacy of a perceptive rehabilitative approach (PS), based on a new device, with regard to posture and balance working on the recovery of the midline of the trunk.

Materials and methods. Nine patients with PD were enrolled (5 F and 4 M) for a rehabilitative treatment with perceptual surfaces (ten sessions, twice a week lasting one hour each) mean age 70 ± 7.5 SD, BMI 25 ± 3,8. The nature and the purpose of the study were presented to patients and written informed consent was obtained. Were administered the following scales: Unified Parkinson's Disease Scale (UPDRS), Hoen y Yaharper scale, Tinetti Balance scale, Geriatric Depression Scale (GDS), SF-36 for quality of life, VAS for back pain and the survey instrument with stabilometry allowed the assessment of postural control. According to the pattern of Ottenbacher ABA we performed the evaluations in T0 (before treatment), T1 after treatment, T2 (follow-up to 60 days) and T3 after the end of the second rehabilitative treatment cycle. To compare the results of ordinal measurements we used the Friedman analysis to evaluate the significance of variation along time while repeated measures analysis of variance was performed on continuous measurements. the model of Single-Subject Design (SSD) was performed.

Results. The stabilometry showed a significant reduction of sway length, ellipse area and AP and LL velocity of Cop (P=0.026). A progressive improvement in terms of quality of life (SF-36), clinical assessment as balance (Tinetti scale), pain (VAS) and disability (UPDRS- GDS) was observed (P=0,037, F=3,80).

Conclusions. The SSD can be a good way to underline the primary unit of comparison within-subject and effective treatments can be linked with specific patient characteristics to immediately relevant to the clinician. The PS and the exercises of research and use of the trunk midline as well as tactile and proprioceptive stimulation have proven effective in improving postural control and balance in PD. Interpret the body as a surface receptor, means trying to retrieve, the patient's ability to modify the surface receptor to interact with the environment.

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URINARY TRACT INFECTIONS AND IDIOPATHIC OVERACTIVE BLADDER IN CHILDREN - PRELIMINARY STUDY FROM 8 CASES

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Introduction. Urinary tract infections are a frequent cause of pediatric consultation. Searching for loco regional or general causes to these disease, symptoms of overactive bladder must be systematically reported. In fact, overactive bladder witch is the most common voiding dysfunction in children, is frequently associated with history of urinary tract infections. Urodynamic analysis confirms the diagnosis of detrusor overactivity, evaluates bladder dysfunction, and guides the therapeutics.

Materials and methods. Preliminary study on 8 children followed in the department of physical and rehabilitation Medicine in the Military Tunis hospital for urinary tract infections with or without clinical evidence of overactive bladder, during period from January till June, 2011. All the patients had a clinical examination and complete urodynamic analysis consisting in a urine flow measurement with estimation of residual bladder volume and a cysto-

manometry. The patients presenting a neurogenic overactive bladder were excluded from the study.

Results. The study included 4 girls and 4 boys with an average of 7, 7 years old. Clinical symptoms of overactive bladder were present at 6 children. All the patients presented at least an episode of feverish urinary tract infection. The urodynamic analysis revealed detrusor overactivity in 5 patients among whom 3 had a high-pressure mictional regimen. The diagnosis of sphincter dyssynergia was made in one patient. The treatment of overactive bladder syndrome consisted on a therapeutic education associated with anticholinergic drugs, pelvic floor rehabilitation and alpha blockers. Bladder intermittent catheterization was indicated in one patient.

Conclusions. The urodynamic assessment is a useful diagnostic tool for bladder dysfunction in childhood, especially when there is a history of urinary tract infection. By assessing pressure regimen during filling and voiding phases, it can identify patients exposed to high risk of complications. However it remains an invasive investigation, and must be indicated only when necessary.

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IMPACT OF POSTURAL RE-EDUCATION PROGRAM ON BACK PAIN AND PHYSICAL FUNCTIONING IN WOMEN WITH POSTMENOPAUSAL OSTEOPOROSIS: RANDOMIZED CONTROLLED TRIAL

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Introduction. Osteoporosis negatively affects the lives of nearly half of postmenopausal women both socially and physically. Decreased health related quality of life and functional status have been described primarily in terms of pain, as back pain, and disability related fractures. The aim of this study was to investigate the effects of a postural re-education program on quality of life and activities of daily living (AVQ) (primary outcome) and pain perception (secondary outcomes) in women with postmenopausal osteoporosis.

Materials and methods. A single blind randomized control trial with 3 months follow up was performed. Ninety four patients were enrolled (mean age 68 ± 14.5 SD, BMI 26 ± 3,8) and seventy six allocated in two groups: forty patients for rehabilitative group (TG) and thirty-six ones for control group (CG) in waiting list from an outpatient rehabilitative department of University centre. The CG received no instructions and were not encouraged to change their physical activities, activities of daily living or social habits. Written informed consent was obtained. Inclusion criteria were: women with postmenopausal osteoporosis for at least one year, with chronic back pain. Exclusion criteria were: acute pain, low back pain due to specific causes (fracture, scoliosis > 20° Cobb, spondylolisthesis, disc herniation and lumbar stenosis), reumathologiacal, neurological and cancer concomitant disease, back surgery before study. The postural re-education program was an intensive 4 weeks rehabilitative group intervention (4 or 5 partecipants) in clinic, by 10 sessions lasted an hour each, three times a week. Types of exercises included: strengthening exercises on the extremities and trunk, agility aerobic training, combined exercise for streching, balance, posture and proprioception. A pamphlet with home –based exercise plan was delivered to patients to repeat the rehabilitative program independently. Were administered the following scales: VAS and McGill Pain Questionnaire and Oswestry scale for pain, SF-36 and SOQLQ for quality of life and AVQ questionnaire in T0 before treatment, T1 at the end of treatment and T2 -3 months follow up. To statistically analysis Mann-Whitney u-test was used to assess the significance of difference recorded between groups and Friedman analysis for differences recorded along time within groups. Repeated measures analysis of variance was used to assess the effects of group-time. Significance level was set at 0.05.

Results. There were no statistical differences in clinical data between TG and CG in T0. A significant improvement was observed after rehabilitative treatment in T1 and maintained at T2 for quality of life, AVQ and back pain especially for physical function, role emotional and social function ($p<0.05$).

Conclusions. It is possible to obtain an improvement of quality of life and AVQ as a reduction of disability and back pain after the effectiveness of a multidisciplinary postural re-education program in women with postmenopausal osteoporosis. The self management of psychosocial and AVQ related conditions are an important key point in obtaining positive results in rehabilitation for osteoporosis.

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LA RIABILITAZIONE POST-ACUTA DELL'ICTUS CEREBRALE: VALUTAZIONE DELLA COMPLESSITÀ CLINICA E DELL'OUTCOME CON INDICATORI DI PROCESSO-ESITO

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Introduction. La degenza in una UO di Riabilitazione Intensiva post-acuta dei pazienti colpiti da ictus è spesso caratteriz-zata da molteplici eventi clinici talora in grado di condizionare anche significativamente il percorso di cura. Questo lavoro si prefigge di evidenziare e documentare queste variabili e la complessità clinica che ne de-riva, anche al fine di individuare elementi eventualmente significativi in termini di prognosi. A tale scopo abbiamo utilizzato un sistema di indicatori di percorso-esito inseriti nel progetto IPER2-Liguria per descrivere i percorsi di cura dei pz degenti nei reparti di riabilitazione.

Materials and methods. Questo lavoro è stato condotto su un campione di pazienti, ricoverati negli ultimi 2 anni nella ns UO di Ria-bilitazione per essere sottoposti ad un programma riabilitativo intensivo dopo stroke. IPER2 (Indicatori di Percorso-Esito in Riabilitazione) è un sistema di indicatori e misure generali utilizzato nell'ambito del progetto IPER2-Liguria, promosso dall'Agenzia Regionale della Sanità per descrivere la com-plessità clinica dei pazienti ricoverati nelle degenze riabilitative e definire l'outcome del pz al termine del percorso di cura. Gli indicatori generali sono distinti in: anamnesi pre-morbosa, indicatori di stato, indicatori di transizione ed indicatori di esito. Anamnesi pre-morbosa: vengono considerate in questo sub-set le malattie/condizioni croniche preesistenti (comorbilità prevalente), stratificate in 2 livelli: INSUFFICIENZA d'ORGANO-SISTEMA SEVERA e COMPLES-SITÀ CRONICA. Indicatori di Stato: distinti in marcatori di Complessità Clinica e marcatori di Dipendenza Funzionale. Indicatori di transizione: comprendono eventi di rilievo occorsi durante il ricovero che prevedono inter-venti terapeutici-assistenziali di particolare impegno. Indicatori di Esito: utilizzati per documentare l'outcome del processo riabilitativo. Le misure generali riguardano:

- Lo stato funzionale pre-morboso,: scala di Rankin ed indice di Barthel,
- Lo stato funzionale all'ammissione e alla dimissione (indice di Barthel).
- Lo stato mentale all'ammissione (Mini Mental Test).

Oltre agli indicatori generali vengono utilizzati indicatori specifici (Glasgow Coma Scale, Trunk control test, Motricity index, Token test, test della "cancellazione",Timed Up & Go, Walking Test.

Results. Dei pazienti del ns campione sono stati presi in considerazione alcuni elementi di anamnesi premorbosa, cioè antecedenti all'ictus. 39 pz presentavano in anamnesi almeno un tipo di insufficienza d'organo severa e ben 151 (circa il 78%) erano portatori di comorbilità (prevalentemente diabete mellito, ipertensione arteriosa e fibrillazione atriale), a testimonianza di una complessità clinica in media elevata già all'ingresso.

- Rankin pre-morbosa, Punteggio medio: 2.
- BIM totale pre-morbosa (media): 93.
- BIM deambulazione (pre-morbosa (media): 12.
- BIM totale all'ammissione (media): 32 (dipendenza elevata).
- BIM deambulazione all'ammissione (media): <3.
- Alla dimissione: BIM totale (media): 63.
- BIM deambulazione (media): 8.

Conclusions. Nella fase post-acuta dell'ictus (fase riabilitativa intensiva) sono presenti molteplici condizioni cliniche e funzionali. Alcune di queste, isolatamente o in associazione con altre, possono intervenire a condizionare significativamente la prognosi di recupero. Una adeguata informazione sulla

complessità di questi malati, delle cure e degli esiti, può consentire di individuare percorsi terapeutici ottimali.

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VITAMIN B COMPLEX IN THE TREATMENT OF LUMBOSACRAL RADICULOPATHY

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Introduction. B vitamins are a group of water-soluble vitamins that play important roles in cell metabolism. The B vitamins were once thought to be a single vitamin, referred to as vitamin B (much as people refer to vitamin C or vitamin D). Later research showed that they are chemically distinct vitamins that often coexist in the same foods. In general, supplements containing all eight are referred to as a vitamin B complex. Individual B vitamin supplements are referred to by the specific name of each vitamin (e.g., B_1, B_2, B_3 etc.). One form of combined vitamin B complex is benfothiamine (fat – soluble form of vitamin B1) and pyridoxine.

Materials and methods. The study included 60 patients with vertebrogenic lumbosacral radiculopathy suffered from moderate or severe pain during 1 month or longer. Patients have been randomized into 2 equal groups: in the main group milgamma has been prescribed in the combination with diclofenac; patients of the control group have received diclofenac only. Treatment duration was eight weeks, efficacy has been assessed by clinical scales in the 10th and 24th days, and by the results of telephone interview after 3 and 6 months. A trend to higher efficacy of the treatment of the main group compared to that of the control group assessed with the Visual Analogue Scale was observed during all the study but the difference reached the level of statistical significance only to the 24th day. The assessment of qualitative characteristics of pain with the Neuropathic Pain Scale revealed decreasing of intensive, acute and sensitive pain only in patients of the main group.

Results. The moderate or substantial improvement was noted in 66% patients received the combination therapy and only in 34% patients received diclofenac. At the 3rd months, between-group differences were still significant (the pain was absent or minimal in 63% patients of the main group and 34% of the control one). The results revealed the potentiation of analgesic effect of diclofenac by the vitamin B complex.

Conclusions. Using of milgamma in combination with NSAIDS leads to the rapid and long-standing regress of pain syndrome in patients with lumbosacral radiculopathy.

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MULTICENTER STUDY OF REHABILITATION TREATMENT WITH PERCEPTUAL SURFACES VERSUS POSTURAL RE-EDUCATION PROGRAM IN FIBROMYALGIA SYNDROME: RANDOMIZED CONTROLLED TRIAL

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Introduction. Fibromyalgia (FM) syndrome is characterized by chronic widespread pain referred to deep tissue, lasting at least three months and with the presence of pain to digital palpation in 11 of 18 algogenic areas. In this clinical picture is frequently associated with other symptoms such as fatigue, sleep disturbance, anxiety or depression, irritable bowel syndrome, headache, dysmenorrhea, paresthesia, dysesthesia, irritable bladder, symptoms of expression of neuroendocrine dysregulation. The aim of this study is to investigate the effectiveness of rehabilitation treatment with perceptual surfaces in FM compared to postural re-education program as Back School (BS) about the reduction of pain, the illness perception, quality of life and fatigue. Autcome secondary is to evaluate variations of the postural adjustment after the rehabilitation treatment with stabilometry.

Materials and methods. Sixteen women with FM were enrolled for a rehabilitative treatment with PS, mean age 52 ± 6,5SD, BMI 27,3 ± 5,5 SD. Inclusion criteria: fibromyalgia diagnosis (ACR criteria 1990 and 2010), ages 18 to 60 years, VAS> 3. Exclusion criteria: severe scoliosis or kyphoscoliosis, previous surgeries on the spine, neurological or psychiatric sequelae vertebral fractures, lumbosciatica, other rheumatic diseases. The rehabilitation treatment will be conducted at the outpatient physical medicine and rehabilitation for ten sessions, twice a week lasting one hour each. Written informed consent was obtained and approved by the ethics committee academia. Were administered the following scales: Visual Analog Scale, McGill Pain Questionnarie, Waddell Disability Index, Roland and Morris Disability Questionnaire for back pain, Minnesota Multiphasic Personality Inventory test-2 to evaluate the main structural features of personality, SF-36 for quality of life, Revisited illness perception Questionnaire for the mental representation of illness, the Health Assessment Questionnaire,Fibromyalgia assessment status, Fibromyalgia Impact Questionnaire, The Zung Self-Rating Depression Scale and stabilometric test. We performed the evaluations in T0 before treatment -T1 after treatment and T2- follow-up to three months. The sample was randomized into two groups: PSG(perceptual surfaces group) and PG (postural group). Controll Group (CG) of 20 FM that did not perform any rehabilitation treatment was enrolled. PS are based on the interaction between the patient's body surface and a support surface comprised of small latex cones of various dimension and elasticity. In training sessions, patients were asked to perform perceptive exercise to rehabilitate the perception of the trunk. The Mann-Whitney u-test was used to assess the significance of differences recorded between groups and Friedman analysis for differences recorded along time within groups. Repeated measures analysis of variance was used to assess the effects of group. Significance level was set at 0.05.

Results. The perception of the FM disease state has a major influence on rehabilitation outcomes and quality of life. The PSG have proved effective in reducing pain symptoms such as PG, but with no significant retention of outcomes at follow up.

Conclusion. A therapeutic procedure that attenuates stress and peripheral vasoconstriction should be highly beneficial for FM. Exercise, PS and postural re-education program, can interrupt the reciprocal interactions between psychological stress and each of the multiple- system disorders of FM.

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back pain through a new tool: a randomized clinical study. Clin Rehabil. 2012 Apr;26(4):339-50. Epub 2011 Sep 28.

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MENTAL PRACTICE IN GAIT REHABILIATION FOLLOWING STROKE

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Introduction. Mental practice with motor imagery has been recommended increasingly for use in rehabilitation programs following stroke. Successful generation of the image is the first step for its use in rehabilitation. Therefore it is necessary to assess the motor imagery ability in stroke patients so as to exclude damage –related effects on imagery vividness, temporal congruence and accuracy. Mental practice has been found effective in improving arm function after stroke (Page 2007). This study addresses motor imagery ability after stroke and the usefulness of mental practice in gait rehabilitation.

Materials and methods. Forty-two patients, 28 males and 14 females, aged between 17 -78 Y, between 4 weeks and one year post-stroke were included in the study. Subjects were randomized into two groups. Both groups received a standard rehabilitation programme. Additionally, the experimental group received 30 minutes of mental practice; the control group received the same amount of therapist interaction, consisting of 30 minutes of muscle relaxation. Motor imagery ability, motor recovery and gait velocity were all measured before and after 6 weeks of intervention. Motor imagery was assessed using the Motor Imagery Questionnaire-revised version (MIQ-RS) (Gregg 2010), the Time- Dependent Motor Imagery screening test (TDMI) (Malouin 2008), the Temporal Congruence test (Malouin 2008), the Walking Trajectory test (Bakker 2007) and a Mental Rotation task (Parsons 1994). The Fugl-Meyer test was used to measure motor recovery whilst gait velocity was assessed as a measure of gait.

Results. No group differences were found at baseline on the primary outcome measures or any of the other stratification factors (age, gender, side of lesion and time post-stroke). The visual sub-score of the MIQ-RS was significantly higher than the kinesthetic score ($p=0.002$). There was no difference between groups and between sessions but results revealed a borderline significance between group and session ($p=0.09$). The TDMI test revealed a statistically significant correlation between the number of stepping movements and the duration of time periods in all subjects ($p<0.001$). The temporal congruence test showed a ratio between imagery stepping time and actual stepping time of 0,97. There was no significant interaction between group and session for either test. The results of the walking trajectory test revealed an AW/IW ratio of 1,22. No significant interaction between group and session was found ($p=0.28$). The results of the hand mental rotation test indicated a statistically significant effect of rotation angle on imagery movement times in all subjects. In patients with a left brain lesion a significant difference was found in reaction time between the right and left hand. This difference was not revealed in left hemiplegic patients. The Fugl-Meyer score and gait velocity changed significantly over time in both groups ($p<0.01$) but no interaction between group and session was found (respectively $p=0.85$ and $p=0.24$). Further analysis revealed a borderline significant interaction between group and session in patients with a higher MIQ-RS score (> 63) and lower gait velocity ($p=0.08$).

Conclusions. The present findings indicate that patients with stroke have a preserved motor imagery. The vividness of the images can be trained and augmented by motor imagery training. The results of this study however suggest that only patients with a high imagery capacity and a low gait velocity may benefit from mental practice with motor imagery in gait rehabilitation post-stroke.

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NEUROPSYCHOLOGICAL TREATMENT IN SEVERE CASE OF COGNITIVE IMPAIRMENT IN CEREBRAL HEMORRHAGE

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Introduction. This work was prompted by the need to evaluate the possibility that a severe case of cognitive impairment, caused by a cerebral hemorrhage and characterized by an overall loss of intellectual capacity and a marked reduction of reasoning and mental processes, as revealed by speech assessment and neuropsychological examinations, could be improved using an early, intensive, multispecialty and cross-functional rehabilitative approach.

Materials and methods. The patient was a 63 year old male admitted to our hospital for a mild-to-medium facio-brachiocrural hemiparesis of the right side and mixed dysphasia, following a intraparenchymal hemorrhage in the left deep fronto-temporo-parietal region of the basal ganglia. Since the first evaluation, the most dominant symptom of the disorder appeared to be cognitive impairment rather than the mild motor deficit. For this reason the patient was initially subjected to speech assessment and neuropsychological examination and after an evaluation by a multi-specialist team (medical doctor, specialist in physical medicine and rehabilitation, neuropsycologist, physiotherapist, speech therapist, occupational therapist, and a nurse), was started on an intensive, cross-functional rehabilitative approach. After 8 weeks, the patient was again subjected to the same initial battery of tests. After release from the hospital, the patient was followed for a year at an outpatient facility, with progressively less frequent visits. After the year, the patient was again seen for a final evaluation.

Results. At the end of the intensive multi-professional approach, the speech therapy re-assessment showed marked improvement in the repetitions and numbers items, and in the writing from dictation, the areas initially most deficient. This may be related to an improvement of the short-term memory. Comprehension of both written and oral sentences was good. Reading, comprehension, word generation and naming were very good. The neuropsychological evaluation after one year revealed 1) an improvement in daily function (ADL and IADL) even in the absence of a caregiver (the patient did not have one) that could attest to it; the patient's own assessment of improved ability to handle day-to-day living seemed trustworthy. 2) the persistence of some deficits in higher cortical functions in a relatively stable framework in which there are only slight improvements - deficit in verbal understanding, access to the internal lexicon, logical reasoning and ante-retrograde verbal memory.

Conclusions. there is always the possibility of spontaneous recovery from the initial symptoms, it is clear that, among the various tests, the best recovery performance was obtained after the intensive regimen in the hospital. This clearly suggests that early intervention, within a time period deemed appropriate by the rehabilitation team, and an intense, multi-specialist and combined effort of several team members allows for a better and faster recovery of cognitive functions.

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LE VIBRAZIONI MUSCOLARI SELETTIVE NEL TRATTAMENTO DELLE PATOLOGIE NEUROMUSCOLARI

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Introduction. Le vibrazioni meccano sonore vengono utilizzate in ambito riabilitativo per il trattamento non invasivo di patologie ortopediche e neurologiche, dove è necessario un trattamento di recupero muscolare e controllo motorio, per la loro azione sul sistema neuromuscoloscheletrico. I trasduttori applicati lungo le catene cinetiche producono delle vibrazioni meccaniche che interagiscono attraverso diverse frequenze con i meccanorecettori, gli organi tendinei del Golgi e i fusi neuromuscolari; gli stimoli prodotti dalle vibrazioni trasmettono l'informazione al sistema nervoso centrale: i centri motori superiori vengono stimolati dalle vibrazioni, in modo da ottenere un migliore rendimento dei comandi nervosi preposti al reclutamento muscolare. Le vibrazioni selettive portano un effetto benefico sul metabolismo muscolare, hanno un effetto analgesico sui tessuti e sul muscolo, aumentano la circolazione sanguigna locale, stimolano la formazione di tessuto osseo e attivano la secrezione di ormoni specifici (aumento del testosterone e ormone somatotropo e diminuzione di cortisolo).

Scopo. Valutare le vibrazioni nel miglioramento funzionale della coordinazione, resistenza e nella prevenzione del rischio di caduta in pazienti affetti da Sclerosi Multipla.

Materials and methods. Sono stati trattati 5 pazienti con Sclerosi Multipla con paresi agli arti inferiori in grado di deambulare autonomamente. I soggetti sono stati sottoposti a:

– Valutazione della coordinazione e dell'equilibrio attraverso una prova su pedana propriocettiva "Biodex Balance". Attraverso questo macchinario viene analizzato l'indice di oscillazione, con gli occhi aperti e con gli occhi chiusi su una superficie stabile e su una superficie di schiuma. Effettuata una prova di 30 secondi per ogni tipo di condizione.

– Valutazione della fatica, del lavoro, della resistenza e della forza attraverso un test isocinetico con "SP4 Biodex". Completamento di tre prove da cinque serie ciascuno, ad una velocità di 210 ° / s, 180 ° / s e 150 ° se / s esclusi due pazienti sottoposti a test diversi a causa di problemi dovuti alla loro disabilità. Le prove sono state effettuate sulle tibiotarsiche.
– Valutazione del passo, dopo aver camminato su un tapis roulant "GT2 Biodex". Effettuato il test del cammino di 6 minuti e la valutazione degli indicatori di varianza del passo, velocità, tempo su ogni piede e la distanza percorsa.

Le valutazioni vengono effettuate a inizio ciclo, a fine ciclo e a distanza di 1 mese. Ad ogni paziente sono state praticate 10 sedute giornaliere di durata di 30' 100 Hz con placche posizionate sui fusi nm delle catene cinetiche anteriore e posteriore a sedute alterne ad entrambi gli AAII.

Results. *Oggettivi:* Dai dati emersi si è preso in considerazione il picco torque per la forza, il lavoro totale svolto e la velocità media, la distanza percorsa, il numero di passi, il coefficiente di varianza, il tempo trascorso su ogni piede per la deambulazione e in tutti i pazienti si è verificato un miglioramento significativo di tutti i parametri esaminati. *Soggettivi:* I pz trattati riferiscono maggior benessere dovuto a riduzione dell'ipertono muscolare. Questo porta ad avere gambe più leggere e maggior fluidità motoria.

Conclusions. Lo studio ha dimostrato efficacia delle vibrazioni meccano sonore nel migliorare forza, resistenza, coordinazione, fatica e riduzione rischio di caduta in pazienti con patologia neuromuscolare cronica degenerativa.

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CERVICAL SPONDYLOTIC MYELOPATHY – CONSERVATIVE VERSUS SURGICAL TREATMENT

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Introduction. Cervical spondylotic myelopathy (CSM) is a frequently encountered entity in middle-aged and elderly patients that affects both men and women. It has a fairly typical clinical presentation and frequently a progressive and disabling course. Best treatment practice is still controversial, namely whether to adopt either a conservative or a surgical approach, and few studies enlighten this dilemma. The objective of this study was to review data on patients with CSM submitted either to conservative or surgical treatment after inpatient rehabilitation in PRM Department of a central Portuguese hospital and to clarify what therapeutic option is most beneficial, either conservative or surgical.

Materials and methods. Retrospective study of 64 patients with CSM admitted to inpatient rehabilitation in PRM Department of a central Portuguese hospital between January 2005 and May 2012. Data regarding socio-demographics, inpatient period, presenting symptoms, precipitating episode, level of injury, clinical course and outcome according to ASIA's criteria were collected and then statistically analysed.

Results. The authors analysed 64 patients whose mean duration of inpatient rehabilitation was 43,9 (26,2) days. 66% of patients (42) were men and 34% (22) were women. They had a mean age of 65,8 (13,4) years. Most patients (either submitted to conservative or surgical treatment) had spinal cord lesions classified as ASIA D, both at admission and discharge. 23% (15) of patients were submitted to conservative treatment and 77% (49) to surgical treatment. There was a precipitating factor (downfall or motor vehicle crash) in 36% (23) of patients. Upper and lower limb weakness and isolated lower limb weakness were the most common presenting symptoms of CSM (30% and 23%, respectively). In concern to recovery, there were no significant differences (in either sensitive or motor functions) between conservative and surgical treatment. The fundamental finding of this study relates to bladder function. The majority of patients who underwent surgical treatment recovered spontaneous voiding, while most patients submitted to conservative treatment left hospital in intermittent catheterisation. In patients submitted to conservative treatment who were admitted in permanent catheterisation, 46% was discharged in intermittent catheterisation while 20% was discharged in spontaneous voiding. In patients submitted to surgical treatment who were admitted in permanent catheterisation, 37% was discharged in spontaneous voiding while 10% was discharged in intermittent catheterisation.

Conclusions. Normal bladder function minimizes the impact of disability and contributes to improvement of patients' functioning and quality of life. The most relevant finding of this study was that recovery of normal bladder function is far better when surgical treatment is performed - a higher percentage of patients leave hospital in spontaneous voiding. The authors consider that this is an important conclusion which favours surgical treatment in detriment of conservative treatment. Though, further studies are necessary to support this conclusion.

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FUNCTIONAL IMPROVEMENT IN GUILLAIN-BARRÉ SYNDROME PATIENTS AFTER INPATIENT REHABILITATION

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Introduction. Guillain-Barré syndrome (GBS) is an acute inflammatory demyelinating polyneuropathy that can severely impair function, limit activity and restrict participation. Physical and Rehabilitation Medicine (PRM) plays an important role in the management of this syndrome thereby contributing to improvement of patients' functioning and quality of life. This study aims to assess the degree of functional improvement occurred in GBS patients after inpatient rehabilitation treatment in PRM Department of a central Portuguese hospital and to identify predictors of functional improvement.

Materials and methods. Retrospective study of 21 patients admitted to inpatient rehabilitation treatment in PRM Department of a central Portuguese hospital between November 2005 and May 2012. Data regarding clinical and functional status at admission and at discharge from hospital were collected and then analysed using SPSS Statistics 17.0.

Results. The authors analyzed 21 patients whose mean duration of inpatient rehabilitation treatment was 1,27 (0,42) months. They were mostly men 11 (52,4%), with a mean age of 58,14 (13,8) years, married 17 (81%) and employed 8 (38,1%). Most patients were dependent in self-care, transfers and locomotion at admission (90,5%, 71,4% and 47,6%, respectively); most were independent at discharge (71,4%, 71,4% and 76,2%, respectively). Most patients (66,7%) were discharged from hospital to home. Most patients who presented at admission with flaccid hyporeflexic weakness showed improvement of motor deficits. In patients with cranial nerve involvement, facial nerve was most commonly affected. In most cases, there was a predisposing factor for GBS. As negative prognostic factors: age > 50 years in 18 (85,7%) patients, need for respiratory support in 5 (23,8%), axonal GBS variant in 4 (19,0%) and absence of cranial nerve involvement in 11 (52,4%). The functional status (assessed by FIM and Modified Barthel Index) at entry was significant correlated with functional status at discharge. Mean increase in FIM and Modified Barthel Index was 18,4 (17,6) and 27,3 (22,4), respectively.

Conclusions. This study showed a significant degree of functional improvement in GBS patients after inpatient rehabilitation. As such, PRM treatment indeed favors a positive functional amelioration in GBS. Identifying factors associated with better functional improvement may allow more effective therapeutic interventions. Further studies are necessary to evaluate the impact of such interventions.

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IL PAZIENTE CON ESITI DI ICTUS CEREBRALE GRAVE: CORRELAZIONE TRA COMPLESSITÀ CLINICA IN FASE POST-ACUTA E OUTCOME

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Introduction. La fase post-acuta dello stroke è caratterizzata dalla presenza di numerosi elementi di complessità clinica. Questo lavoro si propone di esaminare le condizioni che più frequentemente si presentano durante il

rico-vero in una degenza riabilitativa in un campione piuttosto omogeneo di pz con esiti di stroke recente (sdr. TACS/ PACS) al fine di evidenziare una eventuale correlazione tra questi aspetti e l'outcome riabilitativo.

Materials and methods. Casistica di 124 pazienti, ricoverati negli ultimi 2 anni nella ns UO di Riabilitazione per esiti di recente ictus cerebri, sdr. TACS o PACS, monitorati con gli indicatori di IPER2. IPER2 (Indicatori di Percorso-Esito in Riabilitazione) è un sistema di *indicatori e misure generali* sviluppato nell'ambito del progetto IPER2-Liguria, promosso dall'Agenzia Regionale della Sanità. Questo progetto si propone di descrivere la complessità clinica dei pazienti ricoverati nelle degenze riabilitative e definirne l'outcome al termine del percorso di cura.

Indicatori generali: anamnesi pre-morbosa, indicatori di stato, indicatori di transizione ed indicatori di esito.

– ANAMNESI PRE-MORBOSA: malattie/condizioni croniche preesistenti distinte in: insufficienza d'organo-si-stema severa e complessità cronica.

– INDICATORI di STATO: distinti in marcatori di Complessità Clinica, medica ed infermieristica, e marcatori di Dipendenza Funzionale.

– INDICATORI di TRANSIZIONE: condizioni insorte durante il ricovero che prevedono interventi terapeutici-assistenziali di particolare impegno.

– INDICATORI di ESITO: utilizzati per documentare l'outcome, distinti in Paziente-orientati ed Organizzazio-ne-orientati.

Le *misure generali*:

– Lo stato funzionale pre-morboso: *scala di Rankin modificata* ed *indice di Barthel*,

– Lo stato funzionale all'ammissione e in dimissione (*indice di Barthel*).

Results. 22 pz presentavano in anamnesi almeno un tipo di insufficienza d'organo severa e 91 erano portatori di comorbilità.

– *Rankin pre-morbosa*, Punteggio medio: 0,8.

– *BIM pre-morbosa: totale* (media): 95,5 *deambulazione* pre-morbosa (media): 14.

– *BIM all'ammissione: totale* (media): 32, *deambulazione* (media): 2.

– *BIM alla dimissione: totale* (media): 58, *deambulazione* (media): 7.

Marcatori di complessità, All'ingresso 93 pz presentavano almeno 2 marcatori di complessità mentre alla dimissione solo 51 pz presentavano ancora 2 di questi marcatori.

Indicatori di dipendenza funzionale All'ingresso in media almeno 5 elementi di dipendenza funzionale, alla dimissione 2.

Indicatori di transizione, espressione di condizioni insorte durante il ricovero: infezione urinaria e/o non urinaria, ACE non infettivi, caduta, contenzione fisica/farmacologica, trattamento con antidepressivi, trat-tamento del dolore, trattamento nutrizione orale, nutrizione artificiale. 110 pz del nostro campione ha presentato almeno uno degli eventi suddetti.

Conclusions. È stata ricercata una correlazione tra il deficit funzionale dei ns pazienti (misurato con il punteggio BIM al-l'ingresso ed in dimissione, espressione in questo secondo caso dell'outcome) con gli indici di complessità medico-infermieristica all'ingresso, di dipendenza funzionale all'ingresso e di transizione. Dallo studio condotto con il ns campione risulta che i pz più complessi dal punto di vista medico-infermie-ristico presentano maggiore dipendenza funzionale al momento della dimissione. Pertanto la prevenzione e/o il contenimento dei fattori di complessità assume significato riabilitativo.

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IDENTIFICATION AND MANAGEMENT OF DYSPHAGIA IN ADULTS WITH NEUROLOGICAL IMPAIRMENT.

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Introduction. Dysphagia is difficulty swallowing, ie the passage of food and drink from the mouth to stomaco. La dysphagia is not a disease but a symptom, and sometimes may also depend on the use of certain drugs. The complexity of the swallowing mechanism, the functional and structural involvement of different organ systems suggest that dysphagia can not be the responsibility of a single specialist, but covers many specific professional

Materials and methods. Here is an excerpt from the procedure represented Identification and management of dysphagia in adults with neurological impairment. In full the various steps have been developed to provide information on identification and management of the dysphagic patient, standardize the behaviors in the Hospital "G. Rummo "in the management of adult patients with severe neurological dysphagia, ensuring efficient and effective care to patients suffering from this disorder, to monitor the oral intake and to ensure an adequate level of hydration and nutrition, train caregivers to reduce complications and / or adverse events.

Results. In all patients with neurological impairment must be tested by the risk of dysphagia before starting to administer food or drink by mouth: "nothing by mouth" 1, until it has been done and performed a screening of dysphagia.

THREE-OZ WATER SWALLOW TES: Give the person sitting with his head in axis, 5 ml of plain water at room temperature with a tablespoon 3 times to verify the successful swallowing each spoonful, wait a few seconds and if the patient. Absence of cough:Free Diet; Slight cough:Thicken Liquids;Severe coughing: homogenize foods and hickened fluids.

SPEECH AND LANGUAGE THERAPISTS (SLT): The role of the speech and language therapist is to carry out a detailed and systematic assessment to manage that with changes of position, manoeuvres, or diet and liquid modifications (Pettigrew & O'Toole, 2007). It may be necessary to move to instrumental investigations such as video fluoroscopy or Fibre optic Endoscopic Evaluation of swallowing (FEES). The SLT can then inform the rest of the team of a possible reason for the dysphagia and devise a management plan. This may include exercises that will strengthen those muscles needed to improve swallowing.

DYSPHAGIA THERAPY: Management of dysphagia is frequently based around a compensatory approach. Facilitatory therapy approaches are active therapeutic approaches which aim to have a direct and lasting effect on the swallowing physiology after stroke.

MUSCLE-STRENGTHENING EXERCISES: muscle-strengthening exercise programme demonstrated significant improvements, lingual exercises showed a positive effect on all patients.

ELECTRICAL STIMULATION: Although surface elettrical stimulation has rieived increased attention as an adjunct to swallowing therapy in dysfagia in recent year. When the electrical stimulation is applied to the oral skin mucosa at low current it activates the sensory nerve ending in the surface layers providing sensory feedback to the central nervouse system.

ORAL HYGIENE: Stroke patients with dysphagia may have particular problems in maintaining good oral hygiene. Oral hygiene is an important part of patient care and it should not be assumed that patients who cannot swallow and are being fed parenterally do not require mouth care. Good oral hygiene needs to be maintained in all patients to ensure that dental plaque is removed and pathogenic organisms are not allowed to proliferate in the mouth, preventing oral and dental disease and reducing the risk of aspiration pneumonia. Pre-existing disease should be recognised and the patient referred to a dentist for further examination.

Conclusions. Assessment (competency screening NP: alertness, head and trunk control, skills praxic, attentive, communicative and language); Reading of clinical documentation; Observation and screening assessment;Taking charge rehabilitation (introduction of compensatory strategies for oral feeding; modified diet and / or postures head, neck, trunk, stimulation of attentional capacity); Collaboration with the multidisciplinary team; Monitoring and screening of changes in the swallowing; Speech rehabilitation (stabilization strategies compensation, muscle strengthening, thermal stimulation, vocal exercises); Training of family and / or caregivers, Counseling;Evaluation for transfer/discharge; Closing the folder rehabilitation.

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AUGMENTATIVE AND ALTERNATIVE COMMUNICATION: SPEECH THERAPY EXPERIENCE TO TAKE CHARGE

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Introduction. The augmentative and alternative communication (AAC) includes all alternative modes of communication that can improve the expressive ability of people who have difficulty speaking through strategies and technologies aimed at involving the person using the AAC and all its living environment. Aphasia may be defined as a disorder that impairs language

skills and communication. Severity of this impairment is related to the extent of brain damage and recovery times are very variables. Our experience refers on the application of the AAC in cases of aphasic patients with severe impairment of expressive ability. The objective of AAC intervention with these patients is to increase the participation of the aphasic person in society by providing a simple way to communicate messages.

Materials and methods.

A.A.C. low-tech. Tables are communication boards printed or transparent material which contain letters, numbers or symbols, this tool can be used through the manual eye-digit display. The tables contain the letters of the alphabet and punctuation characters. Patient makes the word letter by letter pointing it. The symbol tables are similar to those alphabetic supports but contain images that match the messages or concepts, for example plate expresses the need to eat.

AAC media technology. They include dedicated to communication systems that do not require connection to a computer, and they have the appearance of switches with one or more buttons. On each key, you can apply a symbol to be used as a table of communication, with the added ability to play prerecorded voice messages that match the keys.

High-tech AAC. The eye control or access through the emerging recognition of EEG patterns represent devices that integrate the most modern and sophisticated technologies now available. The rehabilitation program for the management of the patient includes: physiatric evaluation, assessment of cognitive and communicative speech therapy, language and oral functions; counselling speech therapy directed to patients and families aimed at providing information relating to knowledge of the behaviors that facilitate communication, rehabilitative.

Take-in speech therapy. Speech therapy counseling: strategies and provides information to resolve difficulties in order to promote communication and decision making process of the patient. It's useful to communicate to the patient the role of the various figures who cared for him and family information that allows them to assist bringing an effective contribution. In particular, the speech therapist helps to clarify how the facilitation and compensation, the ability to control the situation, the rehabilitative implemented. is important to provide information concerning the daily management of communication difficulties with the possible use of support material. Rehabilitative: it can be direct or indirect and is related to the promotion and management of communication skills. Functions covered by the rehabilitation speech therapy are: breathing, voice production, articulation and communication. It's essential to promote behaviors and facilitating compensation strategies, giving priority the optimization of residual abilities at the functional level.

Conclusions. Alternative augmentative communication AAC. Patients who require support for communication and their families needs speech therapists with experienced in alternative augmentative communication. Whereas the majority of these patients are adults, the benefit from application of technical support and strategies augmentative communication is highest because it provides them the opportunity to create messages. The procedures of communication may differ depending on the interlocutor. The type and severity of the deficit necessitates a coordinated and integrated management team with the involvement of different professional figures: physiatrist, neurologist, radiologist, nutritionist, otorhinolaryngologist, pulmonologist, speech therapist, physiotherapist, occupational therapist.

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ROLE OF BIOFEED BACK IN REHABILITATION OF VENO-OCCLUSIVE ERECTILE DYSFUNCTION

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Introduction. Pelvic floor and perineal muscles play a role in erection through enhancement of blood flow to the penis. Hence, the reinforcement of the power of such muscles through non-invasive physiotherapy may improve erection. The aim of this study was to assess the value of pelvic floor and perineal muscles rehabilitation using biofeedback in treatment of organic veno-occlusive erectile dysfunction.

Materials and methods. this study included 30 patients with venogenic erectile dysfunction (ED). All patients were subjected to history taking, clinical examination, Self-administered questionnaires SAQs of ED (IIEF: International Index of Erectile Function and IIEF-5: 5-item version of the IIEF), routine laboratory tests, serum testosterone & serum prolactin, nocturnal penile tumescence assessment using postage stamp test, electro-physiological tests (nerve conduction velocity of the dorsal nerve of the penis & penile sympathetic skin response), Pharmaco-penile duplex ultrasound (PPDU) and anal manometry. All patients were submitted to a rehabilitation program for 3 months including *Visual pressure biofeedback* for the pelvic floor muscles (levator ani) & perineal muscles (EAS, ICM, BSM, superficial transverses perineal muscles, deep transverses perineal muscles & sphincter urethrae). This was performed twice weekly for 3 months. Also patients were instructed to perform Pelvic floor & perineal muscles exercises daily for the same 3 months of rehabilitation.

Results. According to SAQs results before and after rehabilitation, 5 patients (16.7%) showed complete improvement, while 14 patients (46.7%) showed partial improvement. Nineteen patients (66.3%) had EDITS score > 50 after rehabilitation. Regarding PPDU,, 5 patients (16.7%) showed complete improvement, while 13/30 patients (43.3%) showed partial improvement. Regarding anal manometry, there was a highly statistically significant positive correlation ($P<0.001$) between differences in end diastolic velocity (EDV) values and differences in anal manometry values before and after rehabilitation and there was a significant positive correlations ($P<0.05$) between differences in EDV values and differences in IIEF-5 & erectile domain values before and after rehabilitation.

Conclusions. Pelvic floor and perineal muscles rehabilitation modalities is an effective, cheap, non invasive, safe and easily applicable method for treatment of venogenic ED, especially the exercises and visual pressure biofeedback.

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EFFECT OF KINESITHERAPY ON QUALITY OF LIFE IN PATIENTS WITH MULTIPLE SCLEROSIS

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Introduction. It is generaly accepted that multiple sclerosis (MS) supstantially reduces mean scores on all SF-36 health dimensions. Physical rehabilitation is one of the basic parts of the treatment of the patients with MS, especially kinesitherapy. The aim of our current investigation was to assess the effect of kinesitherapy on quality of life (HRQoL) by using its generic measure (SF-36) in patients with MS before and 3 months after continuous kinesitherapy.

Materials and methods. There were 19 patients with diagnosis of MS included in the study according to McDonald`s criteria (2001.) that were treated at The Department of MS, Institute of Neurology, Clinical Centre of Serbia, in Belgrade, Serbia and Montenegro. Patients were assessed by using expanded disability status scale (EDSS) (Kurtzke, 1983.) and SF-36 questionnaire, on admission, and after three months of continuous kinesitherapy, that was suggested by a physiatrist, individually for each patient, according to his functional capability. There were 9 patients out of 19 with relapsing-remitting form of MS, one with secondary progressive form of disease, 9 with primary progressive. The average EDSS was 5,5 ±1 before the treatment. On admission EDSS was inversely correlated with PF (physical functioning) (R=-0,754, p=0,0001) and RF (role functioning physical) (R=-0,615, p=0.005).

Results. There was no significant difference in various domains of quality of life before and after kinesitherapy, but significantly higher RF (role functioning physical) score was observed. Before therapy RF was 7,9 ± 20,5 and after therapy RF was 13,1 ± 25,5.

Conclusions. These results are the consequence of the heterogenousity of the group and it would be interesting to monitor the effect of kinesitherapy on the primarily progressive form of the disease.

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ANALISI DEI BISOGNI RIABILITATIVI NELLA DISABILITÀ ONCOLOGICA CONSEGUENTE A PATOLOGIA DEL SISTEMA NERVOSO CENTRALE IN UN CENTRO DI RIABILITAZIONE ESTENSIVA

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Introduction. tumori del sistema nervoso centrale (SNC) rappresentano circa l'1% di tutti i tumori dell'adulto. Nei registri tumori dell'Unione Europea viene riportata un'incidenza che varia tra 7 e 11 casi/anno su 100.000 abitanti nei maschi e tra 5 e 13 casi/anno nelle femmine (1). L'incidenza di tumori cerebrali aumenta progressivamente con l'età e negli ultimi tre decenni è stato segnalato un incremento particolarmente significativo nelle persone di età superiore a 70 anni. La frequenza di tumori cerebrali metastatici sembra essere crescente negli ultimi anni e raggiunge il 20-40% di tutti i pazienti affetti da neoplasia.

Materials and methods. Abbiamo esanimato press oil nostro centro di Riabilitazione 30 pazienti provenienti da diverse strutture del territorio. Con diagnosi di neoplasia del SNC: Ogni paziente è stato sottoposto a valutazione fisiatrica comprendente un esame delle funzioni semplici, delle funzioni complesse, la valutazione con la scala FIM all'ingresso e alla dimissione dal nostro centro riabilitativo e la valutazione con la check list l'ICF SF. Le principali neoplasie che sono giunte alla nostra osservazione sono gli astrocitomi, i gliomi e i meningomi cerebrali. (2).

Results. Le principali problematiche riabilitative emerse nel nostro campione sono state i deficit motori, i deficit dell'equilibro, i disturbi della deambulazione, i deficit sensitivi, i disturbi del linguaggio e i deficit neuropsicologici. Nella maggior parte dei casi si è assistito a un miglioramento dei principali item FIM e di alcuni qualificatori dell'ICF. Questo miglioramento è scaturito inoltre dal confronto tra la FIM e il performance status che è un indice di qualità di vita spesso utlizzato nel paziente oncologico. (3).

Conclusions. trattamento riabilitativo nel malato affetto da neoplasia cerebrale è parte integrante delle cure particolarmente nella fase successiva all'asportazione chirurgica del tumore e successivamente nelle fasi di progressione e nella fase avanzata di malattia. L'efficacia della riabilitazione nei tumori cerebrali è documentata da numerosi studi che riportano un "guadagno funzionale" e un miglioramento dell'autonomia nei pazienti trattati sovrapponibile a quello ottenuto in pazienti affetti da patologie non oncologiche (esiti di ischemia cerebrale o di trauma cranico) (2,3). Inoltre il trattamento riabilitativo influenza positivamente la qualità di vita del malato e ne migliora il tono dell'umore (4). Il miglioramento dell'autonomia individuale favorito dal riabilitazione può anche consentire la ripresa dell'attività lavorativa e la restituzione del ruolo sociale e familiare. La riabilitazione è quindi uno dei bisogni di cure prevalenti nel malato neuro-oncologico, tuttavia una percentuale elevata di pazienti non riceve prestazioni riabilitative adeguate e spesso non riceve alcun trattamento.

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APPLICAZIONE DEL BRIEF CORE SET DELL'ICF IN UN GRUPPO DI PAZIENTI AFFETTI DA LBP E TRATTATI IN BACK-SCHOOL

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Introduction. Tra i disordini muscolo scheletrici, la lombalgia comune (Low Back Pain, LBP) rappresenta la causa più frequente di dolore e di assenza dal lavoro per malattia, e costituisce un complesso problema biopsicosociale. Con l'introduzione dell'ICF, sono state individuate 78 categorie in grado di coprire i vari aspetti dello stato di salute dei pazienti affetti da LBP (Comprehensive ICF Core Set); in seguito è stato individuato un sub-set di 35 categorie che costituiscono il Brief Core Set. Diversi studi hanno analizzato la correlazione di queste categorie con scale validate quale l'indice di Oswestry (funzioni corporee e attività) e l'SF-36 (salute mentale e fisica). Roe *et al.* hanno riscontrato una correlazione molto forte con le categorie b620, b770, e325, e590, suggerendone l'inclusione nel Brief Core Set. Mullis et.al, in un gruppo di 402 paz., hanno riscontrato una elevata percentuale delle categorie d920 (53,8%) e d650 (16%), entrambe non incluse nel Brief Core Set.

Materials and methods. Nella valutazione dei pazienti trattati in back-school presso il nostro ambulatorio, abbiamo iniziato a utilizzare il Brief Core Set per il LBP, inserendo anche i codici b620, b770, d650, d920, e325, e590, ritenuti significativi da diversi Autori (1,3). Attualmente sono stati arruolati 35 pazienti, di età compresa tra 23 e 70 anni, 7 maschi e 28 femmine, affetti da lombalgia subacuta, cronica o recidivante. Tutti i pazienti avevano eseguito esame RMN del tratto lombo-sacrale, tranne un paziente sottoposto a TAC L-S; 4 pazienti avevano eseguito anche esame elettromiografico. Due pazienti erano stati sottoposti precedentemente a intervento di laminectomia e asportazione di ernia discale. Per quanto attiene l'impiego, 4 pazienti lavorano in fabbrica, 8 pazienti in impieghi vari, 15 sono casalinghe, 4 pensionati, 2 studenti, 2 cassaintegrati; un paziente era assente dal lavoro a causa della lombalgia.

Results. Le funzioni corporee più frequentemente coinvolte sono risultate b134, b152, b280, b710, b735. In un gruppo di pazienti (6/35) abbiamo evidenziato un problema grave nelle categorie b1, a fronte di uno scarso coinvolgimento delle categorie b7 e referti RMN sostanzialmente nella norma. Le categorie d410, d415, d430 hanno rappresentato un problema in oltre il 50% dei pazienti, mentre d450, d530, d760, d845, d850, d859 hanno costituito una limitazione e/o restrizione in meno del 10% dei casi. La categoria d920 ha rappresentato un problema in oltre il 40% dei pazienti. Le tecniche di imaging hanno consentito di evidenziare le seguenti alterazioni strutturali: discopatia, discopatie multiple, "protrusione", "minima procidenza" discale, ernia discale sottoligamentosa, ernia discale espulsa (s76002._ _ _). In diversi pazienti sono state riscontrate "deviazioni" del tronco (s760._6_), quali perdita della lordosi o shift. Per quanto riguarda i fattori ambientali, la fisioterapia (e355) e i colleghi di lavoro (e325, item non incluso nel brief core set), si sono mostrati solitamente dei facilitatori, mentre e590 (politiche, sistemi e servizi per il lavoro) ha rappresentato spesso una barriera.

Conclusions. La nostra esperienza, seppure basata su dati preliminari, dimostra come l'applicazione dell'ICF possa fornire anche nel setting ambulatoriale un contributo sostanziale per una più completa valutazione dei pazienti e costituire uno strumento molto utile nella gestione del LBP, consentendo tra l'altro di identificare le componenti psicosociali e i fattori ambientali su cui eventualmente intervenire. In accordo con i dati di letteratura abbiamo riscontrato una non trascurabile frequenza delle categorie b770, d920, e325, e590, non incluse nel brief core set. La diagnostica per immagini, inoltre, ci ha consentito di operare un tentativo di qualificazione delle strutture corporee, che necessita tuttavia di riscontri in letteratura.

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L'UTILIZZO DEGLI EMOCOMPONENTI NEL TRATTAMENTO DELLA GONARTROSI

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AGENZIA DI RECUPERO E RIABILITAZIONE CTO FIRENZE, AZIENDA UNIVERSITARIA OSPEDALIERA CAREGGI, FIRENZE, ITALIA [1]

Introduction. L'artrosi è fra le malattie croniche più comuni della popolazione e la causa di disabilità più frequente nell'anziano. Si calcola che il 40%della popolazione sopra i 50 anni soffra di gonartrosi sintomatica, le attuali indicazioni terapeutica variano a seconda della gravità da FKT a infiltrazioni intrarticolari fini alla sostituzione protesica. L'obbiettivo dello studio è valutare e quantificare gli effetti sulla qualità della vita e la diminuzione del dolore a breve e a medio termine in pazienti affetti da gonartrosi primaria trattai con un ciclo di 3 infiltrazioni intrarticolari di L-PRP.

Materials and methods. Da Ottobre 2008 nell'"Agenzia di Recupero e Riabilitazione" del CTO a Firenze viene portato avanti uno studio osservazionale in cui sono stati reclutati 61 pazienti affetti da gonartrosi primaria. Ai pazienti sono state somministrate la scala algofunzionale WOMAC, la VAS a riposo e la VAS al movimento. Sono stati sottoposti ad un ciclo di 3 infiltrazioni intrarticolari di L-PRP (Kit CROSSOVER 2 prodotto dalla ATHENA s.r.l. Firenze), 1 ogni 21 giorni, e sono stati ricontattati telefonicamente per la somministrazione delle medesime scale di valutazione a 1, 3, 6 mesi e 1 anno dall'ultima infiltrazione. I criteri di inclusione e esclusione dallo studio sono stati definiti.

Results. Tutti i pazienti sottoposti al trattamento hanno mostrato una riduzione del punteggio della WOMAC e della VAS, sia a riposo che al movimento. Ai controlli al 1° mese si è evidenziata una riduzione di oltre il 50% della scala WOMAC e della VAS a riposo. Nella maggior parte dei casi i pazienti hanno riferito una continua riduzione della sintomatologia dolorosa fino al controllo a 1 anno.

Conclusions. Le infiltrazioni di L-PRP si sono rivelate una valida metodica nel controllo del dolore, della rigidità e della funzionalità articolare a breve e a medio termine

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ESERCIZIO FISICO NEL PAZIENTE CON VALVULOPATIA: NOSTRA INIZIALE ESPERIENZA

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Introduction. Con il termine di valvulopatia si intende le anomalie strutturali e i disturbi funzionali delle valvole cardiache. Si parla di stenosi o di insufficienza. La prescrizione dell'esercizio fisico nei soggetti con cardiopatia valvolare dipende: dalla valvola coinvolta, dalla presenza e dalla gravità della stenosi o della insufficienza, dall'eventuale presenza di disfunzione ventricolare sinistra e/o di patologia coronarica concomitante

Materials and methods. Abbiamo esanimato press oil nostro centro di Riabilitazione 30 pazienti provenienti da diverse strutture del territorio Con valvulopatia.: Ogni paziente è stato sottoposto a valutazione fisiatrica comprendente un esame delle funzioni semplici, delle funzioni complesse, la valutazione con la scala FIM all'ingresso e alla dimissione dal nostro centro riabilitativo e la valutazione con la check list l'ICF SF.

Results. Le problematiche postoperatorie (versamento pleurico, complicazioni di tipo respiratorio, neurologico, eccetera) e i benefici del training fisico nei pazienti valvulopatici sottoposti a intervento sostitutivo (con protesi biologiche o meccaniche) o conservativo (con commissurotomia o valvuloplastica), sono simili a quelli dei pazienti sottoposti a rivascolarizzazione miocardica. Prima della correzione chirurgica, molti soggetti presentano una classe NYHA avanzata, alla quale contribuisce il lungo periodo di inattività fisica, con marcata riduzione della capacità funzionale. I soggetti sottoposti a sostituzione valvolare mitralica presentano generalmente una minore tolleranza all'esercizio, rispetto ai soggetti con sostituzione valvolare aortica, soprattutto in presenza di ipertensione polmonare residua. A distanza di 6 mesi dall'intervento, in assenza di trattamento riabilitativo, si verifica un miglioramento dei sintomi corrispondente in media ad una classe NYHA. Tuttavia, pur in presenza di un miglioramento clinico, non sono stati rilevati incrementi significativi del V. O2picco

Conclusions. Non esistono, controindicazioni assolute ad un programma riabilitativo, che andrà proposto a tutti i pazienti operati e che dovrà essere adattato in base all'età, alle patologie concomitanti, alla capacità funzionale e alla funzione ventricolare residua I pazienti candidati al training fisico dovrebbero essere sottoposti ad un test da sforzo sottomassimale, a distanza di 2 settimane dall'intervento, o ad un test massimale a 3- 4 settimane. Anche per questi pazienti bisognerà tener conto delle limitazioni interpretative dell'esame ergometrico

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PERCORSO PRESCRITTIVO DEGLI AUSILI IN RIABILITAZIONE: UN'ANALISI DI INEFFICACIA OPERATIVA

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Introduction. La nostra analisi nasce dall'osservazione, purtroppo ancora frequente, di tante difficoltà burocratiche che ostacolano le procedure per la prescrizione di ausili anche personalizzati. Quante prescrizioni rimangono inevase durante l'anno? Quante volte rivalutando un paziente a cui avevamo prescritto un determinato ausilio ha ottenuto qualcosa di diverso?

Materials and methods. Si è proceduto a seguire il percorso di 100 ausilii personalizzati, corrispondenti quindi all'allegato B del Nomenclatore Tariffario Nazionale, prescritti durante gli anni 2010 e 2011. Si tratta di: 45 sistemi posturali adattati e personalizzati per pazienti con sindromi neurologiche gravi o gravissime; 35 carrozzine ultraleggere personalizzate con sistemi di postura ad hoc per pazienti con disabilità motorie di grado severo; 4 doppia protesi di arto inferiore; 6 protesi singole di arto inferiore; 5 carrozzine elettroniche; 5 sistemi di contenimento del tronco. I parametri oggetto di valutazione sono stati: tempo di accettazione o non accettazione della pratica, tempo di consegna dell'ausilio, gradimento da parte del paziente, tempo intercorso per il collaudo, modalità e tempi di follow up.

Results. L'analisi ha evidenziato alcune criticità. Innanzitutto più del 20% degli ausilii prescritti non è stato accettato nella sua forma di richiesta durante la valutazione originale, ma si sono rese necessarie delle modifiche. Questo fenomeno si ripete in particolare per le carrozzine modificate ed i sistemi posturali. La maggiore perplessità (osservata in realtà esclusivamente per le prescrizioni effettuate da specialisti di centri accreditati e non per quelle effettuate dai centri pubblici) è sorta all'osservazione che circa il 40% delle prescrizioni non è stata seguita da alcun controllo per il collaudo. In un primo momento si era pensato che gli ausilii non fossero stati consegnati. Eseguendo una ricerca a ritroso e contattando i pazienti, si è scoperto che, pur trattandosi di ausilii personalizzati, in circa l'80% di questi casi era stato fornito un ausilio di magazzino, senza quindi l'obbligo del collaudo. Solo nel 20% dei casi effettivamente l'ausilio non era stato concesso, adducendo motivi di non idoneità all'ausilio stesso. Del restante 40% di prescrizioni il 35% circa non è stato autorizzato, mentre l'altro 5% ha ottenuto copertura dal magazzino con successiva verifica di collaudo. Per quanto attiene i tempi medi di autorizzazione all'ausilio, si è trattato in media di 35 giorni, con punte estreme di accettazione in 48 ore o in 45 giorni. Questo per tutti gli ausilii, comprese le protesi, che come ovvio dovrebbero essere autorizzate e consegnate in tempi minimi. Quale sia poi il criterio di autorizzazione non appare univoco, giacché pazienti con caratteristiche simili in età, storia familiare e funzionale, possono ottenere o meno l'ausilio a seconda dell'ASL di appartenenza. Questo tipo di osservazione si è avuta, con ulteriore maggior sorpresa, talora anche per pazienti della stessa ASL. Non si è osservata una specifica correlazione tra il tipo di ausilio richiesto e l'accettazione il diniego o la fornitura di magazzino o qualunque altro parametro. Per i tempi di consegna si va dai 3/4 giorni per le sedie modificate ai 7 /10 giorni per le protesi, ovviamente dopo l'autorizzazione.

Conclusions. La prescrizione di un ausilio personalizzato nasce da un lavoro di squadra che comprende vari professionisti (il fisiatra, il fisioterapista, il tecnico ortopedico etc), che osservano e valutano il paziente, confrontano quanto osservato con il contesto che accoglierà il paziente, si confrontano con il paziente stesso ed I suoi familiari. La scelta finale, che può anche comprendere la possibilità di adattare quanto già a disposizione sul mercato alle esigenze del paziente, viene dopo un lungo percorso. Talvolta questo progetto può essere vanificato successivamente. L'autorizzazione o meno un ausilio non può essere un mero atto burocratico, poiché la qualità di vita di una persona con disabilità dipende in modo sostanziale da una il più possibile perfetta ausiliazione.

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CARROZZINA ULTRALEGGERA: QUALI VANTAGGI DI UTILIZZO NEL PARAPLEGICO ADULTO

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Introduction. La persona paraplegica, una volta superata la prima fase riabilitativa, tornando alla vita quotidiana, lavorativa e sportiva, ha la necessità di trovare un ausilio che rappresenti un efficace e sicuro strumento per la mobilità. Questa fase del progetto riabilitativo non è semplice, come

importante e complesso si presenta il percorso di scelta, adattamento, addestramento all'uso, manutenzione e follow up.

Una carrozzina adeguata, ben tarata e ben utilizzata permette una completa autonomia al disabile, ma se così non è diventa uno strumento inefficace.

Materials and methods. Tra il 2010 ed il 2011 sono stati intervistati tutti i paraplegici che si sono rivolti ad un gruppo selezionato di officine ortopediche per valutare quali fossero le esigenze specifiche per la loro carrozzina ideale. Nello specifico è stato richiesto di individuare le caratteristiche principali necessarie, e di attribuire ad ogni elemento una valutazione di importanza, da 1 (minima) a 5 (massima). Leggerezza, resistenza, duttilità, manovrabilità, sicurezza sono nell'ordine i parametri che sono stati scelti dagli intervistati. Partendo da tali premesse si è cercato di immaginare una sedia che corrispondesse a queste richieste. L'idea è stata l'utilizzo del carbonio per costruire le parti portanti della sedia: tale struttura ne garantisce la resistenza, quindi la sicurezza, ma ne determina anche l'estrema leggerezza. Si è poi lavorato sulla seduta, che deve permettere di ospitare il cuscino più adatto alle esigenze del paziente, quindi deve interagire senza modificare le caratteristiche dello stesso. Quindi lo schienale, che deve essere comodo ed avvolgente: il sistema di scansione RODIN 4 ha permesso di personalizzarlo al massimo. Le ruote sono state studiate in modo da poter essere usate su qualunque terreno e rendere il disabile autonomo in ogni situazione. La sicurezza è aumentata con freni a disco di blocco. Da non trascurare la facilità di smontaggio e rimontaggio come per il caricamento in automobile, anche per i soggetti con minima funzionalità residua.

Results. La carrozzina realizzata in base ai parametri così definiti è stata fatta provare in un primo momento ad un gruppo di 10 individui senza problemi motori, dopo che gli stessi avevano provato carrozzine per paraplegici già in commercio. Il test è stato effettuato per escludere che i risultati potessero essere viziati dall'abitudine all'uso della sedia, per verificarne la praticità di utilizzo. Tutti i soggetti hanno apprezzato la comodità, la leggerezza e la facilità d'uso della sedia. Quindi è stata testata in vari diversi setting da 10 paraplegici di età compresa tra i 25 ed i 60 anni. Si è chiesto loro di valutare i parametri che erano considerati fondamentali sulla sedia specifica, attribuendo un voto da 1 a 10. La "votazione" media ottenuta è risultata molto alta. A questo punto si è chiesto di effettuare un confronto tra la carrozzina in uso e quella in prova, con una differenza media intorno a 3,5 punti per ogni parametro richiesto.

Conclusions. Partendo dalle esigenze dell'utente è possibile creare ausilii che siano assolutamente idonei alle esigenze specifiche. Una carrozzina ultraleggera in carbonio che si presenti confortevole, sicura e facilmente gestibile è fondamentale per chi non ha altro mezzo per spostarsi in autonomia.

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IL TRATTAMENTO FARMACOLOGICO DEL DOLORE ARTICOLARE: CONFRONTO DI EFFICACIA.

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Introduction. Nella pratica clinica quotidiana, il dolore è il sintomo con cui più frequentemente siamo costretti a confrontarci. Emerge la necessità di avere a disposizione farmaci in grado di contrastarlo ma con i minori effetti collaterali possibili. Inoltre, con l'invecchiamento della popolazione e le polipatologie internistiche che i soggetti da trattare presentano. è diventata una priorità evitare le interazioni con altri principi farmacologici.

Materials and methods. Sono pertanto state poste a confronto tre tipologie farmacologiche per valutare, al di là della la loro efficacia, la reale prescrivibilità in relazione alle patologie espresse. Sono stati individuati tra ottobre 2011 e febbraio 2012, 4 gruppi di 20 pazienti di età compresa tra i 65 e gli 83 anni, affetti da dolore articolare acuto (insorto nei 10 giorni precedenti la valutazione iniziale), omogenei per sesso e localizzazione algica. Sono stati sottoposti a valutazione funzionale specifica per distretto ed a scala VAS per il dolore. Il valore VAS a T0 era di 8,7 con limitazione algica della motilità del segmento interessato mediamente di 3/5 rispetto al ROM considerato normale. Al gruppo A è stato somministrato Bifloxen 2 bustine al dì per 10 gg; al gruppo B Diclofenac 75 2 cp al dì per 10 gg; al gruppo C Celecoxib -2 cp al dì per 10 giorni; al gruppo D Bifloxen 4 bustine al dì in 2 somministrazioni per 5 giorni. Quale terapia integrante per il dolore era possibile usare degli antidolorifici no FANS. Al gruppo B è stato associato un protettore gastrico, al gruppo C solo consigliato, mentre al gruppo A e D non è stato consigliato nulla. La difficoltà maggiore è risultata essere il reclutamento dei pazienti. Infatti come criterio di esclusione al trattamento si è fissato quanto espresso dal foglietto illustrativo di ciascun farmaco. Questo ha ridotto enormemente la possibilità di reclutamento per il gruppo B e C facendo sì che soltanto 1/3 dei pazienti visitati potesse poi di fatto essere incluso nella lista.

Results. Tutti i pazienti hanno mostrato un discreto miglioramento della sindrome algica, passando ad un valore medio di 3,3 alla VAS, con recupero della motilità fino a quasi un range di normalità. Non ci sono state interazioni con antidolorifici non FANS in percentuali statisticamente significative in nessuno dei gruppi. Si segnala l'uso di gastroprotettori in 4 casi del gruppo C. Anche la qualità della vita è migliorata in maniera complessivamente sovrapponibile nei vari gruppi, con picco maggiore nel gruppo D.

Conclusions. Complessivamente i farmaci utilizzati hanno mostrato la loro efficacia nel trattamento del dolore. Tuttavia l'altro parametro che si era prefissato, cioè la facilità di prescrivibilità, ha mostrato come ad attenersi pedissequamente al foglietto illustrativo ed alle indicazioni del farmaco non sempre è possibile dare il farmaco magari considerato nella pratica clinica di routine. L'incremento della popolazione con polipatologia e politerapia impone la ricerca del farmaco con minori interazioni ed effetti collaterali se si vuol fornire il meglio per il paziente in sicurezza.

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EVALUATION OF NEUROPHYSIOLOGICAL AND POPULATION-GENETICS PARAMETERS WITH CLINICAL FINDINGS IN CHILDREN WITH SPINAL DYSRAPHISM

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Introduction. Spinal dysraphism (SD) presents as incomplete fusion of midline neural tube. It is complex entity with multifactorial origin that can be presented with various degree of neurological deficit below lesion level. Therefore, aim of our study was to evaluate correlation between clinical, neurophysiological and population genetic parameters in children with SD.

Material and methods: Study included 140 patients with SD, from whom 89 were with closed and 51 with open SD. Degree of overall recessive Homozygosity (ORH) was compared with degree of clinical presentation and neurophysiological findings, frequency of applied neurophysiological methods (evoked potentials and electromioneurography) and correlated with clinical findings. We evaluated 15 homozygously recessive characteristics (HRC). Degree of clinical presentation was classified into 3 categories: mild, moderate and severe.

Results. Patients with SD had higher number of HRC. Mild clinical presentation was more frequent due to the higher number of participants with closed SD. Increased degree of ORH was found in groups of patients with moderate and severe clinical presentation and correlation between positive neurophysiological findings on evaluated muscles with degree of clinical presentation.

Conclusion. Presence of difference in degree of ORH and variability for evaluated group and for different degrees of clinical presentation in these patients refers to correlation between different groups of polygenes involved in developing processes of SD. Our results stress out significant importance of neurophysiological evaluations in the estimation of degree and level of neurogenic lesion and recovery prognosis that can be beneficial for the choice of treatment methods.

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EARLY OUTPATIENT REHABILITATION FOLLOWING LUNG TRANSPLANTATION

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Introduction. Aim of the study was 1) to set up an early outpatient rehabilitation program immediately following lung transplantation (LuTX) with limited sources for supervised training, and 2) to follow longitudinal changes of patients' lung function and physical performance as at the end of the outpatient rehabilitation program.

Materials and methods. This is an ongoing observational study. A total of 9 non Austrian, non German speaking patients, who underwent single (n= 1) or double LuTX (n= 8) at the department of Thoracic Surgery, Vienna Medical University, in 2011 and who were not eligible for inpatient rehabilitation due to reimbursement issues, participated in an outpatient rehabilitation program that took place at the University outpatient department of PMR. The program consisted of 2 to 3 weekly 30 minutes' sessions of supervised therapeutic and breathing exercises, regular consultations by a psychologist and dietic consultations by a physician. Patients were regularly encouraged to perform daily muscle training and breathing exercises themselves. Highly deconditioned patients additionally received neuromuscular electro-stimulation for the gluteal and thigh muscles 3 times a week. The main outcome measures were as follows: Vital capacity (VC), forced expiratory volume in 1 second (FEV1), 6 minutes walking test (6MWT), fatigue at the end of the 6MWT as rated on a 11 point VAS, handgrip strength as a representative measure for overall muscle strength, number of repetitions of a free chair rise test.

Results. Patients (mean age; SD: 42(±13) yrs, BMI: 22.5(±1.1) kg/m²) started their outpatient rehabilitation 25±(15,9) days after LuTX. The program lasted for 63(±16) days. The lung function variables VC improved from 46.9% (±11.1) to 58% (±12.8) and FEV1 improved from 49,9% (±12) to 62.2% (±15.4) with a mean change of 11.5% (95%CI:5.7;17.3) for VC and 12.2% (95%CI:5.7;18.8) for FEV1, respectively. The 6MWT (baseline: 443.6 m (± 118)) improved by 150m (95%CI:85.2;215.4), and fatigue at the end of the 6MWT (baseline: 8.2cm (±1.7)) decreased by -2,2 cm (95%CI:-1.7;-2.6) as at the end of the program. Both the hand grip strength and the number of repetitions of the chair rise test were also found improved at the end of the intervention.

Conclusions. LuTX patients undergoing an early outpatient rehabilitation program that is limited by the availability of frequent supervised training benefit from such intervention. Perceived gains in exercise performance seem comparable to those observed in early inpatient programs. Regular encouragement to optimize patients' adherence with unsupervised training is assumed to be of utmost importance for the success of the program.

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EFFICACIA E TOLLERABILITÀ DELLA NUOVA FORMULAZIONE DI ACIDO ALFA LIPOICO E SUPEROSSIDODISMUTASI NEL TRATTAMENTO DELLA LOMBALGIA CRONICA

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Introduction. La lombalgia rappresenta una patologia frequente, che colpisce entrambi i sessi, soprattutto dalla terza alla quinta decade di vita. Scopo di questo studio è di valutare il miglioramento nel dolore percepito e nelle attività funzionali e la diminuzione nell'uso di analgesici in pazienti affetti da lombalgia cronica con o senza coinvolgimento radicolare trattati con una combinazione orale di acido alfa lipoico (ALA) e superossidodismutasi (SOD).

Materials and methods. Sono stati arruolati 98 pazienti affetti da lombalgia cronica: 80 (81.6%) erano donne e 18 (18.4%) uomini, con età media 72±10.9 anni e con età di malattia di 50,3 ±14.7 mesi. La diagnosi di malattia è stata eseguita tramite i criteri clinici e radiologici dell'American College of Rheumatology. La stadiazione della malattia è stata basata sul sistema radiografico di Kellgren e Lawrence Tutti i pazienti, dato il consenso informato, sono stati trattati per 60 giorni con una associazione di acido alfa lipoico 600 mg e di superossidodismutasi 140 UI al giorno per os. I controlli sono stati effettuati al basale, dopo 20 giorni di trattamento, al termine del trattamento dopo 60 giorni e un controllo finale dopo ulteriori 20 giorni. Per la valutazione sono stati utilizzati il questionario della disabilità Rolland e Morris e la scala del dolore Pain Rating Scale e durante il trattamento sono stati registrati l'uso concomitante di farmaci (con particolare riferimento agli analgesici) e gli eventi avversi (tollerabilità). Sono state calcolate le differenze tra i vari time point dello studio per i punteggi dei due questionari e per il consumo di analgesici. Per la valutazione statistica è stato utilizzato il test del chi quadro.

Results. A fine studio solo l'8% dei pazienti ricorreva ancora all'uso di analgesici contro il 73.5% registrato alla visita basale. Riguardo ai questionari di autovalutazione abbiamo osservato un miglioramento significativo a livello statistico $p<0.05$ sia per il dolore percepito sia per le disabilità funzionali; il dolore è migliorato dopo 40 giorni di trattamento e il miglioramento è stato significativo sia statisticamente ($p<0.05$) sia clinicamente. Tali risultati rimanevano invariati al controllo finale dopo ulteriori 20 giorni. Solo 4 pazienti hanno interrotto il trattamento causa persistenza o ricomparsa della sintomatologia dolorosa. Non sono stati registrati effetti collaterali nè intolleranze all'uso dell'associazione dei due prodotti.

Conclusions. Abbiamo presentato i risultati di uno studio clinico aperto non randomizzato. Abbiamo valutato l'efficacia e la tollerabilità della formulazione orale di una associazione di acido alfa lipoico 600 mg e di superossidodismutasi 140 UI al giorno per 60 giorni, che potrebbe risultare utile nel trattamento del dolore lombare cronico. Il nostro studio pilota ha mostrato che tale formulazione riduce drasticamente l'uso di analgesici subito dopo 20 giorni di trattamento, migliorando la sintomatologia dolorosa e la funzionalità. Tale risultati persistono e si mostrano statisticamente significativi alla fine del trattamento e al controllo successivo. Pertanto si può ipotizzare che il trattamento orale con acido alfa lipoico e superossidodismutasi agisca riducendo lo stress ossidativo che è riconosciuto come una delle cause che intervengono nel danno al nervo nel dolore neuropatico. Studi clinici con casistica più ampia e confronto con altre terapie già in uso, saranno condotti per confermare i risultati ottenuti.

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EPIDEMIOLOGY, CLINICAL CHARACTERISTICS AND OUTCOME OF ITALIAN SEVERE ACQUIRED BRAIN INJURY POPULATION: A NATIONAL REGISTRY

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Introduction. In June 2008 an on-line registry for data collection of patients with Acquired Brain Injury (ABI) was created. This project was sponsored by the Italian Health Ministry. The aim of this study was to collect epidemiological and clinical data and to evaluate functional outcome about patients with severe traumatic and non-traumatic ABI admitted to 29 Rehabilitation facilities in Italy between June 2008 and December 2011 and to compare data of patients with ABI of different aetiologies.

Materials and methods. Data collected included demographic (number of patients with TBI and NTBI, gender, age) and clinical characteristics (provenience, number of days elapsed between onset and rehabilitation admission, rehabilitation length of stay, discharge destination, death and vegetative status, presence of percutaneous endoscopic gastrostomy, tracheostomy, pressure sore and paraosteoarthropathy). Functional outcome was evaluated using the Disability Rating Scale.

Results. 44.31% and 55.69% patients had suffered a TBI and a NTBI, respectively. In the NTBI group 40.09% had a cerebrovascular injury, 12.04% an anoxic brain damage, 3.6% had other causes brain injury. The mean age was 43.67 and 56.68 for subjects with TBI and NTBI, respectively. Patients with TBI showed a lower onset-admission interval (OAI), compared with NTBI group; no difference in rehabilitation length of stay (LOS) was recorded between groups. Patients with TBI presented a lower DRS score at admission and discharge and returned home more frequently than NTBI group.

Conclusions. The creation of a National registry allows the collection of data about patients with ABI in order to compare epidemiological, clinical and outcome information, to evaluate and plan rehabilitation pathways, and to assess the use of healthcare and rehabilitative resources.

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REHABILITATION TREATMENT ASOCIATED WITH BOTULINUM TOXIN IN A PATIENT AFFECTED WITH MALIGNANT MIDDLE CEREBRAL ARTERY STROKE SECONDARY TO INTERNAL CAROTID ARTERY DISSECTION

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Introduction. *The Malignant Middle Cerebral Artery (MCA) Infarction* is a cerebral infarction in which, due to severe ischemia of a vascular territory (generally total territory of MCA), a massive cerebral edema is developed increasing the intracranial pressure (ICP) causing the compression of vital structures and leading to mortality in 80% of the cases. Malignant MCA Infarction represents up to 5-10% of the total ischemic cerebral infarctions with a higher prevalence in young patients. The most frequent causes of Malignant MCA Infarction are embolic cerebral stroke of probable cardiac origin and Internal carotid artery dissection (caused by trauma or by a systemic disease). Treatment of this condition should be performed by a multidisciplinary team including intensive care specialists, neurologists, neurosurgeons and physical medicine and rehabilitation. *The use of botulinum toxin* in the treatment of spasticity in stroke offers therapeutic possibilities superior to other pharmacological measures because it does not have general effects due to its selective action over the muscular groups directly involved in spasticity.

Materials and methods. Presentation of a case of a 43 years old female patient affected of malignant infarction of the left middle cerebral artery, treated with malignant infarction protocol (hypothermia and craniotomy). The patient had right hemiplegia, global aphasia and by second month spasticity in right limbs, the patient was totally dependent for activities of daily living (ADL) and walking. Treatment consisted of physiotherapy, occupational therapy, speech therapy and botulinum toxin injections at an early stage (2 months post-infarction).

Results. The patient was discharged from hospital performing independent walking using bitutor orthosis in right leg and a forearm crutch, being independent in ADL (although the right upper limb was nonfunctional). As for language, improvement was higher in understanding. It was noticed decreased spasticity in both right limbs more evident in the right upper extremity and hand, also the wrist pain disappeared. TB dose infiltrated was 1500 U Dysport distributed in right limbs in 5 months intervals. Currently the patient continues with TB treatment. Performs independent walk with Jousto orthosis splint; is independent for ADL and housework.

Conclusions. In this patient it was found the effectiveness of early treatment with botulinum toxin infiltrations, asociated with physiotherapy and occupational therapy

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LA SPINOMETRIA: NOSTRA ESPERIENZA CLINICA

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Introduction. La Spinometria è una rilevazione ottica tridimensionale non invasiva, sia in statica che in dinamica, dell'intera colonna vertebrale e del bacino. L'Esame Spinometrico effettua un'acquisizione volumetrica, tramite 10.000 punti di misura, basandosi sul principio di funzionamento della videoraster-stereografia, che consente di rilevare anche piccole variazione morfologiche corporee, annullando l'errore umano di posizionamento dei markers e l'errore di rilevazione dovuto allo spostamento della cute durante movimenti corporei. La Spinometria costruisce un modello tridimensionale morfologico dell'intera colonna vertebrale e della posizione del bacino, visualizzabile nelle diverse angolazioni, calcolando automaticamente, quale referto dell'analisi numerosi parametri:

- lunghezza tronco e posizionamento degli apici dorsale e lombare e dei punti di inversione cervico-dorsale, dorso-lombare e lombo-sacrale
- flessione antero-posteriore e laterale del tronco
- deviazione laterale (valori massimi e media quadratica)
- gradi di rotazione vertebrale (valori per sezione, massimi e media quadratica)
- inclinazione pelvica e antero-retroversione del bacino e dei due emibacini
- angoli lordotici e cifotici, freccia cervicale e lombare.

Materials and methods. Dal giugno del 2009 ad oggi, abbiamo trattato 50 pazienti di età compresa tra 6 e 70 anni, ambisesso, affetti da scoliosi idiopatica ed acquisita, dismetria agli arti inferiori, cervicalgia, dorsalgia e lombalgia. I pazienti hanno effettuato preventivamente una radiografia del rachide in toto in ortostatismo con calcolo dell'angolo di Cobb e della dismetria agli arti inferiori. Sono stati sottoposti ad un esame clinico con valutazione funzionale sia posturale che antropometrica e hanno quindi effettuato un esame spinometrico, coadiuvato da un esame baropodometrico con stabilometria e podoscanalyzer.

Results. Lo studio è attualmente ancora in itinere, con dati in continuo aggiornamento per le verifiche semestrali sui pazienti, specialmente coloro i quali hanno avuto una prescrizione per corsetto ortopedico o plantari ma possiamo già affermare che, dai risultati preliminari ottenuti, la spinometria può essere considerata un valido strumento di integrazione alla metodica tradizionale di valutazione posturale.

Conclusions. L'esame spinometrico, permettendo una corretta definizione dell'assetto posturale globale, verifica in maniera obiettiva se la terapia fisiatrica risulti efficace non solo da un punto di vista antalgico ed antiinfiammatorio, ma anche sulla correzione dei paramorfismi e dei dimorfismi a tutte le età.

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PROTOCOLLO DI TRATTAMENTO DI DISFAGIA POST-ICTALE CON ELETTROSTIMOLAZIONE (SISTEMA VITALSTIM)

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Introduction. La disfagia post-ictale rappresenta una tra le più frequenti complicanze nei pazienti ictati. La neuromiostimolazione elettrica nella terapia della disfagia viene usata come supplemento alle tecniche di riabilitazione deglutitoria standard anche se presenta ancora alcune criticità ed i suoi effetti sono ancora controversi [1,2]. Il presente lavoro espone gli effetti positivi di questa tecnica inserita in un protocollo terapeutico condiviso su 2 pazienti post-ictali con disfagia severa.

Materials and methods. Il primo paziente è un uomo bianco di 70 anni con ipertensione arteriosa. Il 4 febbraio 2011 manifestava ictus cerebri del circolo posteriore (lesione ischemica in regione paramediana destra nel territorio della PICA). Dal 16 febbraio egli veniva sottoposto a riabilitazione deglutitoria standard incorrendo in episodio di polmonite ab ingestis bilaterale severa. In aprile si posizionava PEG. Il 29 giugno si iniziava trattamento riabilitatorio con elettrostimolazione in regime di DH. Il secondo paziente è un uomo bianco di 55 anni forte tabagista. In data 1 dicembre 2011 egli presentava da ictus cerebri del circolo posteriore in Sindrome di Wallemberg (piccola lesione ischemica bulbare sinistra). Il paziente veniva ricoverato in altra struttura dove posizionava PEG a febbraio 2012. In data 20 febbraio 2012 si decideva per l'inizio del trattamento con elettrostimolazione in regime di DH. Ad entrambi i pazienti è stato applicato il trattamento riabilitatorio standard per disfagia: corretta postura e controllo dell'apnea. Tali tecniche sono state messe in atto durante tutto il periodo di trattamento. L'elettrostimolatore (sistema VitalStim, 80 Hz, 300 ms, onda bifasica) è stato applicato 5 giorni alla settimana per 8 settimane. La corrente utilizzata e la posizione degli elettrodi sono state modulate sulla risposta del paziente. Dopo le prime 2 settimane è stata introdurre acqua-gel. Alla quarta settimana sono stati introdotti cibi a consistenza semisolida e dalla quinta settimana progressivamente i 3 pasti principali della giornata fino ad una completa alimentazione per os.

Results. Entrambi i pazienti sono stati studiati con Studio Radiologico della Deglutizione all'inizio ed alla fine del trattamento; con FEES all'inizio, a metà ed a fine trattamento. Gli esami iniziali hanno evidenziato segni di penetrazione/aspirazione non controllati dalle manovre di compenso; le valutazioni finali hanno escluso segni di penetrazione/aspirazione. Il primo paziente ha rimosso la PEG in ottobre 2011, il secondo in giugno 2012; entrambi continuano follow-up periodico, sono in buone condizioni e sono aumentati di peso.

Conclusions. L'elettrostimolazione con VitalStim si configura come un trattamento specifico per il trattamento della disfagia post-ictale in grado di facilitare la percezione della deglutizione ed il reclutamento di circuiti automatici persi; Logemann [3] riferisce che non vi sono ancora sufficienti evidenze scientifiche in merito. Il nostro protocollo di trattamento ha mostrato un'efficacia notevole sul recupero di deglutizione funzionale in casi difficili. La terapia con VitalStim combinata alla terapia convenzionale di riabilitazione deglutitoria è stata in grado di risolvere delle disfagie severe permettendo miglioramento della qualità di vita dei pazienti. La nostra speranza è che tale trattamento possa conoscere una diffusione idonea da poter permettere l'inizio di uno studio multicentrico.

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PERCORSO CLINICO-ASSISTENZIALE ED ORGANIZZATIVO DELLA PERSONA CON DISFAGIA NEUROGENA E CHIRURGICA NELLA ASL3 BASSANO DEL GRAPPA

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Introduction. La disfagia è per definizione un "sintomo clinico" ed è spesso sottovalutata. Se non diagnosticata e trattata adeguatamente, può portare a rilevanti complicanze (disidratazione, denutrizione, polmoniti da aspirazione, etc) nonché ad isolamento sociale con conseguente compromissione della qualità di vita. Nella popolazione in generale la prevalenza della disfagia viene stimata intorno al 20%; risulta essere predominante nei soggetti anziani istituzionalizzati, con una prevalenza che raggiunge valori compresi fra il 40 e il 60%. Si tratta di una problematica legata a molteplici cause e presente in varie condizioni socio-sanitarie e contesti organizzativi. Il disturbo disfagico è causa di numerosi ricoveri e rappresenta un problema debilitante e costoso soprattutto dal punto di vista sociale; per la sua complessità richiede un approccio multiprofessionale e multidisciplinare. Anche nell'Azienda ULSS n. 3 di Bassano del Grappa (VI) è nata la necessità di definire una modalità uniforme di approccio alla persona con disfagia che permetta di individuare il problema, indipendentemente dalla causa che lo ha generato (malattie neurodegenerative, cerebrovascolari o oncologiche della laringe-faringe), dall'ambito in cui la persona si trova (domiciliare o istituzionale) e dalle prassi ospedaliere e territoriali che definiscono la presa in carico della persona, con particolare attenzione alle disfagie neurogene e chirurgiche.

Materials and methods. È stato attivato un gruppo di lavoro aziendale multi professionale e interdisciplinare per migliorare la conoscenza, l'individuazione e la cura precoce della disfagia. Individuare un percorso clinico-assistenziale ed organizzativo della persona con disfagia neurogena e chirurgica, indicando le modalità di intervento nell'ambito professionale degli operatori sanitari coinvolti al fine di: migliorare l'individuazione e la presa in carico della persona disfagica ed assicurare la continuità assistenziale in ambito ospedaliero, territoriale e residenziale; avviare una modalità aziendale di intervento multidisciplinare e uniforme secondo le LG; valorizzare le competenze professionali al fine di un più elevato standard assistenziale. Costruzione di una PDTA aziendale uniforme inserita nei processi di qualità aziendale.

Results. PDTA condivisa: diagramma di flusso con descrizione di: procedura -descrizione di attività- responsabilità-documentazione. Tutto ciò dalla rilevazione dei segni sintomi alla diagnosi e definizione del trattamento. Documentazione condivisa*:*

- Accertamento infermieristico mirato della disfagia
- Scheda di monitoraggio assunzione dietetica giornaliera
- Scheda infermieristica di valutazione e monitoraggio della disfagia
- Opuscolo informativo per i care givers+ Opuscolo Ricette
- Scheda logopedica di valutazione della disfagia
- Questionario di autovalutazione della disfagia

Conclusions. Dalla applicazione della PDTA ci si aspetta una miglior individuazione dei casi di disfagia, un miglior trattamento della stessa e una diminuzione dei danni secondari correlati. Sono stati creati indici di esito quali: numero di polmoniti ab ingestis- numero di consulenze dai reparti-numero di accertamenti infermieristici. Verranno tutti valutati ad un anno dalla applicazione della procedura

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ICF: UN ESEMPIO DI APPLICAZIONE A UN CASO CLINICO DI INTERESSE RIABILITATIVO, NELL'AMBITO DI UN WORKING'S TEAM MULTIPROFESSIONALE E MULTIDISCIPLINARE

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Introduction. La partecipazione ad un corso aziendale obbligatorio di formazione sull'I.C.F. per la progettazione di interventi assistenziali, è stata l'occasione per lavorare insieme su casi clinici reali, mettendo a confronto professionalità e discipline diverse (medico fisiatra, psichiatra, fisioterapista, educatore, psicologo, assistente sociale, insegnante). Scopo di questa presentazione è la presentazione di una esemplificazione di Project Work.

Materials and methods. Il nostro gruppo di lavoro era costituito da 8 professionisti (1 medico fisiatra, 1 medico psichiatra, 2 fisioterapiste, 2 educatori, 1 assistente sociale, 1 insegnante). Gli obiettivi del lavoro di gruppo proposto erano:

- descrivere una persona in carico ad almeno 1 operatore, specificandone i punti di forza e di debolezza attraverso i domini dell'ICF;
- ipotizzare da uno a tre obiettivi di lavoro congiunto, che tengano conto dei punti di forza e di debolezza individuati;
- evidenziare gli elementi positivi e/o negativi emersi nell'utilizzo dell'ICF in una progettazione multiprofessionale

Il caso presentato era relativo ad un soggetto affetto da Sclerosi Multipla, seguito presso una struttura territoriale dell'A.S.L. TO 3 – Sede di Venaria Reale, dal febbraio del 2001.

Results. La valutazione del profilo di funzionamento, facendo riferimento alle categorie ICF, ha permesso di descrivere le principali menomazioni delle Funzioni Corporee (Dominio B), delle Strutture Corporee (Dominio S), dell'Attività e della Partecipazione (Dominio D) e dei Fattori Contestuali Personali.

Conclusions. Il lavoro in team ha permesso in conclusione ad ipotizzare due obiettivi di lavoro congiunto, che tenevano conto dei punti di forza e di debolezza individuati. (Costruire/implementare un lavoro di equipe multidisciplinare al fine di un proficuo lavoro sulle problematiche emerse e da approfondire, per una più completa conoscenza della vita di Roberto e delle sue difficoltà e programmare interventi per facilitare gli spostamenti e l'autonomia di Roberto sia in casa, propria e dei genitori, sia in ambienti esterni).

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TERAPIA NEL DOLORE CRONICO: L'UNIONE FA LA FORZA?

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Introduction. Il dolore è il sintomo di più frequente riscontro nel quotidiano di noi riabilitatori. Spesso l'utilizzo dei farmaci non è sufficiente ed il

trattamento riabilitativo, non in integrazione, sembra non essere sufficiente. Opportuno appare allora integrare i due sistemi per dare una risposta efficace al problema. Il presente studio si propone appunto di verificare l'efficacia di un approccio terapeutico integrato in pazienti con algie croniche articolari, rispettando anche le interazioni farmacologiche che in pazienti con polipatologia e quindi politrattati ci possono essere.

Materials and methods. Si sono pertanto individuati tra l'Ottobre del 2011 ed il febbraio del 2012, 4 gruppi di 15 pazienti di età compresa tra i 64 e gli 82 anni affetti da dolore articolare cronico, cioè presente in maniera continuativa da oltre 30 gg., divisi per sesso, età e localizzazione algica in maniera omogenea. Nessuno dei pazienti al momento del reclutamento faceva uso di farmaci in maniera continuativa. Sono stati sottoposti a valutazione funzionale specifica per distretto ed a scala VAS per il dolore. Il valore VAS a T0 era di 4,2 con limitazione antalgica della motilità del segmento interessato mediamente di 2/5 rispetto al ROM normale. Al gruppo A è stato prescritto Bifloxen - 1 bustina al dì per 30 gg e terapia fisica; al gruppo B Celecoxib - 1 cp al dì per 30 gg e terapia fisica; al gruppo C Bifloxen - 1 bustina al dì per 30 giorni senza alcun trattamento fisioterapico; al gruppo D Celecoxib - 1 cpr al dì per 30 giorni senza trattamento fisioterapico. La terapia fisica prevedeva l'uso di Magnetoterapia, Laser e TENS, secondo quanto espresso dai LEA in materia di terapia fisica erogabile nella Regione Piemonte ed in relazione alle indicazioni e controindicazioni del trattamento. Quale terapia integrante per il dolore era possibile usare degli antidolorifici puri, ma non FANS. Al gruppo B e D è stato suggerito l'uso di protettori gastrici. Quale criterio di esclusione al trattamento si è fissato quanto espresso dal foglietto illustrativo di ciascun farmaco e dei criteri di non praticabilità della terapia fisica.

Results. Tutti i pazienti hanno mostrato un miglioramento del dolore. I pazienti che assumevano solo il farmaco hanno avuto una riduzione della VAS di circa il 50 %, mentre l'associazione con terapia fisica ha portato ad un valore medio < a 1. Non ci sono state integrazioni con antidolorifici non FANS nei gruppi A e B, mentre nei gruppi C e D 3 pazienti hanno fatto ricorso ad integrazione. Si segnala l'uso di gastroprotettori in 2 casi del gruppo B ed in 3 del gruppo D. Anche la qualità della vita è migliorata in maniera complessivamente sovrapponibile nel gruppo A e B, buona anche per gli altri 2 gruppi ma con percentuale più bassa.

Conclusions. L'integrazione tra terapia farmacologica e terapia fisica è indubbiamente efficace nel ridurre il dolore in pazienti con algia articolare cronica. Tale riduzione migliora anche la qualità di vita percepita dal paziente. Anche l'uso del farmaco da solo comunque determina un miglioramento del quadro algico seppure in misura inferiore al trattamento integrato. Il limite ovviamente resta la scelta del farmaco, nel rispetto delle indicazioni e delle interazioni legate alle frequenti politerapie del paziente anziano. Si impone la prescrizione di farmaci con un numero minore di interazioni ed effetti collaterali nell'intento di voler trattare con efficacia il paziente e in sicurezza.

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PROGETTARE UN AUSILIO: L'UTILIZZO DI TECNOLOGIE INNOVATIVE PER GARANTIRE IL RAPPORTO QUALITÀ PREZZO

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Introduction. La scelta di un ausilio, nell'ambito del progetto riabilitativo individuale, rappresenta spesso per il soggetto affetto da disabilità, la differenza tra una totale dipendenza ed una discreta autonomia o comunque una migliore gestibilità del paziente da parte del care giver. Individuare pertanto l'ausilio con appropriatezza è condizione fondamentale per favorire il recupero del paziente, tenendo conto che non sempre l'ausilio più costoso è anche quello più adeguato.

Materials and methods. A due team distinti di prescrittori, che utilizzavano medesimi sistemi di valutazione, è stata affidata l'individuazione di ausilii per pazienti con caratteristiche cliniche omogenee nei due gruppi. I criteri di scelta dell'ausilio dopo la valutazione del gruppo di cui faceva parte il fisiatra, l'internista che seguiva il paziente, il fisioterapista ed il tecnico ortopedico sono stati: funzionalità, confort, gestibilità, costo contenuto. Ogni parametro veniva valutato da 0 a 5. I pazienti osservati sono stati 14, 7 per ciascun gruppo. Di questi, 8 presentavano sequele di ictus cerebri e 6 erano amputati di coscia. L'età media era di 76,8 anni, con minimo 76 e massimo 82. Ovviamente i pazienti avevano caratteristiche generali simili. Il gruppo è stato confrontato con uno storico di pazienti analoghi. Per conformare l'ausilio ci siamo affidati ad uno specifico sistema di misurazione, partendo dal presupposto che le normali analisi visive o video non possano dare una certezza assoluta sull'efficacia di quanto prescriviamo. Il sistema utilizzato è il Rodin 4D, che attraverso un sistema di scansione ed elaborazione algoritmica permette di valutare il paziente e fornisce dei dati che applicati alla formulazione del progetto dell'ausilio lo rendono il più adatto possibile per quella conformazione. I pazienti venivano poi intervistati a 3 mesi riguardo all'utilizzo dell'ausilio, la sua comodità d'uso per le loro esigenze (esprimendo un voto da 0 a 10) e sull'eventuale miglioramento della loro qualità di vita rispetto al timing 0 (fase prescrittiva) (sempre con voto da 1 a 10).

Results. I due gruppi prescrittori hanno comunque lavorato raggiungendo i medesimi risultati, utilizzando gli stessi criteri di scelta dell'ausilio. Il costo complessivo degli ausilii ha presentato una deflessione di circa il 5%, quindi estremamente ridotta in un computo minimo, ma nel novero delle prescrizioni certamente significativa. A fronte però di una minima deflessione, la soddisfazione del paziente risultava aumentata e soprattutto è diminuita la percentuale di abbandono dell'ausilio, sia tra i pazienti con ictus, con conseguente minore stazionamento a letto, che degli amputati, con un miglioramento anche della qualità di vita percepita. Riguardo al confort, il giudizio espresso dai pazienti si attestava tra 8 e 9. Le percentuali di danni collaterali considerati nel loro insieme variava dal 22% del gruppo individuato come controllo, rispetto al 5%, di un gruppo di pazienti a cui si era prescritto l'ausilio con tale criterio. In questa percentuale la fetta maggiore era rappresentata dai decubiti, con notevole miglioramento della condizione gestionale complessiva del paziente.

Conclusions. Certamente il raggiungimento di una percentuale assoluta di specificità per un ausilio non è mai ipotizzabile, anche in relazione a come il paziente od il familiare vivono il cambiamento dello stile di vita. Tuttavia appare chiaro come l'integrazione multidisciplinare e l'utilizzo di tecniche all'avanguardia siano certamente primari per garantire ai pazienti il miglior prodotto capace di essere veramente efficace per migliorare la funzionalità e più in generale la qualità di vita. L'utilizzo poi di comuni parametri specifici di prescrizione migliora ulteriormente l'appopriatezza e l'efficacia prescrittiva.

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LO STUDIO MEDIANTE ELASTOSONOGRAFIA DELLE MODIFICAZIONI DEI TESSUTI EPIFASCIALI NEL LINFEDEMA: PRIME ESPERIENZE

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Introduction. L'elastosonografia è una particolare applicazione dell'ecografia, che permette di evidenziare le modificazioni dell'elasticità delle strutture esaminate, riproducendole con colori diversi a seconda della consistenza. Nello studio proposto tale metodica è stata applicata al linfedema, per la valutazione quantitativa delle modificazioni strutturali dei tessuti epifasciali. Tali alterazioni conseguono all'insufficienza meccanica dei vasi linfatici che, oltre a comportare il caratteristico edema ricco di proteine, causa la riduzione, in tali compartimenti, della clearance dei radicali liberi dell'ossigeno. Tale effetto innesca un meccanismo a cascata, che porta all'attivazione dei macrofagi e dei fibroblasti, con progressiva fibrosi dei tegumenti, per aumento delle fibre collagene e lisi delle fibre elastiche.

Materials and methods. La ricerca è stata eseguita su 5 persone, di sesso femminile, che presentavano un linfedema inveterato dell'arto superiore, conseguentead intervento di dissezione ascellare. I tessuti del segmento leso presentavano alterazioni della consistenza dei tegumenti, apprezzabili palpatoriamente. Per l'indagine è stato utilizzato un ecografo Esaote Mylab 70 X Vision. Sono state eseguite scansioni ecografiche ed elastosonografiche, in punti predeterminati dell'arto linfedematoso, eseguendo il raffronto con i punti corrispondenti dell'arto sano contro laterale. Negli stessi punti è stata preventivamente eseguita un'analisi qualitativa, con metodo palpatorio, della consistenza tessutale.

Results. Nel raffronto tra arto sano elinfedematoso, le immagini ottenute hanno dimostrato una differenza di spessore dei tessuti epifasciali, in accordo

con la differenza volumetrica tra i due arti. Si è inoltre evidenziata una differenza di elasticità dei tegumenti, con la possibilità di differenziare l'entità dei fenomeni in accordo con la classificazione proposta da Mihara. L'entità dei fenomeni ha mostrato concordanza con il rilievo qualitativo palpatorio.

Conclusions. L'elastosonografia si è dimostrata utile nella caratterizzazione dei tessuti affetti da linfedema, anche se la limitatezza del campione non permette di generalizzare le conclusioni. Si può pronosticare una sua utilizzazione per il monitoraggio delle alterazioni strutturali dei tegumenti, con particolare riferimento agli effetti di terapie farmacologiche e fisiche. Tuttavia tale metodica è ancora giovane e vanno ancora compresi e risolti i problemi relativi alla standardizzazione dell'appoggio e della pressione della sonda ecografica sulla cute del distretto in esame.

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EFFECTS OF SHORT-TERM PHYSICAL TRAINING ON FUNCTIONAL CAPACITY IN OBESE PATIENTS

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Introduction. Obesity increases the risk for ischemic heart disease, arrhythmias, sudden cardiac death and congestive heart disease. The effects of well-dosed and controlled physical training is reflected in the hemodynamic, metabolic and morphological changes - primarily in muscle groups trained. Cardiorespiratory and hemodynamic response during exercise is greater that involved the upper extremities, because the level of stress for the upper extremity exercises should be 50% more than the load for the lower extremities.

Materials and methods. The study involved 153 patients of both sexes average age of 57.47 ± 6.63 years, after surviving a heart attack and / or CABG. Rehabilitation lasted 21 days. Patients had exercise test on a bicycle ergometer before and after three weeks of physical training (intervalan, dynamic - aerobic type) which included morning gymnastics (simple, rhythmic breathing exercises combined exercises, duration 30min. performed in a standing position so as to trigger higher muscle groups - complexity and difficulty of exercises tailored to condition the cardiovascular system), walking paths (paths of different length and angle, at four levels and the speed is adjusted according to the physical capacity of patients) and ride on a bicycle ergometer (an interval of 25-100W duration of 10 - 15min. training intensity was submaximum 75-80% of maximum physical work capacity of patients). Depending on body mass index, patients were divided into two groups: normal weight individuals (n = 61 with BMI ≤ 24.9) and obese (n = 92 with IMT ≥ 25). It analyzes: the level of exercise, physical exertion test duration, double product at rest and at the end of the test. Ergometric test was considered positive if there was chest pain and / or ST-segment depression of horizontal type greater than 1 mm on the electrocardiogram.

Results. It was found significantly increased levels of exercise ($p \leq 0.05$) and statistically significant reduction ($p \leq 0.01$) the double product at rest and after the test ($p \leq 0.01$) and duration of physical exertion test ($p \leq 0.01$) in normal weight subjects. In obese patients recorded an increase in exercise tolerance, but without statistical significance. Obese people are after physical training had significantly lower values of double product at rest and at the end of the test strain ($p \leq 0.05$).

Conclusions. Short-term physical training three weeks, shows positive effects on functional capacity in patients with normal weight subjects, while obese people require a longer period of exercise training. By applying an adequate dose and controlled exercise training improves the functional capacity, with a number of useful metabolic effects: reduced levels of triglycerides, total and LDL cholesterol, increases HDL cholesterol levels and improves insulin resistance, also leads to the decrease in body mass, which plays an important role prevent new adverse coronary events in obese patients after surviving a heart attack and / or CABG.

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LA VALUTAZIONE DELLA SCOLIOSI IDIOPATICA VERTEBRALE E DEL DORSO CURVO CON SPINOMETRIA CONFRONTO CON ALTRE METODICHE NON INVASIVE

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Introduzione. Scoliosi e dorso curvo in età adolescenziale presentano un'elevata tendenza evolutiva, richiedendo pertanto uno stretto monitoraggio clinico, oggi spesso effettuato con misurazioni antropometriche di superficie.

Scopo. dello studio è quello di valutare il grado di affidabilità di una metodica computerizzata rasterstereogrammetrica di nuova generazione, non invasiva, per la misurazioni di superficie, chiamata Formetric 3D, rispetto ai dispositivi non invasivi di uso corrente nella pratica clinica. Il sistema di rilevamento ottico computerizzato, Formetric 3D, non utilizza radiazioni ionizzanti, è di facile e veloce applicazione e permette di memorizzare una grande quantità di dati.

Materiali e metodi. Sono stati analizzati 244 soggetti, 124 maschi e 120 femmine di età compresa tra i 10 e i 15 anni, attraverso misurazioni antropometriche atte a rilevare la presenza di possibili deformazioni a carico della colonna vertebrale. I soggetti partecipanti allo studio sono stati valutati con il sistema ottico computerizzato Formetric 3D e con i seguenti dispositivi di misura di superficie: goniometro (InclimedÒ) e scoliometro di Bunnell, che quantificano rispettivamente l'entità delle curve del rachide sul piano sagittale (misurate in gradi) e delle deformità sul piano trasversale (misurate in gradi).

Risultati. Il confronto tra le misurazioni eseguite con le due metodiche, condotto mediante correlazioni lineari, ha evidenziato una significativa ma debole correlazione tra le misurazioni con Formetric 3D e quelle effettuate con goniometro (coefficiente di correlazione $r=0.64$, $p<0.0001$). Per le misurazioni sul piano trasversale, la rotazione superficiale espressa in gradi data dal Formetric 3D non mostra alcuna correlazione significativa con la misura del gibbo in gradi effettuata con Scoliometro di Bunnell ($r=0.11$, $p=0.08$). Il Formetric 3D possiede un basso valore di predittività di scoliosi (AUC: 0.564) con una sensibilità del 55% e una specificità del 58% rispetto alla misurazione clinica con Scoliometro di Bunnel.

Conclusioni. In base alla bassa correlazione tra le misurazioni eseguite con Formetric 3D rispetto a quelle eseguite nella routine ambulatoriale mediante strumenti di superficie non invasivi, come suggerito dalle Linee Guida Nazionali, il presente studio mostra che il Formetric 3D non presenta un'affidabilità tale da poterne consigliare l'introduzione nella valutazione clinica delle deformità sul piano frontale, mentre sembra superiore l'affidabilità delle valutazioni sul piano sagittale. Una limitazione del presente studio è stata quella di non aver potuto, per motivi etici, confrontare le misurazioni di superficie e del Formetric 3D, anche con la valutazione radiografica, che, come è noto, rappresenta il "gold standard" nella valutazione delle deformità del rachide nell'età evolutiva. Come ipotizzato da alcuni studi presenti in letteratura, il Formetric 3D potrebbe forse essere più efficacemente utilizzato per la valutazione delle asimmetrie superficiali prodotte dai dismorfismi del rachide in età evolutiva, al fine di valutare l'efficacia del trattamento riabilitativo ricevuto dal giovane paziente.

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REHABILITATION OUTCOMES OF STROKE PATIENTS: EFFECT OF AGE ON FUNCTIONAL OUTCOME AND DISCHARGE DESTINATION

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Introduction. Stroke is one of the most frequent causes of disability in adult population. A national study held in Israel at the years 2004, 2007, and 2010 identified a total of approximately 2000 patients in 2 months giving a rate of 12,000 new cases of stroke each year. The mean age of stroke patients was 67.5 years for men and 71.3 years for women, 75% of them were above the age of 60. The question whether age is associated with poor prognosis in rehabilitation is still open and it depends on the chosen outcomes. The objective of this study is

to investigate the effect of age on rehabilitation outcomes and discharge destination of stroke patients treated in inpatient rehabilitation department in 5 years.

Materials and methods. This is a retrospective observational cohort study of all acute stroke patients (n=556) admitted to an acute inpatient rehabilitation department in general hospital during the years 2002 and 2006. Demographic data, clinical characteristics, onset-admission interval (OAI), lengths of stay (LOS), neurological and functional outcomes and discharge destination were obtained. Neurological evaluation was assessed using the NIH Stroke Scale (NIHSS). Activity of daily living (ADL) was measured using the FIM™ instrument. Overall prognosis was measured using the modified Rankin scale (MRS).

Results. 356 (64%) of the patients were above the age of 65 and the mean age was 68.4 ± 12 years. Mean OAI was 17.1±12 days and the mean LOS in rehabilitation was 43.2± 25 days without difference between the age groups. Mean FIM value at admission was significantly higher (80.6±23 vs 71±22.1, P=0.017), FIM gain was similar (20.6±13 vs 17.1±17.8 P= n.s.) and FIM efficacy was higher (0.6±0.6 vs 0.34±0.32, P=0.01) in the younger group. FIM at discharge was significantly correlated with age, LOS and FIM at admission, whereas FIM efficacy was correlated with age and LOS. The rate of home discharge was similar between elderly and young stroke patients being as high as 96.2%. FIM at admission was the only factor predicting the discharge destination and severity of symptoms.

Conclusions. Rehabilitation outcomes of older stroke patients were worse as compared to the younger patients however at the end of the rehabilitation process most of our patients were able to return home independently. This finding emphasizes that interdisciplinary rehabilitation treatment should be given equally to all ages.

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A NEW APPROACH FOR THE MANAGEMENT OF KNEE FLEXION CONTRACTURE, THE QUENGEL CAST BASED TECHNIQUE.

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Introduction. The incidence of fixed flexion contracture (FFC) following total knee replacement (TKR) has been estimated at up to 17%. FFC may result from a multitude of factors including: preoperative flexion contracture, the surgical approach (damaging surrounding soft tissue), and postoperative immobilization and pain. The management of postoperative FFC includes physiotherapy, serial casting and manipulation under anesthesia.

Materials and methods. We present an 18 years old female patient with osteosarcoma of the left proximal tibia. The patient was operated on for excision of the tumor in 2010 and a month later she underwent total knee replacement. Soon after the procedure she developed drop foot with severe pain and left peroneal nerve paralysis. Shortly thereafter, she developed knee flexor contracture in the left leg. As a result, she lost her ability to ambulate and started using a wheel chair. The patient received outpatient serial casting and prolonged physiotherapy that failed to correct the contracture. In 2011 she was admitted to our facility for an intensive physical therapy, pain management and a trial of contracture reduction by a new approach based on the Quengel cast method. At that time she had a fixed contracture of 45 degrees. A cast was applied to the thigh with a broom stick embedded in the cast (one half was integrated into the cast, whilst the other protruding half extended over the leg parallel to the thigh). A cast boot was applied over the leg and foot. In the front of the boot two cast ring were created. One ring was below the knee while the other was located above the ankle. A twine was stretched from the rings to the broom stick. The patient wore this contraption 24/7. Each day the twine was further stretched until pain appeared. All the while pain was controlled with conventional oral analgesics.

Results. Within 10 days the leg was straightened completely to about 3 degrees to full extension and the patient started walking with a walker and later on with crutches.

Conclusion. This simple, cheap and effective method for contracture reduction should be considered and applied to patients who fail conventional therapy before turning to more invasive methods. We intend to explore this approach in other patients.

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L'IMPIEGO DI OPPIOIDI IN FASE DI RIABILITAZIONE DOPO INTERVENTO DI ARTROPROTESI DI GINOCCHIO:LA NOSTRA ESPERIENZA CON OSSICODONE/NALOXONE PR

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Introduction. Gli interventi di chirurgia ortopedica maggiore sono gravati da dolore post-operatorio moderato-severo: per questo gli oppioidi rappresentano un'importante opzione terapeutica. Il loro impiego conduce a un rapido raggiungimento degli obiettivi riabilitativi, poiché l'analgesia permette un miglior recupero della funzionalità articolare e una ripresa del corretto schema del passo. Numerose pubblicazioni hanno validato l'impiego in fase post operatoria di farmaci a base di ossicodone CR. L'associazione ossicodone/naloxone PR rappresenta un passo avanti nella terapia con oppioidi, grazie al miglior controllo degli effetti collaterali. Obiettivo dello studio è stato valutare l'efficacia analgesica della terapia ossicodone/naloxone PR, nel favorire il recupero funzionale-riabilitativo di pazienti sottoposti ad intervento di artroprotesi del ginocchio. Obiettivi secondari: valutazione della funzionalità intestinale, tollerabilità del trattamento ed effetti del dolore sulla QoL.

Materials and methods. Venticinque pazienti (72% femmine, 28% maschi) con età media di 70,3 + 7,8 aa, sottoposti ad intervento di artroprotesi di ginocchio, sono stati presi in carico da unità operative di riabilitazione specialistica per rieducazione funzionale. Al T0 i pazienti presentavano un valore di NRS medio pari a 5, 6 + 3, per cui è stata impostata una terapia antalgica con ossicodone/naloxone PR ad un dosaggio iniziale medio di 10,9/5,45 + 3 mg/die. I pazienti sono stati monitorati per 14 gg relativamente alla sintomatologia algica, assunzione di farmaci adiuvanti, qualità di vita, presenza di effetti collaterali. In tutti i pazienti è stata valutata anche la velocità di cammino e l'angolo di flessione del ginocchio.

Results. Con un dosaggio costante di ossicodone/naloxone PR per i 14 gg di osservazione, il dolore è andato diminuendo passando ad una NRS media di 5,6 ad una finale pari a 2,6 + 2,2 in 10° giornata e 1,2 + 1,4 in 14° giornata. Il buon controllo del dolore ha permesso di portare a termine la fase riabilitativa con successo; il parametro velocità di cammino è passato da 0,56 + 2,22 mt/sec a 0,89 + 0,44 a 7 giorni e 1,07 + 0,49 al 14° giorno. Anche per quello che riguarda l'angolo di flessione del ginocchio, si è passati da un valore iniziale medio di 50,5 + 19,4 alla presa in carico a 84,7 + 17,2 a 7 giorni e 96,7 + 15,8 a 14 giorni. In due pazienti sono stati riscontrati episodi di vertigini e sonnolenza d'intensità lieve; in un paziente gli episodi di vertigine erano preesistenti all'assunzione dell'oppioide. La nausea e il vomito evidenziati in 5 pazienti non hanno impedito il continuo della terapia. Solo un paziente ha sospeso la terapia in 5° giornata per mancata compliance. L'assunzione dell'oppioide non ha determinato un peggioramento della motilità intestinale, valutata tramite BFI; 6 pazienti che avevano al tempo T0 un valore indice di un'alterazione moderata/grave della funzionalità intestinale hanno avuto un lieve miglioramento della stessa. In nessun paziente sono stati riscontrati episodi di prurito, vertigini, secchezza della bocca, sonnolenza o eccessiva sudorazione. L'impatto del dolore sulla QoL, con particolare riferimento alla possibilità di deambulare si è ridotto del 70,2% passando da un valore di 6,2 + 1,5 al T0 ad 1,8 + 1,5 al T14.

Conclusions. L'impiego dell'associazione ossicodone/naloxone PR nel percorso riabilitativo post-intervento di artroprotesi di ginocchio permette un buon controllo analgesico, una rapida ripresa funzionale e una buona compliance del paziente.

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SEVERITY OF INJURY AND COGNITIVE ABILITIES AMONG CHILDREN FOLLOWING TBI

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Introduction. Childhood Traumatic Brain Injury (TBI) is one of the most common cause of death and disability in children and adolescents. Severity of injury, as measured by GCS, Loss of Consciousness (LOC) and Post Traumatic Amnesia (PTA), impacts on the recovery of diverse cognitive abilities. Studies have indicated that attention, memory and executive functions (EF), are frequently impaired following childhood TBI. Yet, paucity of information exists regarding the cognitive profile of children during sub-acute phase of rehabilitation. The current study aims were (1) to describe the deficit pattern during rehabilitation of children following severe TBI; (2) and to examine child's cognitive performance in relation to injury severity measures.

Materials and methods. Participants: Convenience sample of 62 children, aged 5-18 (M= 11.8y: SD=0.45), who were admitted to paediatric rehabilitation following severe head trauma (LOC> 6 Hrs) between the years 2002-2010.

Measures of injury severity. Child's GCS score was collected from archival medical records. LOC duration and PTA were collected from children's rehabilitation files.

Measures of cognitive deficits: Information regarding child's stage of cognitive organization was prospectively collected using the Rancho Cognitive Scale (RCS). Children Orientation and Amnesia Test (COAT) was used for the evaluation of Post Traumatic Confusion (PTC). PTA was assessed prospectively using the "Three words test". Child's cognitive abilities were evaluated with the following tasks: (1) the "Test of Everyday Attention for children (TEA-Ch)" for evaluation of attention abilities; (2) the "Behavioral Assessment of the Dysexecutive syndrome for Children (BADS-C)" for the evaluation of executive functions, and (3) the "Rivermead Behavioral Memory Test (RBMT)" for the evaluation of memory abilities.

Results. LOC and PTA measures were highly correlated, indicating an association between the neurological and cognitive components of childhood TBI, respectively. About 25% of the children demonstrated a significant interval (5-17 days) between recovery from confusion (PTC) and recovery of the ability to learn new information (PTA). During recovery phase children's performance on all cognitive tasks was significantly lower than that of general population. There was a significant relationship between injury severity measures (LOC, PTA) and child's performance on attention tasks. Yet, no correlation was found between these injury severity measures and performance on EF tasks. In addition, PTA but not LOC, positively correlated with performance on the memory task.

Conclusions. The results suggest a hierarchical deficit pattern in the first few months following severe TBI in children, similar to that shown in adults. Among all injury severity measures, PTA duration was highly related to child's acute cognitive outcome. Thus, it can be suggested that PTA is a more specific measure of diffuse axonal injury in TBI, which in turn may impact on the cognitive recovery of the child. A decrease in cognitive abilities of children during the sub-acute phase following severe TBI was documented, and should be addressed when planning rehabilitation interventions.

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EFFICACIA DEL TAPING NEUROMUSCOLARE NELLA SCLEROSI MULTIPLA: STUDIO CONTROLLATO

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Introduzione. La riabilitazione è spesso l'unico trattamento disponibile per incrementare la forza muscolare dell'arto inferiore nei pazienti affetti da Sclerosi Multipla (SM). Molti degli studi pubblicati hanno focalizzato la loro attenzione esclusivamente sugli effetti della terapia fisica, mostrando benefici sulla potenza muscolare. Il Taping Neuromuscolare (TN) è una tecnica relativamente nuova, che si avvale dell'utilizzo di un nastro sottile ed elastico allungabile fino al 120-140% della sua lunghezza. Esso induce dei micromovimenti che stimolano i recettori cutanei e degli strati sottostanti e inviano stimoli propriocettivi al Sistema Nervoso Centrale causando una risposta muscolare riflessa. Lo scopo di questo studio pilota randomizzato, in singolo cieco, controllato con placebo, è di valutare la forza dei muscoli degli arti inferiori prima e dopo l'applicazione del TN in pazienti con Sclerosi Multipla.

Materiali e metodi. Sono stati selezionati 20 pazienti affetti da SM (18 F; età media 45.5± 6.5 anni), suddivisi in 2 gruppi da 10, e trattati rispettivamente con Taping Neuromuscolare (TN) e Placebo (PT).I criteri di ammissione allo studio erano rappresentati da malattia clinicamente stabile (senza variazioni dell' EDSS nell'ultimo anno); severità medio-moderata (EDSS ≤4); assenza di recidiva negli ultimi 3 mesi e nessun trattamento riabilitativo o farmacologico agente sul tono muscolare o sulla fatica negli ultimi 2 mesi. Tutti i pazienti sono stati trattati 5 volte ad intervalli di 5 giorni applicando il TN sul muscolo quadricipite più debole. È stato misurato il picco di forza (PF), del muscolo quadricipite e ischio-crurali con un dinamometro (Biodex), prima (T0) e a distanza di 2 mesi (T1) dall'applicazione del Taping Neuromuscolare nei due gruppi. I risultati sono stati sottoposti ad analisi statistica con ANOVA con la correzione di Bonferroni considerando significativo un punteggio di $p \leq 0,05$.

Risultati. Il TN è stato ben tollerato dai pazienti e non si sono registrati effetti collaterali. Al Tempo T0 il Picco di Forza, misurato sul lato più debole, era nei gruppi TN e PT rispettivamente.di 48.8±17.1 Newton-metri (Nm) e 69.5±28.5 Nm nel muscolo quadricipite, e di 26.2±10.8 Nm e 43.2±24.3 Nm nei muscoli ischio-crurali. Al Tempo T1 nel gruppo TN, il Picco di Forza è aumentato in misura statisticamente significativa nel muscolo quadricipite di 28.8±7.7 Nm (p=0.004) e nei muscoli ischio-crurali di 17.3±6.1 Nm (p=0.02). Il gruppo Placebo non ha invece evidenziato variazioni statisticamente significative della forza dei muscoli quadricipite (+ 5.8±11.2 Nm) e ischio-crurali (+ 5.6±14.4 Nm).

Conclusioni. In questo piccolo studio pilota, l'analisi dei risultati, dimostra che il taping neuromuscolare ha avuto un effetto propriocettivo determinando una risposta muscolare riflessa con conseguente aumento della forza muscolare del quadricipite e degli ischio-crurali deficitari in pazienti con SM remittente-recidivante. Ci si auspica di poter aumentare la casistica ed eseguire un follow-up a lungo termine.

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PROPOSTA DI UN PROGETTO PER LA RIEDUCAZIONE DEL PAZIENTE CON DISABILITÀ DI SPALLA DI NATURA ORTOPEDICA TRAMITE SSN.

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Introduction. il trattamento individuale, come prevedono tutti i protocolli e le linee guida presenti in letteratura nel trattamento della disabilita' di spalla, non permette al paziente di usufruire di un trattamento in tempi rapidi con il SSN in periodo di carenze di personale e risorse come in questo periodo. Questo progetto, proposto dal servizio di fisioterapia dell'Istituto Clinico Città' di Brescia, ha l'obiettivo di ridurre il numero di sedute riabilitative individuali mantenendo un livello riabilitativo efficace e in questo modo ridurre le liste d'attesa con il SSN.

Materials and methods. Nel lavoro sono stati inclusi per la maggioranza pazienti chirurgici ed una piccola percentuale di traumi, trattati tramite un percorso riabilitativo articolato in 3 fasi, per un totale di 35 sedute, corrispondente a circa due mesi di trattamento. Nello specifico:

– **1° fase** – prevede 10 sedute di rieducazione individuale con kinetec iniziata molto precocemente entro due settimane dall'intervento chirurgico per il recupero dell'articolarità passiva in elevazione sul piano scapolare. con la supervisione del terapista che può' visionare più' pazienti contemporaneamente,

– **2° fase** –a seguire 20 sedute di rieducazione individuale passiva ed attiva con un fisioterapista dedicato, per il recupero dell'articolarità, della funzionalità e la correzione dei compensi.

– **3° fase** – a seguire 5 sedute di gruppo (max. 4 persone), composte da 2 trattamenti giornalieri di 30 minuti ciascuno sotto la supervisione di un fisioterapista, per il completamento e il consolidamento dell'articolarità passiva ed attiva, oltre al rinforzo della muscolatura del cingolo scapolare.

Al termine viene consegnato un opuscolo contenente gli esercizi che il paziente puo' eseguire autonomamente al domicilio, per il mantenimento dei risultati raggiunti.

Results. Per verificare la validità del progetto, sono stati scelti degli indicatori per ogni fase del percorso riabilitativo, Partendo da questo presupposto, è stata effettuata una raccolta dati sui pazienti che hanno iniziato il percorso nei mesi tra Aprile e Dicembre 2011 (i pazienti di Dicembre hanno terminato il percorso riabilitativo a metà Febbraio 2012). Da Aprile a Dicembre 2011 sono stati trattati 112 pazienti, di cui 100 chirurgici e 12 traumi. Dagli indicatori scelti, sono emersi i seguenti risultati:

– **per la prima fase**, l'indicatore era il raggiungimento di una elevazione sul piano scapolare >= di 140°.

– **Risultato**: L' 87 % pazienti chirurgici e il 67 % pazienti traumatici hanno raggiunto l'obbiettivo.

– **per la seconda fase**, l'indicatore era il raggiungimento di un punteggio > = di 60/75 ai primi 3 items della scala di Constant.

Risultato: Il 67% pazienti chirurgici e il 58% pazienti traumatici hanno raggiunto l'obbiettivo.

per la terza ed ultima fase, gli indicatori erano 2: a) il raggiungimento di un ottimo livello di articolarità e funzionalità. b) il raggiungimento di un buon livello di forza muscolare all' EMM (esame muscolare manuale), punteggio >= di 4/5 secondo la scala di Oxford.

Risultato: per l'indicatore a) L' 85% per i pazienti chirurgici e il 67% per i pazienti traumatici hanno raggiunto l'obbiettivo. per l'indicatore b) l'84% per i pazienti chirurgici eil 58 % per i pazienti traumatic**i** hanno raggiunto l'obbiettivo.

Conclusions. I dati raccolti dimostrano il raggiungimento di un ottimo risultato nell '85% dei pazienti operati e nel 62% per i pazienti con esiti traumatici anche con trattamenti personalizzati ma in parte eseguiti in piccoli gruppi, confermato anche dal parere verbale positivo espresso dagli stessi sulla qualità' del servizio, sull'organizzazione del percorso e sulla velocità nell'ottenere l'appuntamento usufruendo del Servizio Sanitario Nazionale. Per quanto concerne il 15% dei pazienti chirurgici e il 38% dei pazienti con esiti traumatici che hanno avuto bisogno di sedute aggiuntive (10 sedute individuali) per raggiungere l'obbiettivo del recupero, quasi tutti presentavano già nel pre-operatorio, un quadro descritto di importante rigidità articolare o di grave impotenza funzional**e.**

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DOES SPINAL CORD INJURY INCREASE THE PREVALENCE OF CORONARY ARTERY DISEASE?

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Introduction. Since 1989, several authors have stated that coronary artery disease (CAD) and hypertension (HT) are more prevalent in patients after spinal cord injuries (SCI) than in the general population.[1] These statements were supported by abundant evidence of the presence of known risk factors for atherosclerosis in SCI patients, attributed to the sedentary character of these patients. The sympathetic disruption in patients with tetraplegia or high paraplegia, however, may be a factor that protects these patients from prolonged hypertension and from CAD. Indeed, direct evidence of increased prevalence of CAD after SCI is scant, and was demonstrated only in specific subpopulations. The present study was aimed at assessing the prevalence of CAD and HT after SCI in a non-selected population with traumatic and non-traumatic SCI.

Materials and methods. Inclusion criteria were age > 35 years and SCI for at least 5 years at the time of the last documented follow up, and Frankel grade A or B after injury. Patients with CAD or HT before the SCI were excluded. Included in the study were 151 SCI patients, 114 with traumatic and 37 non-traumatic SCI of 21.2±12.1 years' duration, who were admitted to Loewenstein Rehabilitation Hospital (LRH) for rehabilitation or check-up examinations. Eighty three percent were males. Average age was 34.3±12.5 at the time of injury, and 55.5±12.7 at the last documented follow up. Injuries were cervical in 31% of cases, thoracic in 60%, and lumbar in 9%. Frankel grade was A in 72% and B in 28% of cases. The patients had an average of 11±3.5 years of education. Data were collected from LRH records for all patients. For 100 of the patients, additional data were obtained from the "Ofec" computerized medical data system of Clalit Health Services, and 94 of the patients responded to a telephone interview. Findings were compared with published data about general populations in Israel and the US.

Results. Evidence for CAD, myocardial infarction (MI), and HT was found in 18, 13, and 40 of the 151 patients, and in 12, 8, and 30 of the 118 patients who were still alive at the last documented examination (10.1%, 6.7%, and 25.4%). Corresponding data, reported by persons of similar age, gender, and education groups in Israel (2009) are about 6.8% for MI, and 27% for HT.[2] Corresponding data, reported by persons of similar age, gender and education groups in the US (2010) are about 10.6% for CAD and 41% for HT.[3].

Conclusions. It appears that following SCI, the prevalence of CAD and HT is not higher than in the general population with similar age, gender, and education.

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PROTECTIVE FACTORS CAN BALANCE RISK FACTORS FOR CORONARY ARTERY DISEASE AFTER SPINAL CORD INJURIES

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Introduction. Although several authors have stated that coronary artery disease (CAD) and hypertension (HT) are more prevalent in patients after spinal cord injuries (SCI) than in the general population,[1] we found that in a group of 151 non-selected patients with traumatic and non-traumatic SCI the prevalence of CAD and HT was not higher than in the general population with similar age, gender, and education. Looking to explain these findings, we examined the effect of specific patient characteristics and of atherosclerosis risk factors on the prevalence of CAD and HT.

Materials and methods. In these 151 patients, injuries were cervical in 31% of cases, thoracic in 60%, and lumbar in 9%. Data were collected from Loewenstein Rehabilitation Hospital (LRH) records, from the "Ofec" computerized medical data system of Clalit Health Service, and by a telephone interview. Among the factors we examined were age, gender, aetiology of SCI, Frankel grade, diabetes mellitus (DM), hyperlipidemia, smoking, body mass index (BMI), years of education, and having a steady partner. Findings were compared with published data about general populations in Israel and the US.

Results. Valid data were found for 150 patients, of whom 114 had traumatic and 36 non-traumatic SCI of 21±12 years' duration. Eighty three percent were males. Average age was 34±12 at the time of injury and 55±13 at the last documented examination. Frankel grade was A in 72% and B in 28% of cases. The patients had 11±3.5 years of education. DM was evident in 19%, serum total cholesterol level >200 mg/dl for men and 220 mg/dl for women in 36%, documented diagnosis of hyperlipidemia in 16%, and BMI>30 in 13%. Past smoking was reported by 18% and present smoking by an additional 28%, and a steady partner was present in 59%. A significant hazard for CAD was found for DM (3.8), hyperlipidemia (4.2), and BMI>30 (3.8) ($p<0.05$). A steady partner decreased the risk of CAD (hazard 0.2, $p<0.03$). Hypercolesterolemia and hyperlipidemia were found to increase the hazard for HT when examined alone, but when controlling for all the examined variables neither showed a significant hazard for HT. Corresponding data of the general population show that among persons of similar age, gender, and education in Israel (2009)[2] the prevalence of DM is 12.2%, of past smoking is 23%, and of present smoking is 15.75%. Among corresponding persons in the US (2010),[3] the prevalence of DM is 15.9%, of past smoking 32.1%, of present smoking 31.3%, of BMI>30 36.7%, and of serum total cholesterol level >240 mg/dl 18.4%.

Conclusions. In the present group of SCI patients, we found factors that increase the risk of CAD, consistent with previous studies on SCI patients.[1] We also found, however, that smoking and obesity were lower in our patients than in the general US population of similar age, gender and education, and that almost 60% of patients had a steady partner, which may be a factor protecting from CAD. These factors, combined with a relatively low HT prevalence and sympathetic damage, may explain why CAD prevalence in these patients did not exceed that of general populations, despite the risk factors.

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EVALUATION OF BODY MASS INDEX AND WAIST CIRCUMFERENCE IN SCHOOL CHILDREN FROM SERBIA AS RISK FACTORS FOR ATHEROSCLEROSIS

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Aim. We analzed the values and changes of selective anthropometric parameters in school children from YUSAD study over 15 years of follow-up.

Methods. The study included 2124 male and 2084 participants age from 10 years on first examination, same number of participants remained 5 years later (15 years of age). On third examination there was 555 male and 738 female participants age of 19/20 years of life. We analyzed body mass index (BMI), waist circumference (Wc).

Results. For male participants the values of BMI were: 17.16±2.82 on first, 20.30±3.34 on second and 22.87±3.19 on third examination, regarding Wc: 62.14±8.05 on first, 73.30±9.39 on second and 81.11±8.80 on third examination. There is significant increase in BMI and Wc values in males ($p<0.05$). For female participants the values of BMI were: 16.96±2.91 on first, 20.54±3.41 on second and 21.15±2.97 on third examination, the values of Wc were: 61.20±8.13 on first, 70.16±8.67 on second and 73.73±8.32 on third examination. There is significant increase in BMI and Wc values in females ($p<0.05$). There is significant difference in BMI and Wc an all 3 examinations between gender ($p<0.05$).

Conclusion. School children from YUSAD study gained significant increase in BMI and Wc values over 15 years of follow-up. Male population had significantly increased values of BMI and Wc compared to females of same age.

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ASSOCIATION BETWEEN PHYSICAL ACTIVITY AND BLOOD PRESSURE IN ADOLESCENTS

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Aim. We analyzed the influence of recreational physical activity on systolic and diastolic blood pressure in male and female adolescents age 19-20 years of life from YUSAD study.

Methods. We have evaluated 1233 participants, of which 694 females and 539 males. We assessed systolic and diastolic blood pressure values separately, where diastolic blood pressure was defined as disappearing of a sound. Physical activity was defined as a child being recreationally active for more than two hours a day.

Results. Mean systolic blood pressure values for male adolescents were 120.7±11.7 mmHg, and for females 111.8±11.5 mmHg. Mean diastolic blood pressure values for males were 74.7±8.5 mmHg and for females 73.8±8.0 mmHg. Coefficient of Correlation in females showed that the increase in physical activity was followed with the non-significant decrease in both systolic (-0.015) and diastolic (-0.034) blood pressure values. In male subject the increase in physical activity led to the non-significant decrease in systolic (-0.037), and the non-significant increase in diastolic (0.012) blood pressure values.

Conclusion. We have demonstrated that even though there is not a significant correlation between physical activity and blood pressure values in adolescent population, it should be stressed that physical activity influences values of systolic and diastolic blood pressure differently in male and female participants.

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CLINICAL OUTCOME, EXPECTATION AND PSYCOSOCIAL DETERMINANS OF THE PATIENTS IN REHABILITATION AFTER TOTAL KNEE ARTHROPLASTY.

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Introduction. There is a well-known difference between patients expectation, satisfaction and the measured clinical outcome in total knee arthroplasty (TKA). It has been hypothesized that higher expectation prior to surgery and higher satisfaction will show better clinical outcome according to well-established scoring systems, frequently used for assessment after TKA.

Materials and methods. A consecutive group of 50 patients was included who received TKA for degenerative osteoarthritis and intensive rehabilitation period in U.O.S.D Riabilitazione Ortopedica, MVT Hospital in Perugia. A modified patients expectation form was used prior, 6 months and one year after surgery. Furthermore, the KSS, WOMAC and SF-36 served for patient assessment. Patients were grouped in responder and non-responder according to their level of expectation and fulfilment of expectation after surgery using a Likert scale.

Results. A total of patiets showed expectation prior to surgery of 1 or 2 and a satisfaction after surgery of 1 or 2 according to the Likert scales. These patients were classified as responders. Considering the continuous parameters of KSS, SF-36 and WOMAC, a few statistically significant differences were found between the responders and non-responders at baseline (presurgery) and at the fulfilment of their expectation after surgery. Patient expectation prior to surgery did not differ between both groups. The more satisfied patients showed significant better results in the KSS, WOMAC and SF-36 after surgery. The parameters general health (SF-36) and role emotional (SF-36) measured prior to surgery dominate the predictive potential to get a responder.

Conclusions. This study has shown that patient satisfaction correlates well with the clinical outcome according to the KSS, WOMAC and SF-36. The indication for TKA should consider the general health, emotional role and knee function of the patients as well in order to predict patient's outcome.

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L'ESPRESSIONE DEL DISTURBO ATASSICO: DIVERSE PATOLOGIE A CONFRONTO

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Introduction. Indipendentemente dall'origine, l'atassia altera la misura e la direzione del movimento, le sinergie posturali e di equilibrio che sono associate al gesto volontario. In questo studio sono state prese in considerazione tre differenti patologie in cui compare il disturbo atassico: tumori del SNC (sottoposti ad asportazione chirurgica), Sclerosi Multipla (SM) e

malattie eredo degenerative del Sistema Nervoso, alla ricerca di eventuali specificità nella risposta ai programmi di riabilitazione intensiva.

Materials and methods. Sono stati analizzati restrospettivamente i dati di 80 pazienti (maschi xx, femmine zz, di età tra xx e zz) di cui 45 affetti da SM, 22 da neoplasie del SNC e 13 da atassie eredodegenerative ricoverati presso l'UO di Recupero e Rieducazione Funzionale della FSM di Pavia tra il 19xx ed il 20xx.. Sono stati analizzati i dati relativi a tutte le valutazioni effettuate in ingresso e dimissione: A.- di autonomia: FIM (Functional Independence Measure). B.- di equilibrio su Pedana posturografica computerizzata Balance Master (®Neurocom) utilizzando il Test per le prove di 1° livello già predisposte. Laddove si voleva valutare la rilevanza delle eventuali differenze rilevate, i dati dei valori medi ottenuti in singole singole prove, sono stati confrontati con il test t di Student per campioni appaiati.

Results. Si è riscontrato un miglioramento della FIM dall'ingresso alla dimissione in tutti i gruppi: del 12% nel gruppo delle SM e delle patologie eredo-degenerative e del 30% nel gruppo dei tumori. Si sono riscontrate variazioni significative in tutti i gruppi di pazienti nel CSTIB, con un incremento maggiore per i tumori, soprattutto nei Rising index (sit to stand) e nell'end point excursion (LOS). Considerando la mediana, le percentuali di prove fallite in ingresso si sono ridotte alla dimissione rispettivamente del 22% nelle SM e nelle malattie eredo-degenerative e del 26% nei tumori.

Conclusions. Vi sono differenze interessanti tra i 3 gruppi in tutte le serie di prove: interazione sensoriale (CTSIB), limiti di stabilità (LOS) sit to stand e analisi del passo. Dall'analisi si evince che il gruppo dei pazienti con neoplasia migliora in maniera più evidente, rispetto al gruppo SM, che pur presenta un miglioramento nelle prove di dimissione rispetto a quelle di ingresso, mentre vi è una minor evidenza nel gruppo delle malattie eredo- degenerative. Gli autori analizzano quali-quantitativamente queste specificità.

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EARLY SCREENING AND PERSONALIZED TREATMENT IN MULTIPLE SCLEROSIS: A STUDY ON THE RELATION BETWEEN DEPRESSION, FATIGUE AND COGNITIVE IMPAIRMENT

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Introduction. A significant incidence and prevalence of psychological aspect in Multiple Sclerosis (MS) has been reported. Depression is the predominant desease (prevalence around 50%) (Josè Sà, 2008). The relation between depression and cognition has been investigated. Depression could influence cognitive disfunctions (Nocentini *et al.*, 2012). Also fatigue is related to depression and many studies found positive correlation between these two factors (Josè Sà, 2008, Mattioli *et al.*, 2011).

Materials and methods. Our study investigated relations between depression, fatigue and cognitive impairment in MS 30 patients from our Adult Rehabilitation Operative Unit. This goal highlights the importance of early screening and diagnosis of depressive symptoms, fatigue and/or cognitive impairments, in order to offer the most effective treatment based on the specific set of symptoms. This kind of therapeutic intervention may improve depressive symptoms, fatigue, and probably also cognitive performances, (Sa Jose, 2008).30 participants (27 women and 3 men; mean age 50.62; std.12.402). Depression was evaluated by Beck Depression Inventory II (cognitive, somatic and total scores of depression). Cognitive impairments was evaluated by: Rey complex figure, Trail Making Test version A and B, Story Recall Test, Attentional Matrices, Word Fluency Test. Fatigue was assessed by Fatigue Severity Scale (FSS).

Results. The prevalence of cognitive disorders was of 53.3% and the prevalence of depression was of 60%, as in literature (Nocentini *et al.*, 2012; Josè Sà,, 2008). We also evaluated prevalence of cognitive and somatic symptoms in depression. The frequency of somatic symptoms was 46.7%, while cognitive was 56.7%. Most of the subjects in our sample develop a depression with cognitive symptoms (binomial test expected percentage of 50%: $p = 0064$). We hypothesize that our patients fail to fit to the illness, developing a depression with higher frequency of cognitive aspects (pessimism, guilt, self-criticism, self-esteem, etc.). We found significant positive correlations between depression and fatigue (r Spearman = 0,645, $p < 0.001$), between cognitive depression score and fatigue (r Spearman = 0.454, $p = 0.023$), between somatic depression score and fatigue (r Spearman = 0.677, $p < 0.001$). Depression appears to be positively related to fatigue, especially in somatic BDI II score. We analyzed also differences between depressed somatically subjects and not depressed somatically subjects in relation to fatigue. We found that these two groups differ significantly: depressed subjects show more fatigue (independent group T-test $p < 0.001$, mean of FSS score of not depressed somatically subjects = 36.70).

Conclusions. We hypothesize that fatigue and physical symptoms of MS bring some patients to fit to the illness and when they fail, develop a depression with prevalence of cognitive symptoms (they try unsuccessfully to shift attention on cognitive aspects rather than somatic). This mechanism could exacerbate the feeling of fatigue in a vicious circle. However, other subjects report a prevalence of somatic depression. Probably they used different strategies of fitting (attention focused on the body); so the therapeutic approach should be different, depending on the particular type of adaptation that the person has attempted to do.

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EFFECTIVENESS OF SHOCK WAVE THERAPY IN PATIENTS WITH MUSCULOSKELETAL DISORDERS

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Introduction. Shock wave therapy (SWT) is a treatment of choice in patients with chronic orthopedic conditions. Its application in musculoskeletal disorders began in the middle of the nineties in Germany and nowadays it has become significant subject of research worldwide.

Materials and methods. The author presents the physical characteristics of focused, radial and planar shock wave therapy and the differences between them. The physical, chemical and biological mechanisms of the beneficial effects of SWT, found in experimental studies are presented: pain relief (pain inhibiting substances, effect on neuron cell membrane, degeneration of CGRP-ir sensory fibres and reduction of CGRP expression in dorsal root ganglion, hyperstimulation, gate-control mechanism), neovascularization with an early release of angiogenesis-related markers (VEGF); increased expression of PCNA and enhancement of endothelial Nitrous Oxide synthase activity; improved microcirculation; induction of specific growth factors (TGF-β1 and insulin-like growth factor IGF-I); disintegration of pathological deposits of calcification in soft tissues. The author presents the evidence about the effect of SWT in chronic tendinopathies, resistant to other treatment modalities: calcifying tendinopathy of the rotator cuff, lateral epicondylitis of the elbow, tendinopathy of the Achilles tendon; plantar fasciitis. There are some controversies in the data from different studies. It was found that focused SWT and radial shock wave therapy (RSWT) are efficient in the treatment of rotator cuff syndrome, especially with calcium deposits and that radial shock wave therapy has greater benefits in the treatment of lateral epicondylitis. There is conflicting evidence about the benefits of SWT in the treatment of tennis elbow. A systematic review concludes that the effectiveness of SWT in plantar fasciitis remains equivocal, but more recent studies find benefits regarding pain and functional scores in comparison with placebo group. A recent study found focused SWT to be superior to radial SWT in recalcitrant plantar fasciitis. There is a good level of evidence about the application of SWT in the treatment of Achilles tendinopathy, especially when the insertion is involved. The effect is dose-dependent, so high, medium and low energy flux density is recommended in the different conditions. The treatment protocols are not unified. New fields of application are studied: for decreasing muscle spasticity in central motor neuron disorders and in patients with diabetic ulcers. The author shares own experience in achieving pain relief and functional improvement after the application of radial shock wave therapy in patients with tennis elbow, for decreasing muscle spasticity in children with cerebral palsy and in patients with osteoarthritis.

Conclusions. The evidence about the beneficial effect of shock wave therapy in chronic tendinopathies in comparison with the vast majority of other conservative and operative methods is above average, so it could be recommended in case the proper indications are followed.

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SECONDO ANNO DI SCREENING DELLE DEFORMITÀ VERTEBRALI NELLE SCUOLE STATALI DI FIRENZE

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Introduction. Le scoliosi idiopatiche hanno eziologia multifattoriale sconosciuta; risulta pertanto impossibile attuare una terapia eziologica volta ed evitarne l'insorgenza e l' aggravamento. L'unica forma di prevenzione attuabile è quella di tipo secondario agendo sulla deformità clinica. In tal senso, la tempestiva identificazione delle forme a rischio di evoluzione assume la massima importanza, consentendo di intraprendere al momento giusto un trattamento adeguato evitando quindi il trattamento chirurgico. Da novembre 2011 a giugno 2012, in accordo con l'Assessorato all'Educazione, per il secondo anno consecutivo, è stato effettuato uno screening delle deformità vertebrali in 79 scuole statali di Firenze.

Materials and methods. Lo screening é stato condotto da uno specialista fisiatra esperto in patologie vertebrali e da medici in formazione specialistica. Lo screening, a cadenza settimanale, consisteva in due livelli di valutazione. Il primo livello veniva effettuato da medici specializzandi con valutazione della lassità legamentosa (scala di Beighton), cifosi dorsale con inclinometro e sua riducibilità, eventuale presenza di dimorfismi del rachide sul piano frontale. Le eterometrie degli arti inferiori venivano segnalate e corrette prima della ricerca di un'eventuale gibbo al test di flessione anteriore del tronco con misurazione dell' ATR (angolo di rotazione del tronco) con scoliometro di Bunnel. Allo screening di secondo livello (svolto nella stessa sede) accedevano solo pazienti selezionati per stabilire il percorso diagnostico-terapeutico.

Results. Sono stati valutati 4361 bambini, il 78,15% praticava sport, agonistico nel 29,06% dei casi. Su 2162 femmine l' 11,24% aveva già avuto il menarca. Il valore medio della scala di Beighton è risultato 1,97 (range 0-9); valore medio della cifosi dorsale: 34,38° (35,09° nei maschi e 33,65° nelle femmine). In 1050 casi era presente ipercifosi toracica (> 40°) non riducibile in 13 casi. Per i dati relativi al piano frontale in 3699 studenti (84,81%) non sono state individuati dimorfismi. In 649 (14,88%) bambini è stata posta diagnosi clinica di scoliosi inviandoli a follow-up ambulatoriali a 6 mesi, di questi in 55 casi (1,26%) sono stati anche richiesti esami radiografici. Per sede le curve più frequenti riscontrate durante lo screening sono risultate: lombare sinistra (35,63%), dorsolombare destra (12,83%), dorsale destra (12,63%), doppia curva dorsale destra - lombare sinistra (11,05 %), lombare destra (9,77%), dorsale sinistra (6,41%), dorsolombare sinistra (5,92%), altre (5,75%). Inoltre sul totale dei bambini valutati in 477 (10,93%) era stata posta pregressa diagnosi di scoliosi, riconfermata dallo screening scolastico solamente in 108 pazienti (22,64%). Tra i bambini che non avevano pregressa diagnosi di scoliosi sono state poste nuove diagnosi in 541 casi (13,92%).

Conclusions. I risultati ottenuti durante questo secondo anno di screening appaiono del tutto sovrapponibili a quelli ottenuti durante il precedente. Inoltre si evidenzia un elevato numero di falsi positivi e falsi negativi. (rispettivamente 369 e 541). Possiamo considerare quindi 910 diagnosi errate (20,86%) del totale. Il riscontro di questo elevato numero di falsi positivi e negativi consentirà di poter trattare precocemente i dimorfismi del rachide individuati e ridurrà i costi legati alla medicalizzazione dei falsi positivi.

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HOW MUCH IS USEFUL A REGIONAL NET BETWEEN DIFFERENT SPECIALTY? THE "REGIONE CAMPANIA" EXPERIENCE OF THE MULTIDISCIPLINARY NET OF GRUPPO CAMPANO FOR THE STUDY AND MANAGEMENT OF SPASTICITY

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How much is useful a Regional NET between different specialty? The "Regione Campania" experience of the multidisciplinary NET of Gruppo Campano for the study and management of Spasticity.

Introduction. In this comunication we desire to present and introduce to the audience and to the scientific national community the experience of the new born CAMPANIA Regional Group for the Study and Management of spasticity in wich gathered physician and surgeons from different specialty such as rehabilitation, neurology, neurophysiology and neurosurgery.

Materials The group planned frequent (possibly monthly) meeting in which to share competence, friendship, studies, future willing and needing to be met. The group launched a website direct to the patients without a plenty of scientific reports but full of useful "news" directed to the patients living in Regione Campania and their familiar. One of the most important goal is to create a NET between the caregivers involveddd in Spasticity management in Regione Campania. WEBSITE launcheddd: www.spasticita.com Members: Bozza dr.ssa Maria Neurochirurgia G. RUMMO (BN) Brancaccio dr Sal. Don Gnocchi S.Angelo dei lombardi (AV) Capomolla dr. Don Gnocchi S.Angelo dei lombardi (AV) Crisci dr Claudio Clinic Center (NA) De Joanna dr.ssa G. Cardarelli Napoli Di Blasio dr Raffaele Clinica S.Maria del Pozzo Di Lorenzo dr Luigi UOC Riabilitazione AO "G. Rummo" BN Fels dr A. Reparto di Neurofisiopatologia,AORN Cardarelli (NA) Florio Ciro AO Carderelli Neurologia Gimigliano Prof Raffaele Cattedra di Medicina fisica e Riabilitazione SUN Napoli Iammarone Servodio Prof. Clemente Clinica Fisiatrica II Policlinico (NA) Iammarone Servodio dr.sa Fernanda Clinica Fisiatrica II Policlinico (NA) Iorio dr.ssa G. Neurochirurgia G. RUMMO (BN)Lanzillo dr Bernardo Fondazione Maugeri -TELESE Lus prof. G. Clinica Neurologica Azienda Ospedaliera Universitaria SUN Maiorino dr A. Clinica Villa delle Magnolie:Castel Morrone (CE) Melone Prof.ssa Clinica Neurologica Azienda Ospedaliera Universitaria SUN Mirone dr Giuseppe Ospe Santobono NA, Monsurro' dr.ssa II Clinica Neurologica Azienda Ospedaliera Universitaria SUN Mosca dr M. Centro Minerva (NA) Natale Prof M. NCH Seconda Università Napoli c/o CTO Napoli Panariello dr Giovanni Clinica S.Maria del Pozzo: Ruggiero dr. Neurochirurgia pediatrica Ospedale Santobono (NA): Tirelli Porf A. Ortopedia Seconda Unversità Napoli Tortoriello dr.ssa A Fondazione F. Gambardella Onlus Salerno.

Conclusion. The website and the project obtained in few weeks that almost all specialist doctors managing patients affected by spasticity as symptom solo, gathered in a group where was possible to share eexperiences thoughts, problems and future willing and desires. All of the participants were quite enthusiastic of the experience aiming to improve skills and patients assistance also through the new created regional NET. The Group final considerations after the last meeting were that we still need an optimal management. Available therapies are still, in Regione Campania, often underutilised or lately provided and this Group aims to share knowledge about spasticity treatments organising meetings and events. Our first result is to have created a previous non-existent regional NET between physicians and surgeons by which also spastic patients could have relevant benefits for their health problems related to spasticity. Approach to Spasticity needs to be: Multidisciplinary Holistic Coordinated and with Clinical governance, Protocol, Telephone help line, and Home Therapies, aiming to an approach tailored to the individual.

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IL TRATTAMENTO RIABILITATIVO DELL'INCONTINENZA URINARIA NON NEUROGENA FEMMINILE: STUDIO EFFICACIA

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Introduzione. La riabilitazione è l'intervento di prima linea nel trattamento della incontinenza urinaria (IU) non neurogena nella donna. In questo studio abbiamo valutato l'efficacia del trattamento riabilitativo a breve-medio periodo in donne con IU da sforzo, urgenza e forme miste, analizzando anche possibili fattori prognostici negativi.

Materiali e metodi. 94 donne con IU non neurogena consecutivamente trattate in setting ambulatoriale. I dati sono stati raccolti in maniera prospettica utilizzando una cartella predefinita composta da moduli anamnestici (anamnesi generale, ostetrico-ginecologica, farmacologica), valutativi (esame obiettivo specifico, diario minzionale, PAD test, aderenza al trattamento) e testistici (qualità della vita). I dati analizzati riguardano le pazienti che hanno completato oltre al primo ciclo riabilitativo, anche la fase di followup al 3° mese. La severità clinica della IU è stata misurata secondo una semplice scala empirica (frequenza per entità degli episodi bagnati), correlata al n° di pannolini/die utilizzati ed al PAD test, quando appropriato. L'efficacia del trattamento è stata valutata sia in termini di riduzione assoluta dello score di severità clinica della IU, sia categorizzando il cambiamento rilevato.

Risultati. L'età media è risultata di 62+12 anni (range 32-90). La diagnosi è stata di IU da sforzo (52.1%), da urgenza (22.3%) e di forma mista (25.5%). Nel 2.0% dei casi la IU era associata a incontinenza anale. Nel 46.8% delle pazienti la IU è risultata "lieve" (perdite non quotidiane e di scarsa o moderata entità), nel 23.4% "moderata" (perdite quotidiane di scarsa-moderata entità) e nel 29.8% "grave" (perdite quotidiane o pluriquotidiane di entità elevata o moderata). Non abbiamo riscontrato un'associazione tra la severità della IU, l'età, il tipo di incontinenza o la sua durata. A 3 mesi il 50.0% delle pazienti risultava "curata", il 17.0% "migliorata", mentre nel 33.0% delle pazienti il miglioramento riscontrato non è stato considerato clinicamente significativo. Nessuna paziente era peggiorata. A 6 mesi il 71.1% delle pazienti non gravi aveva mantenuto i livelli raggiunti od era ulteriormente migliorata, mentre il 28.9% era peggiorata.

Conclusioni. I nostri risultati sono coerenti con quanto riportato dalla letteratura e dimostrano l'efficacia del trattamento riabilitativo nella IU non neurogena della donna. Verranno ulteriormente discussi aspetti specifici del trattamento ed elementi di significato prognostico.

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INCONTINENZA URINARIA DELL'ANZIANO: VALUTAZIONE E PROGETTO RIABILITATIVO

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SC RECUPERO E RIABILITAZIONE FUNZIONALE, EO OSPEDALI GALLIERA, GENOVA, ITALIA [1]

Nei pazienti anziani fragili l'incontinenza è spesso la risultante di problematiche interattive di comorbilità, che sono causa di deficit della sfera cognitiva, della mobilità e della destrezza manuale. La severità dell'incontinenza è anche largamente influenzata da fattori sociali ed ambientali. L'incontinenza incide sulla qualità della vita in termini di possibilità di relazioni sociali, rapporti sessuali, salute in generale (rischio di cadute con possibili fratture femorali, piaghe ed infezioni). Inoltre è a sua volta causa di depressione, aumento dei costi sociali ed istituzionalizzazione. I dati statistici dicono che l'I.U. è presente nel 20% degli ultra settantacinquenni residenti a domicilio, nel 30% dei ricoverati in reparti per acuti, nel 50% dei residenti in Istituzioni: aumenta di frequenza con l'invecchiamento. Meno del 50% dei soggetti incontinenti si rivolge al medico per imbarazzo o negazione del disturbo, perché viene risolto il problema con l'uso degli assorbenti, per ignoranza sulle possibilità terapeutiche, perché il disturbo viene inevitabilmente legato all'età, perché non è stato trovato personale sanitario preparato ad affrontare il problema. L'età anziana non è di per sé una controindicazione ad applicare il protocollo riabilitativo ma la classificazione di Fonda (1) diversifica l'approccio terapeutico: quando la continenza indipendente non è raggiungibile, le possibilità di intervento sono dipendenti dalla presenza di possibili sostegni di tipo sociale ed economico. Nel sesso femminile il trattamento riabilitativo dovrebbe essere iniziato precocemente nelle I.U. da sforzo, da urgenza o miste, in assenza di complicazioni o residuo post-minzionale. Nei maschi può essere iniziato un trattamento farmacologico con anticolinergici, nell'I.U. da urgenza senza significativo RPM. Per un corretto approccio terapeutico al trattamento dell'I.U. è necessaria una valutazione per l'identificazione dei soggetti incontinenti che si articola in una valutazione di base, di I livello, ed in una valutazione specialistica di II livello, da effettuarsi dopo che la valutazione basale abbia escluso incontinenze transitorie o da etiologia non urogenitale. La valutazione di base conferma la presenza di I.U., identifica situazioni reversibili, e pone una diagnosi presuntiva: essa definisce il tipo di trattamento nella maggior parte degli anziani fragili. Di seguito l'esame obiettivo deve valutare lo stato generale di salute e l'esame degli organi genitali. Lo stato cognitivo viene valutato con il M.M.S., per la valutazione dello stato funzionale viene usato l'indice di Barthel. Pertanto il trattamento riabilitativo è la prima opzione terapeutica in tutti i casi non complicati di incontinenza e solo nei casi complicati o nei casi di insuccesso terapeutico si passa ad una gestione specialistica; occorre formulare un progetto riabilitativo che preveda un approccio educazionale ed un utilizzo variamente combinato di tutte le modalità terapeutiche conservative secondo le LG dell'ICS. Se la prognosi funzionale è quella della continenza dipendente le strategie d'intervento non si possono sempre prefiggere il ripristino di un normale ritmo minzionale, ma avranno lo scopo di prevenire le perdite, riducendo il numero di episodi di I.U., e verranno quindi attuati interventi di tipo comportamentale. Nei casi in cui è solo possibile una continenza "contenuta" (sociale), le tipologie di intervento si standardizzano in base alla presenza di RPM: quando esso è significativo viene usato il catetere a dimora, altrimenti sono indicati e sufficienti i dispositivi esterni come condom ed assorbenti.

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RECUPERO FUNZIONALE IN PAZIENTI CON STROKE IN FASE POST-ACUTA TRATTATI CON TROMBOLISI RT-PA: UNO STUDIO PROSPETTICO

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Introduction. La trombolisi con rtPA, praticata entro 3 ore dall'esordio, migliora l'esito nei pazienti con ictus ischemico acuto, con una riduzione significativa del numero di pazienti deceduti o dipendenti.

Scopo. dello studio è stato quello di verificare in un setting di riabilitazione intensiva ospedaliera il recupero neuromotorio e funzionale in pazienti sottoposti a trombolisi dopo ictus rispetto a pazienti non trattati, mediante scale di misura della menomazione e della disabilità maggiormente sensibili rispetto a quelle utilizzate negli studi presenti in letteratura.

Materials and methods. Attraverso uno studio caso-controllo prospettico, è stato confrontato il recupero neuromotorio e funzionale di 20 pazienti consecutivi con esiti di ictus ischemico (TACI e PACI) in fase post-acuta e sottoposti a trombolisi con rtPA e ricoverati in post-acuzie nella UOC di Riabilitazione Intensiva di Passignano sul Trasimeno (PG), con quello di 40 pazienti della stessa fascia d'età (31-74 anni), che non sono rientrati nei criteri di inclusione per effettuare la trombolisi (giunti in ospedale dopo la terza ora dall'esordio). I pazienti, provenienti dalla Stroke Unit dell'AO di Perugia, sono stati valutati all'ingresso ed alla dimissione, utilizzando i seguenti indicatori di outcome: Motricity Index (MI) per l'impairment neurologico dell'arto superiore ed inferiore e il Trunk Control Test (TCT) per il controllo del tronco; per la disabilità la Functional Independence Measure (FIM).

Results. I due gruppi di pazienti sono risultati omogenei per distanza tra il ricovero in riabilitazione e l'evento indice (OAI) (17.15±8.11 vs 18.83±10.98 giorni), e durata del ricovero in riabilitazione (Length of stay, LOS) (61.20± 22.51 vs 54.13±21.69 giorni). I pazienti trattati con trombolisi presentano all'ingresso in reparto una disabilità maggiore rispetto al gruppo controllo (FIM 48.65±22.80 vs FIM 53.58±19.80), seppure non significativa. Al termine del periodo di riabilitazione hanno mostrato un recupero, espresso dal "FIM gain" (differenza fra lo score FIM alla dimissione e all'ingresso), significativamente maggiore rispetto al gruppo di controllo (35.10±10.46 vs 28.35± 11.34, p=<0.05). Analizzando poi i pazienti divisi per sottogruppi secondo la classificazione di Bamford, emerge che i soggetti con PACI sottoposti a trombolisi presentano alla dimissione un grado di disabilità significativamente minore rispetto ai non trattati (FIM 98.55±15.62 vs 84.36±17.35). Le scale di misura di menomazione all'ingresso (TCT 41.80±30.76, MIAS 23.05±25.11, MIAI 31.45±27.45) e alla dimissione (TCT 49.63±27.38, MIAS 34.03±35.25, MIAI 34.75±28.04), mostrano una maggiore tendenza al miglioramento nei pazienti trattati senza però raggiungere la significatività statistica, eccezione fatta per il TCT (p= 0,02).

Conclusions. Il gruppo di pazienti trattato con trombolisi, omogeneo per severità del danno neurologico, età e sindrome clinica secondo Bamford al momento dell'ingresso presso il reparto di riabilitazione rispetto al gruppo controllo dei pazienti non trattati, presenta un outcome funzionale migliore alla dimissione. Questa osservazione risulta particolarmente evidente nel gruppo dei PACI. La sinergia di riabilitazione intensiva e trattamento con rtPA può essere particolarmente favorevole in termini di outcome funzionale per i soggetti con ictus cerebrale.

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LA COMORBILITÀ CARDIO-RESPIRATORIA LIMITA IL RECUPERO FUNZIONALE IN RIABILITAZIONE INTENSIVA?

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Introduction. Dati di letteratura suggeriscono che la comorbilità cardiorespiratoria è frequente nei soggetti con disabilità neurologica ed ortopedica post-acuta ricoverati in reparti di riabilitazione intensiva e può interferire con il progetto riabilitativo e la durata della degenza. L'obiettivo di questo lavoro è valutare mediante uno studio retrospettivo in un reparto di riabilitazione intensiva, se la presenza o meno di comorbilità cardiorespiratoria sia in grado di modificare l'esito del ricovero riabilitativo in termini di recupero funzionale in un gruppo di soggetti con recente ictus cerebrale od esiti di chirurgia ortopedica dell'arto inferiore.

Materials and methods. 463 soggetti con esiti di ictus cerebri o sottoposti a interventi chirurgia ortopedica prossimale di arto inferiore ricoverati consecutivamente nella UOC "Centro Ospedaliero Riabilitazione Intensiva" di Passignano sul Trasimeno (Pg)-ASL2 dell'Umbria; sono stati suddivisi in 2 sottogruppi: con e senza comorbilità cardiorespiratoria, in base alla presenza/assenza di almeno una patologia/condizione cardiorespiratoria all'interno di un elenco preso dalla letteratura. È stato rilevato lo stato funzionale (Functional Indipendence Measure - FIM score) all'ingresso in reparto e alla dimissione ed il grado di recupero al termine del ricovero ("guadagno FIM": differenza fra FIM score alla dimissione ed all'ingresso). Abbiamo anche valutato la percentuale dei trasferimenti tra i due gruppi presso reparto per acuti per sopraggiunte complicazioni.

Results. Tra i soggetti con disabilità neurologica (n° 200), quelli con comorbilità cardiorespiratoria presentano uno score FIM all'ingresso (45.89±17.05 vs 55.67±21.17; p<0.05) e alla dimissione (72.33±20.61 vs 78.12±23.91; p<0.05) significativamente più bassi di quelli dei pazienti privi di tale comorbilità. Le persone con disabilità ortopedica invece (n° 263) con e senza comorbilità hanno FIM score all'ingresso (81.68 ± 16.00 vs 83.53 ± 16.85; p= N.S.) ed alla dimissione (100.01 ± 16.36vs 105.14 ± 53.07; p= N.S.) sovrapponibili. Alla dimissione, tra i soggetti con disabilità neurologica, il "guadagno FIM" di quelli con comorbilità è significativamente maggiore di quello dei soggetti privi (26.43 ±10.65 vs 22.35 ±11.44; P<0.05). Gli "ortopedici" invece con e senza comorbilità non hanno differenze nel "guadagno FIM" (18.32±8.76 vs 21.60±52.29; p=N.S.). In merito invece alla percentuale di trasferimenti presso reparto per acuti, nei pazienti con ictus e comorbidità questa è del 10,4% (10 su 96), mentre per quelli senza comorbilità è del 4,8% (5 su 104). Solo 2 pazienti ortopedici invece sono stati trasferiti presso reparto per acuti, ed entrambi erano affetti da comorbidità cardiorespiratoria.

Conclusions. La presenza di comorbilità cardiorespiratoria interferisce con il progetto riabilitativo in fase post-acuta nei pazienti con disabilità neurologica ed ortopedica sia perché li espone maggiormente al rischio di interruzione temporanea del progetto stesso per sopraggiunte complicanze, sia perché si associa mediamente ad una maggiore dipendenza all'ingresso e alla dimissione. Tuttavia non necessariamente le problematiche cardiorespiratorie influenzano negativamente l'esito funzionale della riabilitazione. Anzi, questa può permettere ai pazienti neurologici comorbidi un grado di recupero relativamente maggiore di quello dei pazienti senza comorbilità.

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PERCORSI RIABILITATIVI DELLA PERSONA CON GRAVE CEREBROLESIONE ACQUISITA: CONFRONTO FRA DUE MODALITÀ DI PRESA IN CARICO

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Introduction. La complessità delle menomazioni e disabilità delle persone affette da GCA rendono necessaria una corretta ed efficiente integrazione tra le varie fasi del percorso riabilitativo.

Scopo. del lavoro è illustrare i risultati dell'applicazione di un percorso riabilitativo dedicato per le persone con GCA, sviluppato nel territorio di un'azienda socio-sanitaria locale. Tale percorso si sviluppa attraverso una *"rete di servizi"* che coinvolge le strutture aziendali dell'acuzie e della post-acuzie riabilitativa (early rehabilitation) di una Unità Locale Socio Sanitaria, sia l'Unità Gravi Cerebrolesioni (UGC) di un Ospedale Riabilitativo di Alta Specializzazione (ORAS), a gestione mista pubblico-privato. L'obiettivo principale era confrontare i risultati ottenuti per le persone con GCA prese in carico nell'ambito di questo percorso riabilitativo dedicato, rispetto quelli raggiunti dagli utenti presi in carico direttamente per la fase post acuta riabilitativa dalla UGC di ORAS.

Materials and methods. È stato eseguito uno studio retrospettivo sulle persone con GCA dimesse in due anni e mezzo dall'Unità Gravi Cerebrolesioni dell'Ospedale Riabilitativo di Alta Specializzazione di Motta di Livenza (TV), dal 1 luglio 2008 al 31 dicembre 2011. Prendendo in esame solo i "primi ricoveri" riabilitativi, nell'arco temporale selezionato sono state rilevate ed analizzate complessivamente 187 dimissioni. Di queste 79 (42.24%) provenivano dalla Medicina Riabilitativa dell'Azienda ULSS 9 di Treviso e fanno parte del "percorso riabilitativo dedicato" (GRUPPO A), mentre 108 pazienti (57,75%) provenivano da reparti per acuti di presidi ospedalieri di altre aziende ULSS regionali ed extraregionali (GRUPPO B). Per ciascun caso sono stati raccolti dati demografici e clinici d'esordio (età, sesso, eziologia, GCS, danni associati) e di processo (intervallo temporale tra evento acuto e ricovero in riabilitazione, reparti di provenienza, durata della degenza in UGC, presenza in ingresso e dimissione di cannula tracheotomica, PEG e lesioni da decubito, setting di dimissione) e sono state valutate le capacità funzionali all'ingresso ed alla dimissione con le seguenti scale: Disability Rating Scale (DRS), Levels of Cognitive Functioning (LCF) e Glasgow Outcome Scale (GOS). I risultati sono stati sottoposti ad analisi qualitativa descrittiva e ad analisi statistica.

Results. Per quanto riguarda le variabili demografiche e cliniche all'esordio le 79 persone afferenti al GRUPPO A, che hanno seguito il percorso dedicato di presa in carico riabilitativa attivato fin dal ricovero nel reparto per acuti nell'ambito dell'azienda ULSS 9, mostravano una età media significativamente inferiore rispetto quelli afferenti al GRUPPO B, con una lieve prevalenza del sesso femminile. Per quanto riguarda la severità del danno cerebrale d'esordio, la GCS (disponibile per 45 pz gruppo A e per 48 pz gruppo B) è sostanzialmente sovrapponibile nei due gruppi, e anche su piano della eziologia i due gruppi si possono considerare omogenei con una prevalenza in entrambi della causa vascolare, seguita dalla traumatica, e dalla anossica, senza differenze statisticamente significative. Per quanto riguarda gli indicatori di processo la principale differenza rilevata riguarda l'intervallo di tempo tra evento acuto ed accesso alla riabilitazione (e quindi la *durata del ricovero in reparti per acuti*), che è risultato significativamente inferiore per il Gruppo A (media 37,9 e mediana 35) rispetto il gruppo B (media 77.5 e mediana 61,5) con T=4.154 e P<0.0005, DF 185. La seconda sostanziale differenza statisticamente significativa tra i due gruppi riguarda il reparto per acuti di provenienza che per il gruppo A è rappresentato dalle Rianimazioni/Neurorianimazioni/Nch in 78 casi (99%) e per il gruppo B in soli 29 casi (27%) la provenienza è da una unità di cura intensiva (chi-quadro= 96,3 P=0,000), mentre nella larga maggioranza dei casi per il gruppo B il reparto di provenienza è un altro reparto per acuti (65 casi pari al 60%). L'intervallo di tempo tra evento acuto e ricovero in UGC di ORAS invece, non è risultato significativamente diverso tra i due gruppi con una media di 84,6 gg (DS=55,8) per il gruppo A e una media di 77,58 gg (DS 64,8) per il gruppo B (P= 0,4385). L'esame delle variabili cliniche in ingresso in UGC non ha mostrato nessuna differenza significativa per la DRS e la LCF tra i due gruppi. Nonostante ciò, all'ingresso in UGC di ORAS i pazienti del gruppo B erano portatori di cannula tracheostomica e PEG in percentuale (50% dei casi) significativamente più elevata dei pazienti del gruppo A (cannula e PEG nel 27% dei

casi; Chi-quadro=10,77 P=0,001), Sul piano qualitativo inoltre i pazienti del gruppo A all'ingresso in UGC, mostravano anche una minore incidenza di piaghe da decubito (7 casi pari al 7%) rispetto il gruppo B (19 casi di decubiti pari al 18%), ma l'analisi statistica dei dati non ha dimostrato significatività per questa differenza (P=0,08). L'incidenza delle POA all'ingresso era invece pressoché pari nei due gruppi (A=47% e B= 41%). Confrontando le interruzioni non programmate (per complicanze mediche o chirurgiche) del ricovero in UGC tra i due gruppi, nonostante una incidenza del 11% per il gruppo B rispetto il 5% per il gruppo A, l'analisi statistica dei dati non ha rilevato la differenza come significativa (P=0,2909, Chi-quadro=2,47, DF=2). L'analisi delle varabili cliniche alla dimissione da UGC di ORAS ha mostrato per il gruppo B una significativa maggiore incidenza della presenza di cannula tracheostomica (31% vs 16% con Chi-quadro=5,47 P=0,0192) e di PEG (51% vs 27% con Chi-quadro=11,2 P=0,00081). Anche alla dimissione l'incidenza di decubiti appare inferiore sul piano qualitativo per il gruppo A (4% vs 8% per decubiti), ma non è risultata statisticamente significativa. Nessuna differenza sostanziale tra i due gruppi alla dimissione neppure per LCF, DRS e GOS. Infine, pur consapevoli dei diversi altri fattori in gioco, abbiamo confrontato tra i due gruppi l'incidenza delle dimissioni verso il domicilio che è risultata pari al 57% per il gruppo A e al 49% per il gruppo B, ma senza significatività statistica (Chi-quadro=1,13 P=0,28).

Conclusions. Dall'analisi della popolazione complessiva, i pazienti di sesso maschile sono la maggioranza; l'eziologia prevalente delle lesioni è di tipo non traumatico; la lunga durata della fase acuta presuppone una gravità dei casi. I risultati emersi dalla nostra osservazione nel confronto fra i due gruppi indicano che esiste una differenza statisticamente significativa per la durata della degenza nei reparti per acuti fra i due gruppi e per le persone provenienti dal percorso dedicato il periodo di ricovero in fase acuta è significativamente più breve e la fase riabilitativa inizia molto più precocemente. Abbiamo riscontrato differenze significative nella minore incidenza di cannula tracheostomica e PEG nei pazienti del percorso dedicato, anche se vi è anche una differenza significativa di età tra i due gruppi. Non abbiamo riscontrato invece differenze statisticamente significative nelle variabili cliniche di esito e nelle destinazioni alla dimissione. Limiti dello studio: studio di tipologia retrospettiva; difficoltà a reperire informazioni, soprattutto per i pazienti provenienti dal percorso non dedicato; età non omogenea dei due gruppi. Dai nostri dati possiamo ipotizzare che accogliere un paziente affetto da GCA in un percorso riabilitativo specifico può senz'altro ridurre i tempi di degenza presso i reparti per acuti e migliorare la tempestività della presa in carico. Saranno invece necessarie ulteriori indagini per valutare e comparare l'outcome funzionale a distanza nei gruppi di pazienti che hanno seguito i diversi percorsi di cura.

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SVP AND MSC MISCLASSIFICATION IN LONGTERM RECOVERY PATIENTS

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Introduction. The improvement in intensive care increases patients survival. As a consequence there is an increase in patients with consciousness disorders like permanent vegetative state (SVP) and minimal consciousness state (MCS). The aim of this study was to describe long-term health care of patients with consciousness disorders like SV and MSC; to detect wrong consciousness disorders diagnosis (SVP vs SMC) and the influence of this error on treatment; to evaluate factors which could contribute to gain awareness; to identify critical health care aspects in these patients and to assess the consequences on patients families.

Materials and methods. We assessed 56 SVP and MSC patients with different etiologies, age > 13 years, enrolled in 5 long-term care structures in Bergamo province. We excluded patients with previous severe cognitive impairments, neurological disorders and pediatric disabilities. We administered twice the following scales: GCS, DRS, LCF, CNC, CIRS and CRS-R. We collected data about medical history, social condition, medical complications, medical devices (tracheostomy, bladder catheter), nutrition, therapy ecc. CRS-R was used to assess consciousness disorder. SF-36 was and Family Strain Questionnaire were administered to the family members.

Results. Misclassification of consciousness state was up to 19,1% (19.1% of SVP were actually MSC). 39,3% of patients gained consciousness during long-term recovery period. Positive elements to gain consciousness were: no bedsores, DVP, hemorrhagic and ischemic etiology (vs anoxic), better GCS score, cranioplasty, no tracheostomy. Patients with SVP had higher CIRS score. Patients with tracheostomy had higher CIRS score and number of infections. 64,3% of patients performed physical therapy, while only 3 patients performed respiratory physical therapy. Family members of patients with SVP had worst SF-36 scores.

Conclusions. Using CRS-R we noticed a high number of wrong diagnosis between SVP and MSC, which could be related to a lack of knowledge of consciousness state criteria and of CRS-R use. The use of CRS-R should be improved. Motor and cognitive rehabilitation and health care in SVP patients are important during long-term recovery to promote gain of consciousness.

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VALUTAZIONE DELL' EFFICACIA DI UN PROTOCOLLO RIABILITATIVO IN PAZIENTI CON PAGET-SCHROETTER SYNDROME

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Introduction. La sindrome dell'egresso toracico (TOS) è una patologia caratterizzata dalla compressione del fascio vascolo-nervoso dell'arto superiore, a livello della regione laterocervicale e dell' ascella su base congenita e/o acquisita. Nel caso in cui la compressione della vena succlavia porti alla comparsa di una TVP si parla di Paget-Schroetter Syndrome (PSS). Lo scopo di questo lavoro è quello di valutare l'efficacia nel tempo, tramite il raffronto con ecocolordoppler (ECD) dinamico pre e post trattamento, di un protocollo riabilitativo mirato in pazienti affetti da PSS.

Materials and methods. Sono stati introdotti nello studio 36 pazienti da ottobre 2006 a ottobre 2011con diagnosi di TVP della vena succlavia e/o ascellare, in terapia anticoagulante orale; per 25 di questi pazienti è stata posta diagnosi di PSS, seguendo un iter diagnostico che prevedeva: raccolta anamnestica, esame obiettivo con test provocativi e RMN morfologica dell'egresso toracico. L'ECD pre e post-trattamento (4 mesi dopo il termine del ciclo riabilitativo) è stato effettuato classificando i pazienti nel seguente modo: le modificazioni morfologiche ed emodinamiche all' ECD venivano suddivise in tre classi di gravità crescente (classe 0 assenza di modificazioni significative, classe 1 modificazioni morfologiche ma non emodinamiche, classe 2 modificazioni emodinamiche significative, classe 3 identifica l'ostruzione funzionale). Le alterazioni emodinamiche venivano valutate con arto abdotto a 90° (A) e 180°(B). La compressione emodinamica veniva così classificata con le lettere A e B seguite da un numero da 0 a 3 (per esempio A0B0, A1B2, A2B2, A2B3). Il programma riabilitativo eseguito presso la nostra struttura comprendeva esercizi di potenziamento dei muscoli di apertura dell'egresso toracico, stretching di quelli di chiusura, miglioramento della statica dorsocefalica e della respirazione.

Results. Dei complessivi 25 pazienti, 6 non mostravano alterazioni compressive significative all' ECD pre trattamento e tali sono rimasti alla fine del ciclo riabilitativo; degli altri 19 pazienti, 9 presentavano un'ostruzione dinamica e 10 un'occlusione funzionale e dopo trattamento riabilitativo hanno mostrato una riduzione della classe di appartenenza (per esempio da A2B2 ad A1B1).

Conclusions. Nei soggetti che presentano una TVP della vena succlavia e/o ascellare primitiva o idiopatica la diagnosi di sindrome dell'egresso toracico risulta molto complessa. Non esiste infatti in letteratura un protocollo diagnostico nè tantomeno uno terapeutico che sia standardizzato. I risultati di questo lavoro ottenuti all'ECD dinamico post ciclo riabilitativo, confrontati con l'ECD dinamico pre trattamento, mostrano in tutti i casi (laddove era presente) una riduzione della compressione. Riteniamo fondamentale che pazienti con diagnosi di TVP succlavio-ascellare siano prontamente avviati verso un percorso diagnostico per PSS così da impostare un trattamento fisioterapico specifico, la cui efficacia potrà essere valutata grazie al confronto tra un ECD dinamico dell'arto superiore pre ed uno post riabilitazione.

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PERCORSO RIABILITATIVO NELL'ICTUS: RISULTATI DI 18 MESI

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Introduction. L'ictus cerebri è uno dei principali determinanti di disabilità, morbosità e mortalità e impatta sugli esiti e sui costi dell'assistenza sanitaria. Gli studi presenti in letteratura confermano il miglioramento in termini di esiti nel medio periodo per i pazienti trattati in strutture dedicate. Diversi sono i centri distribuiti sul territorio nazionale che si occupano dell'ictus secondo le linee guida ministeriali. È noto che, per una persona colpita da ictus, la presa in carico da parte di specialisti e professionisti esperti, che lavorano insieme in tutte le fasi del percorso, dà i risultati migliori. Noi riportiamo i dati della nostra esperienza riabilitativa relativi al periodo 01/01/2010 -30/06/2011 nei pazienti colpiti da ictus che dal PS della nostra Azienda vengono trasferiti nella Stroke Unit della Medicina Zoli.

Materials and methods. In questo periodo sono stati ricoverati in Stroke Unit 457 pazienti: 399 ischemici e 58 emorragici. Di questi 37 risultano deceduti. Il 51,09 % aveva problemi di disfagia all'ingresso. Nei pazienti ricoverati con problemi di disfagia, il 37,18 % aveva bisogno di SNG e al momento del trasferimento il 45,97% di questi non ne aveva più necessità.

Results. Dal reparto Stroke Unit, dopo valutazione fisiatrica, i pazienti sono stati trasferiti: in MFR170, al PARE79, al DH riabilitativo 4 e in Altri reparti 27(di questi ultimi 10 avevano terminato il percorso riabilitativo). Sono stati Dimessi 140 pazienti direttamente al proprio domicilio o a strutture di provenienza. Non si rilevano importanti complicanze legate all'ab ingestis, nemmeno nelle cause legate al decesso dei pazienti. Il paziente è accompagnato nel suo percorso dalla Cartella Riabilitativa che include la valutazione iniziale fisioterapica e logopedica supportata da test standardizzati. Focalizzando la nostra attenzione sui pazienti dimessi direttamente dalla Stroke Unit o trasferiti in altri reparti, ma con percorso riabilitativo ultimato, possiamo riportare i seguenti dati su un complessivo di 140 pazienti (10 di questi sottoposti a trombolisi):

- Giorni di degenza media dalla presa in carico riabilitativa:7,5.
- Ictus emorragici 12, ictus ischemici 138.
- Differenza media fra Rankin pre-ricovero - Rankin alla dimissione = 0,96.
- Barthel ingresso = 42,63 - Barthel alla dimissione = 75,64 con incremento medio di 59,13.
- Sede di lesione: Emisfero Destro 61- Emisfero Sinistro 83 - Altre sedi 6.
- Tipo di lesione: TIA 22 - LACS 51- POCS 17- TACS 6 - PACS 47 - Sede atipica 7.
- Tra i pazienti dimessi 26 avevano problemi di disfagia di questi 10 sono stati dimessi con SW positivo e 3 con SNG.

Conclusions. I risultati ottenuti confermano che le strategie utilizzate e il tipo di approccio riabilitativo sono fondamentali, e uniti a una *presa in carico riabilitativa precoce* in *ambiente dedicato* favoriscono la diminuzione dei tempi di degenza e la limitazione del grado di disabilità in generale, in particolare permettono al paziente un precoce rientro al domicilio e alla vita quotidiana, e in taluni casi risolvono in breve tempo problematiche importanti che fino a pochi anni fa erano altamente invalidanti e con elevati costi sociali. È quindi auspicabile che le strategie di approccio e di controllo della postura utilizzate in Stroke Unit, possano essere estese anche ai reparti dedicati al proseguimento del percorso.

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LAVORO IN TEAM IN STROKE UNIT

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Introduction. Il nostro scopo è: - far emergere quanto il lavoro in team multi professionale renda possibile ridurre i tempi di degenza e la disabilità; - definire strumenti idonei per migliorare la comunicazione all'interno del team multi professionale e del percorso del paziente.

Materials and methods. La Stroke-Unit della nostra? Azienda è collocata all'interno del reparto di Medicina Interna Zoli. Sono 2 camere comunicanti con 8 letti e 4 monitor. Vi accedono i pazienti con ictus ischemico o emorragico (non subaracnoideo) con esordio da non più di 72 ore, provenienti dal PS o altri reparti del Policlinico. Il Rankin pre-ricovero deve essere <= 4. Il paziente viene preso in carico da Medici e Infermieri della UO, valutato entro 24 ore lavorative da Fisiatra, Fisioterapista e Logopedista con immediata presa in carico.

Results. I dati riferiti sono stati raccolti dal 1/1/2010 al 30/6/2011. Il Fisioterapista di stanza con interventi costanti, le indicazioni date a personale e familiari e le posture al letto con particolare attenzione al capo e al tronco ci ha permesso di rilevare: 1) No alterazioni di tono negli arti plegici. 2) No lussazioni di spalla anche in gravi plegie. 3) Importante miglioramento nei pazienti con neglect (circa il 50%) -dell'emineglligenza -della spinta -della motricità del tronco: media di miglioramento di 35,77 al Trunk Control Test e della motricità degli arti negletti: arti sup. media 39,23; arti inf. media 87,17 al Motricity Index. La costante comunicazione dei parametri emodinamici, delle alterazioni o segni di disagio permettono di verticalizzare il paziente da parte del Fisioterapista il prima possibile ma in sicurezza. L'intervento Logopedico immediato di valutazione della disfagia e la comunicazione dei risultati a medici, infermieri e familiari consentono la scelta di un'adeguata modalità di somministrazione di farmaci e cibo per OS o l'eventuale posizionamento del SNG e la successiva rimozione il più precocemente possibile: nei pazienti in cui è stata possibile la precoce rimozione del SNG abbiamo rilevato il miglioramento in pochi giorni del 63% al Trunk Control Test. La presenza di fisioterapista e logopedista ha dato anche maggiori competenze per la gestione infermieristica di questo Paziente nelle 24 ore. La Cartella Riabilitativa segue il paziente nel suo percorso.

Conclusions. Il lavoro in Team permette un aggiornamento quotidiano del caso, da cui scaturiscono terapie, cure e intervento riabilitativo e ottimizza i tempi di ricovero riducendo gli atteggiamenti patologici e facilitando il percorso riabilitativo successivo.

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PERCORSO DEL PAZIENTE CON MIELOLESIONE: ESPERIENZA IN REGIONE CAMPANIA DELL'UNITÀ SPINALE DELLA FONDAZIONE MAUGERI

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Introduction. The presence of a diagnostic therapeutic route for patients for SCI is of vital importance. It 's well known that the gold standard is the so-called unipolar spinal (USU) unit. But there is also the possibility of organization of the U.S. in a network. We present an example of such organization in Campania region (Maugeri Foundation, Telese Terme). The structure is organized with a multidisciplinary approach (departments of pulmonology, cardiology, plastic surgery and rheumatology) to handle all possible problems related to SCI. It is also activated a collaboration with the AO Rummo of Benevento for neurosurgery, intensive care, orthopedics, gastroenterology, urology-andrology and gynecology.

Materials and methods. Were hospitalized from June 2006, 270 patients of which 223 patients after acute event (66% males). All patients underwent clinical assessment using a scale ASIA, SCIM and FIM. and neurophysiological evaluation.

Results. Hospitalization occurred a mean distance of 44 days after the acute event. The post traumatic average distance was significantly shorter (37 days vs. 48 days; t-test p <0.006). The picture debut was in 64% of cases paraplegia and tetraplegia in 36%. 89% of patients came from acute care wards (ICUs, neurosurgery, neurology, orthopedics). Patients with traumatic injury were younger than patients with non traumatic lesions (45 vs 54 years; t test, p <0.018); 41% of pts were ASIA A, 35% ASIA C, 13% ASIA D and 11% B. The FIM motor on admission was 32 and 63 at discherge; the SCIM average was 35 and the 69 respectively. The improvement of SCIM and FIM were statistically significant (t test for paired data: p <0.000). The average length of stay was 154 days. 51% of patients recoverd walking (independent or with aids): all of them were ASIA C or D, except 1 in ASIA B. The higher incidence of deaths occurs in class A (5.5%). Pressure ulcers developed in 25% of pts, almost all in class A. Spasticity was treated by drugs, botulinum toxin injection onward rehabilitation. In 7 cases it was necessary to implant the baclofen pump. In two cases it has also been observed the recovery of walking. In 41.% Of cases the bladder catheter was removed. In 24% of patients intermittent catheterization was started (managed by the patient or caregiver) in 35% the catheter was not removed because of poor compliance with intermittent catheterization or lack of identification of a caregiver. The mode of discharge were normal in 79% of cases, in home care in 5% of cases; transfer in 7% of cases. In 5 cases we have set a path for the completion of studies (tests of middle school and high school). In two cases of non-EU nationals, without residence permits, we obtained, in collaboration with our social services and the police of Benevento, the procedure for permission to stay for health reasons.

Conclusions. Our epidemiological data are similar to those detected in the study GISEM, except for incidence of traumatic injuries. In Campania there are about 100 new cases of spinal cord injuries per year. The 11% of patients could not get direct access to our department but came home even if shortly after the acute event. This for several reasons: the absence of a clear plan to address SCI patients in Campania, a deficiencyof beds dedicated. Often these patients follow a path linked to the so-called "health tourism" (with economic burdens on the family) or are admitted to other medical rehabilitation setting or at home. And we must create a dedicated path in the Campania region in patients with SCI with the organization of a panel discussion where all the actors: patients (associations), hospitals, rehabilitation facilities and territorial structures.

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REHABILITATION OF FACIAL PALSY

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Introduction. Facial palsy is a complex affection of the VII cranial nerve that causes facial disfigurement and functional limitations in daily life activities. In most cases it spontaneously recovers within a few months. However, when complete recovery is not achieved, a high level of disability may persist. The management of patients affected by Bell's palsy requires a neurophysiologic evaluation, which has prognostic value. Patients with neurapraxia recover completely and do not usually need any rehabilitative intervention. Patients with axonotmesis may have an incomplete or synkinetic recovery: the rehabilitative intervention aims at restoring muscle movement and controlling the onset of synkinesis. Patients should avoid both gross muscle movements like opening their mouth or blowing out their cheeks, and rapid movements. These movements promote mass activation of muscle groups and does not allow patients to control their synkinesis. Slow submaximal movements, on the contrary, allow patients to focus on the affected side, adjusting the strength and speed of muscle activation, and facilitating the acquisition of correct movement. In presence of severe synkinesis, the injection of botulinum toxin followed by exercises should be considered. In patients with complete neurotmesis there is no possibility for spontaneous recovery and a reconstructive surgery is mandatory. After the reconstructive intervention, rehabilitation is necessary to make the best use of the new motor possibilities. The rehabilitative treatment changes according to the technique employed: cross-face, XII-VII or V-VII anastomosis, muscle transposition. In all cases, patients with facial palsy should be promptly instructed to adopt strategies of functional compensation and aesthetic camouflage, which could attenuate the psychological distress and improve their quality of life.

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EFFETTI DEL TAI CHI CHUAN IN PAZIENTI CON OSTEOPENIA E OSTEOPOROSI: STUDIO PILOTA

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Introduzione. Il Tai Chi Chuan è comunemente descritto come un'a arte marziale cinese, utile per migliorare la forza, la coordinazione, la rapidità e l'equilibrio. Si è esteso l'interesse per l'applicazione del Tai Chi Chuan nell'ambito del trattamento riabilitativo di differenti patologie neuromotorie e geriatriche. È dimostrato che l'esercizio è utile nel trattamento dell'osteoporosi, sia per aumentare la resistenza dell'osso, sia per migliorare l'equilibrio e ridurre il rischio di caduta e di frattura (Bonaiuti D *et al.* 2005). Wayne PM *et al.* nel 2012 hanno osservato un trend di miglioramento nell'equilibrio, nella BMD e nei markers di riassorbimento osseo, in donne osteopeniche che praticavano TAI CHI per nove mesi. L'obiettivo del nostro studio randomizzato, controllato, è di valutare gli effetti del TAI Chi CHUAN sull'equilibrio, sulla BMD e sulla qualità di vita di pazienti con osteoporosi ed osteopenia.

Materiali e metodi. Dal gennaio 2011 a oggi sono state reclutate 51 donne di età media di 72 anni. La pazienti sono state assegnate al gruppo di studio (n.24 pazienti), che effettuava nove mesi di TAI CHI e cure standard o al gruppo di controllo (n.27 pazienti), che praticava solo cure standard. Sono stati valutati l'equilibrio statico con la pedana stabilometrica e la qualità della vita con SF36 prima dell'inizio dell'esercizio (T0), dopo tre mesi di trattamento (T1), dopo nove mesi (T2) e dopo tre mesi dalla sospensione del trattamento (T3); La BMD con DEXA è stata valutata a T0 e a T2. Le pazienti del gruppo di studio hanno praticato il Tai chi secondo la " Short Form Tai Chi" (Au-Yeung SS 2009) per nove mesi, per due volte a settimana, in trattamenti di un'ora, con un istruttore specializzato. Criteri di esclusione: presenza di tumori, cause secondarie di osteoporosi, disabilità fisiche e mentali (MMSE<24), precedente esperienza nella pratica del tai chi.

Risultati e conclusione. I risultati preliminari di questo lavoro, valutati solo a breve termine, mostrano una buona compliance dei pazienti nel frequentare il corso di Tai Chi, considerato come una originale risorsa per il loro trattamento, cronico. In accordo con Wayne PM (2012) abbiamo osservato un lieve miglioramento nell'equilibrio, dopo tre mesi di trattamento, Abbiamo osservato, inoltre, un trend di miglioramento nella qualità della vita del gruppo di studio, rispetto al gruppo di controllo. Ulteriori risultati relativi alla valutazione a T2 ed alla BMD verranno descritti dettagliatamente sede congressuale.

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TECNICHE MANIPOLATIVE ORIGINALI

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Introduction. La manipolazione vertebrale (MV) in Medicina Manuale (MM), gesto terapeutico non unico, ma certamente rapido ed efficace, è un atto medico che può essere responsabile d'incidenti anche gravi. È necessario perciò perseguire la *medicalizzazione* della MV, per la quale è indispensabile un'adeguata preparazione dei Medici operatori, sia per quanto riguarda la conoscenza dei principi della disciplina, sia sotto l'aspetto dell'acquisizione delle capacità tecniche. Tutto ciò affinché il medico che pone la diagnosi eziologica di disturbo doloroso intervertebrale minore (DDIM) possa lui stesso, con competenza e senza rischi, compiere l'atto manipolativo. Un ampio patrimonio di tecniche è stato messo a nostra disposizione da R. Maigne e collaboratori. A queste si attinge tuttora nella pratica quotidiana, scegliendo fra loro in modo da adattare il trattamento allo scopo funzionale da raggiungere. Dobbiamo però continuare su questa strada, proponendo varianti e/o tecniche originali, scaturite dai recenti studi anatomo-funzionali e neurofisiologici, dalla nostra esperienza clinica e da una logica di pratica utilizzazione. Due nuove tecniche manipolative sono stata fatte oggetto di studio clinico prospettico, randomizzato, con osservatore esterno: 1) La manipolazione lombare bassa L5-S1 *"seduto a cavallo, in estensione e bacino bloccato*" 2) La manipolazione dorsale o dorsolombare a paziente supino, con tecnica *"mano-torace e mano in contrappoggio su spalla, in estensione e lieve rotazione"*.

Materials and methods. *Prima tecnica.* Negli anni 2010-2011, 37 pazienti sono stati trattati con la tecnica manipolativa oggetto di studio L5-S1 "seduto a cavallo, in estensione e bacino bloccato", a confronto con un campione di 32 pazienti trattati con manipolazione lombare bassa L5-S1 "in decubito laterale", in lordosi o in cifosi secondo le indicazioni date dall'esame premanipolativo. *Seconda tecnica.* Negli stessi anni, 34 pazienti sono stati trattati con tecnica "mano-torace" in decubito dorsale con mano contrappoggio su spalla, in estensione e lieve rotazione. Il gruppo di controllo era costituito da 31 pazienti trattati con tecnica detta in "enroulé dorsal", in cifosi.

Results. Entrambe le nuove tecniche hanno mostrato risultati migliori rispetto ai gruppi di controllo, in particolare in pazienti con lombosciatalgia e donne gravide con algie lombo-sacrali pelviche.

Conclusions. I migliori risultati ottenuti con le nuove manovre manipolative inducono a riflettere sulla stretta correlazione tra studi anatomo-neurofisiologici e tecniche terapeutiche. Se da un lato sono i primi a indicare la logica via per l'atto terapeutico, spesso è anche la tecnica, frutto dell'ingegnosità umana, a gettare luce, attraverso il suo meccanismo d'azione terapeutica, su certe patologie e sulla loro genesi.

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IL LASER ND-YAG NEI TRAUMI DISTORSIVI DEL GINOCCHIO. NOSTRE NUONE ESPERIENZE

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Introduction. Il Laser ND-YAG è UN LASER ALLO STATO SOLIDO E AD ALTA ENERGIA, il cui materiale attivo è costituito da un cristallo che si presenta sottoforma di barretta cilindrica contenente yttrio e alluminio drogato da una piccola percentuale di neodimio. IL termine distorsione indica un trauma, più o meno grave, delle strutture capsulo-legamentose di una articolazione.

Materials and methods. Il nostro studio è iniziato nel giugno 2009 e fino al 2010 il nostro team ha condotto uno studio su 60 pazienti di entrambi i sessi di età compresa tre 18 e 60 anni, che avevano subito traumi discorsivi del ginocchio. dal 2010 ad oggi. Abbiamo trattato altri 90 pazienti divisi in tre gruppi. gruppo A: trattato con terapia farmacologica. GRUPPO B: trattato con F:K:T: Tradizionale GRUPPOC: trattato con LASER ND-YAG.

Results. Obiettivi delle nostre terapie sono la riduzione della sintomatologia algica, la riduzione ola scomparsa dell'idrarto e cosa piu' importante, la riparazione delle strutture che hanno subito il trauma.

Conclusions. Lo studio è in continuo aggiornamento, ma possiamo confermare può essere considerata una valida alternativa alle terapie tradizionale, sia farmacologica che fisiokinesiterapia.

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STUDIO OSSERVAZIONALE SULLA COMBINAZIONE TRA LA TERAPIA INTRARTICOLARE CON ACIDO IALURONICO E TRATTAMENTO RIABILITATIVO DELLA COXARTROSI

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Introduction. L'osteoartrosi dell'articolazione coxo-femorale è una patologia, che in fase avanzata, causa delle limitazioni funzionali responsabili dello scadimento delle qualità di vita dei soggetti che ne sono affetti. In molti casi il ricorso alla terapia chirurgica (protesi) rappresenta il gold standard dell'approccio a tali pazienti. Tuttavia vi sono dei casi nei quali per condizioni di comorbidità o scarsa disponibilità del paziente tale strada non è percorribile, per cui il ricorso alla viscosupplementazione può essere una valida alternativa. In questo studio si propone di valutare l'efficacia della combinazione di viscosupplementazione con acido ialuronico ad alto peso molecolare iniettato sotto guida ecografica in articolazione coxo-femorale e protocollo riabilitativo programmato in soggetti affetti da coxartrosi.

Materials and methods. Sono stati arruolati 12 pazienti affetti da artrosi sintomatica dell'anca mono o bilaterale, di grado radiologico II o III secondo Kellgren-Lawrence, non candidabili a trattamento chirurgico in elezione. Sono stati sottoposti ad iniezione intraarticolare con ac. Ialuronico ad alto peso molecolare (>1500KDa) sotto guida ecografica e, dopo 6 giorni di relativo riposo, trattamento riabilitativo mirante a combattere l'attegiamento antalgico del paziente con coxartrosi e quindi lotta al dolore coxalgico, recupero delle retrazioni mio-tendinee dei gruppi muscolari che partecipano a mantenere la postura antalgica dell'anca, manovre di poumpage articolare della coxofemorale per migliorare gli effetti dell'acido ialuronico e per rilasciare i gruppi muscolari contratti, recupero della ipostenia muscolare dei muscoli stabilizzatori del cingolo pelvico, e per finire rieducazione propriocettiva al carico monopodale. L'efficacia della combinazione terapeutica è stata valutata attraverso la variazione dell'indice funzionale WOMAC, della VAS dolore, del consumo di FANS; VAS di valutazione globale del paziente e del medico registrati al basale e dopo 3-6-9 mesi della terapia ed eventuali eventi avversi.

Results. Nelle valutazioni a 3, 6 e 9 mesi sono stati rilevati una riduzione >60% della VAS dolore e del WOMAC nel 40% dei pazienti dopo la prima iniezione intraarticolare, >30% <60% nel 50%, <30% nel 10%. Non sono stati osservati effetti collaterali significativi durante le procedure infiltrative né durante il periodo di osservazione.

Conclusions. I dati preliminari confermano l'efficacia della combinazione terapia intraarticolare-programma riabilitativo specifico in pazienti affetti da coxartrosi, testimoniando la tollerabilità, sicurezza della procedura iniettiva e la loro sinergismo in termini di riduzione della sintomatologia algica e di recupero della capacità funzionale.

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THE EFFECT OF MESOTHERAPY ON MUSCULOSKELETAL PAIN IN PATIENTS WITH CHRONIC NEUROLOGICAL DISEASES

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Introduction. Mesotherapy is a technique used to inject active substances into the superficial layer of the skin. Through this type of administration the pharmacokinetics of the injected substance is altered and the pharmacological effect at the local level is prolonged.

Materials and methods. In the last 3 months we evaluate the impact of mesotherapy on musculoskeletal pain in 15 patients (mean age 52±7 years) with stroke, brain injury, spinal cord injury, low back pain and shoulder pain. The mean value of the duration of the symptoms was 22±8 days. The main reason for performing mesotherapy treatment in stroke and brain injury patients was shoulder pain in the hemiplegic side and for SCI patients paraspinal pain at the level of the spinal fusion. All patients received a combination of 3 substances (0.9% sodium chloride, lysine acetyl salicylate and lidocaine 2%). Pain was measured before and after the completion of 5 weekly treatments with visual analogue 1-10 scale (VAS).

Results. None of the patients experienced severe side effects. The mean pain intensity at the beginning of the treatment was 8.2. After the completion of the 5 week mesotherapy treatment pain intensity presented a mean intensity score of 4.8. The major improvement was observed in patients with SCI (from 9 to 4). As far as the duration of the analgetic effect, the maximum improvement was obtained 2 days after the injection, with a period of analgesia until the next session.

Conclusions. Mesotherapy seems to have a significant analgesic effect on musculoskeletal pain in patients with chronic disease, were the long-term systemic administration of NSAIDs may cause various complications. The combination of mesotherapy and physical agents is strongly recommended.

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THE IMPACT OF CONCOMITANT MULTIPLE SCLEROSIS AND CEREBRAL STROKE PRESENCE ON REHABILITATION PROGRAM

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Introduction. Multiple Sclerosis (MS) and Cerebrovascular Accident (CVA) often present with common initial symptoms, share similar comorbidities and have a major influence on patient's quality of life (daily ac-

tivities). The aim of this presentation is to examine the implications of their concomitant presence in patients based on our clinical experience.

Materials and methods. Two male patients, aged 51 and 57, with a long history of multiple sclerosis (with no residual neurologic impairment) and a recent ischemic CVA with right hemiplegia and dysarthria were hospitalized during the last year in our department to follow a rehabilitation program.

Results. Even though the patients with multiple sclerosis were acquainted with disability, they both manifested a rapid reduction in the extent of neurologic impairment and thus when stroke occurred some degree of residual physical impairment remained and recovered partly at a slower pace. A different notion of recovery, as the improved ability to perform daily functions within the limitations of their physical impairments, was necessary to follow. Another issue that emerged during rehabilitation was that occupational, physical and speech therapists had to face symptoms such as fatigue, pain, spasticity, depression, cognitive deficits that are common in both diseases but differ in intensity, pathophysiology and therefore in managing.

Conclusions. Despite the fact that stroke symptoms of hemiplegia and dysarthria predominated in our patients, latent MS symptoms such as fatigue, depression, irritability intervened in our treatment protocol and had negative impact on patient's rehabilitation program. Our experience indicates that the coexistence of medical conditions such as MS and stroke have a negative influence in the functional outcome, when intensity, duration, and content of rehabilitation are not continually refined.

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CONGENITAL BODY SCHEME IMPAIRMENT – DESCRIPTION AND INTERVENTION

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Introduction. Childhood Traumatic Brain Injury (TBI) is one of the most common cause of death and disability in children and adolescents. Severity of injury, as measured by GCS, Loss of Consciousness (LOC) and Post Traumatic Amnesia (PTA), impacts on the recovery of diverse cognitive abilities. Studies have indicated that attention, memory and executive functions (EF), are frequently impaired following childhood TBI. Yet, paucity of information exists regarding the cognitive profile of children during sub-acute phase of rehabilitation. The current study aims were (1) to describe the deficit pattern during rehabilitation of children following severe TBI; (2) and (3) to examine child's cognitive performance in relation to injury severity measures.

Materials and methods. Participants: Convenience sample of 62 children, aged 5-18 (M= 11.8y: SD=0.45), who were admitted to paediatric rehabilitation following severe head trauma (LOC> 6 Hrs) between the years 2002-2010.

Measures of injury severity: Child's GCS score was collected from archival medical records. LOC duration and PTA were collected from children's rehabilitation files.

Measures of cognitive deficits: Information regarding child's stage of cognitive organization was prospectively collected using the Rancho Cognitive Scale (RCS). Children Orientation and Amnesia Test (COAT) was used for the evaluation of Post Traumatic Confusion (PTC). PTA was assessed prospectively using the "Three words test". Child's cognitive abilities were evaluated with the following tasks: (1) the "Test of Everyday Attention for children (TEA-Ch)" for evaluation of attention abilities; (2) the "Behavioral Assessment of the Dysexecutive syndrome for Children (BADS-C)" for the evaluation of executive functions, and (3) the "Rivermead Behavioral Memory Test (RBMT)" for the evaluation of memory abilities.

Results. LOC and PTA measures were highly correlated, indicating an association between the neurological and cognitive components of childhood TBI, respectively. About 25% of the children demonstrated a significant interval (5-17 days) between recovery from confusion (PTC) and recovery of the ability to learn new information (PTA). During recovery phase children's performance on all cognitive tasks was significantly lower than that of general population. There was a significant relationship between injury severity measures (LOC, PTA) and child's performance on attention tasks. Yet, no correlation was found between these injury severity measures and performance on EF tasks. In addition, PTA but not LOC, positively correlated with performance on the memory task.

Conclusions. The results suggest a hierarchical deficit pattern in the first few months following severe TBI in children, similar to that shown in adults. Among all injury severity measures, PTA duration was highly related to child's acute cognitive outcome. Thus, it can be suggested that PTA is a more specific measure of diffuse axonal injury in TBI, which in turn may impact on the cognitive recovery of the child. A decrease in cognitive abilities of children during the sub-acute phase following severe TBI was documented, and should be addressed when planning rehabilitation interventions.

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LONG TERM FUNCTIONAL OUTCOME AFTER SEVERE AND MODERATE PEDIATRIC TRAUMATIC BRAIN INJURY (TBI)

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Introduction. Moderate and severe pediatric TBI usually lead to lasting morbidity and handicap. Rehabilitation program improves long-term function despite residual morbidity and handicap. Although pediatric growth and development, including changes and plasticity in central nervous system continue many years after the insult, most studies were conducted only two to five years after TBI (1). We aimed to expand our knowledge about ability to achieve independent function in variable life domains and the different parameters influencing long term prognosis. Study targets were**:**

– Collect data regarding long term functional outcome after moderate and severe TBI occurring during childhood.

– Consider the influence of injury, rehabilitation, post rehabilitation and environmental parameters on long term prognosis.

Materials and methods. Study design is historical prospective. 77 patients who were rehabilitated at LRH pediatric unit between 2000-2005 were enrolled. Data regarding injury, rehabilitation program, admission and discharge functional state were retrospectively collected from medical records. Current educational, personal, employment and functional status of patients were obtained via telephone interview. Data was analyzed using SPSS v. 17.

Results. Average age at time of injury was 12 years, and 21.5 years at follow-up. 70% were male. Age at injury: 17% under 6 years, 27.3% between 6-12 years, and 55.8% between ages 12 and 18. Mechanism of TBI was motor vehicle accident in 70%, fall from height in 19.5% and assault or terror attack in 10.4%. Glasgow Coma Scale (GCS) at time of injury was: 3-5 in 40%, 6-8 in 40% and 9-13 in 19.5%. Average Functional Independence Measurement (FIM), at entrance to rehabilitation was 70.5 /126 and at discharge was 110.14/126. At discharge 88% achieved independent ambulation and feeding. After discharge 65% attended regular educational environment, 81% of them graduated, 50% with full matriculation. From participants in the relevant age, 37% are enrolled in high education, 45% served in the army, 40.5% live independently, 35.7% are married and 23.8% have children. 59% are employed, 72% of them over a year, mainly nonacademic jobs. Factors found to correlate with better functional outcome (with statistical significance) were: shorter duration of unconsciousness (13.32 vs30.52days p=0.05), shorter duration of acute hospitalization (25.89 vs37.11 days, p=0.051), shorter duration of rehabilitation program (5.3 vs9.18 month p=0.016), higher FIM at discharge (92 vs116 p=0.016) and higher IQ at discharge (81 vs94 p=0.048). Higher GCS score showed a tendency for statistical significance (3-4 vs5 and above p= 0.084). Factors such as age at injury (2) and mechanism of injury, socioeconomic status, nationality, residence in periphery and follow up with PM&R specialist were not statistically significant.

Conclusions. According to our study guarded long-term functional prognosis after severe and moderate pediatric TBI injury can be expected. Although 88% achieved self ambulation and feeding, only 65% attended regular education and 59% were employed. Previous works showed similar ambulation percentage and lower educational percentage (33%) (3). Factors that were found to correlate with a better functional outcome were shorter length of unconsciousness, shorter length of acute hospitalization and rehabilitation program, higher FIM and IQ scores at discharge. For this subgroup of patients optimistic outcome can be expected.

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DISFAGIA IN RIABILITAZIONE POSTACUTA: IL PROCESSO DI CREAZIONE DI UNO SPECIFICO SETTORE DI ATTIVITÀ CLINICA.

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Introduction. La disfagia è un fenomeno di rilevanza crescente, sul piano epidemiologico e clinico, nelle unità di degenza per riabilitazione postacuta, sia per effetto della condizione patologica che determina le menomazioni che motivano il ricovero, sia per effetto di patologie concomitanti o di esiti di eventi pregressi. Per questi motivi è necessario predisporre competenze cliniche e strumenti organizzativi specifici per gestire e riabilitare le persone con menomazioni della funzione deglutitoria. Scopo di questo lavoro è descrivere il processo organizzativo di implementazione del servizio di riabilitazione della disfagia presso la Casa di Cura Villa San Giuseppe di Anzano del Parco (CO).

Materials and methods. Sulla base di un'analisi dell'impatto clinico, epidemiologico e organizzativo della disfagia sull'attività dell'U.O. di Riabilitazione, è stato ricostruito il percorso di cura dei ricoverati, sono stati individuati i punti salienti della gestione delle persone con disfagia e conseguentemente programmati i passi organizzativi necessari per rendere disponibili le risorse umane e materiali necessarie alla diagnosi, alla riabilitazione e alla gestione quotidiana di questo gruppo di persone disabili.

Results. Al termine del processo la casa di cura dispone di un gruppo multiprofessionale di operatori specificamente formati nella gestione delle persone con disfagia, di uno standard di percorso, di documentazione clinica ad hoc che documenta le diverse fasi del percorso, dallo screening alla dimissione, compresa la fase di addestramento del care giver, e di una serie di adeguamenti organizzativi che rendono possibile l'accesso a risorse esterne all'Unità Operative e alla stessa Casa di Cura.

Conclusions. La rilevanza epidemiologica della disfagia e la potenziale gravità clinica delle conseguenze dei disturbi della deglutizione impongono la creazione di uno specifico settore di attività nell'ambito di una U.O. di Riabilitazione postacuta. Per raggiungere l'obiettivo di gestire correttamente il percorso di cura dalla individuazione del problema fino alla sua soluzione o all'adozione di misure di compenso, è necessario intervenire sull'organizzazione dell'U.O. in sé ma anche su quella dell'intera struttura sanitaria di cui l'U.O. fa parte.

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VIRTUAL REALITY AND NEUROPSYCHOLOGICAL REHABILITATION

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Introduction. Virtual reality (VR) technology offers new opportunities for the development of innovative NPS assessment and rehabilitation tools. (1). In this paper we explore the possible fields of application of VR on NPS rehabilitation of acquired brain injury people and present the first results with 3 different tools: Vienna Risk-Taking Test Traffic (WRBTV), WheelSim and VRRS of Kymeia.

Materials and methods. The (WRBTV) is a part of the Vienna Test System (©Schuhfried) to assess risk-taking behavior in potentially dangerous driving situations (2). In the test 24 videos are presented and the respondents have to press a PC key at the point at which they feel the situation becomes too risk for execute the action. In the last 20 months we tested all the 24 patients ABI enrolled for an evaluation program to safety return to drive after an ABI: 20 males, 4 females, mean age 44,08. (range 19-69). 12 TBI, 11 stroke, 1 post-anoxia. WheelSim© is a simulation program to drive a powered electronic wheelchair. The patient sitting on his wheelchair in front of a PC screen can move himself in a virtual scenario driving a virtual wheelchair by means a real joystick in a training for driving in complex contexts (4 difficulty levels). The skills involved are visual-spatial analysis and attention. 30 pt enrolled in the period October 2008 – May 2012: 18 males, 12 females, mean age 45.8 (range 20-64); 9 TBI; 1 post-anoxia; 2 brain tumour; 3 MS. We use VRRS© of Kymeia to create exercises for the rehabilitation of attention disorders, strengthening subcomponent of selective attention and the ability to concentrate on the task; 2 males with TBI,15 and 39 years old, were tested in a pilot study.

Results. WRBTV: 6/24 pt showed a risk-taking behaviour higher than normative sample (percentile rank < 16 or T value < 40). These pt, with dysesecutive syndrome underwent to an extra-training with a psychologist and on-road tests with teacher (mean 5 drives) At the end 23/24 patients returned to drive. 6 months follow-up: only 1 pt had a car accident. WellSim: 18/30 pt had a good performance after a standard training (3 sessions of 20'); 7/30 pt performed with less mistakes and less time after 7 training sessions; 5 pt were judged unable and failed the global program to drive an out-door wheelchair (3 for behaviour disorders, 2 for dysesecutive syndrome). Pilot study with VRRS: non side effects (Cybersickness); in 15 daily sessions of about 20' both the pt improved their performance (reaction time) in tasks were they had to find and to strike a target stimulus in a complex context or to run quickly along a set course on a big screen.

Conclusions. A recent Cochrane Review (3) found evidence that the use of VR may be beneficial in improving arm function and ADL function when compared with the same dose of conventional therapy. In our experience VR is also powerful for cognitive evaluation and rehabilitation because of the possibility to control all the parameters, to have a real-time feedback of the performance, to systematically deliver and control, dynamic interactive stimuli within an immersive environment (4-5). The "game effect" (6) introduced by means of VR is a good way to enhance motivation of the pt of all ages. More research is needed with RCT to determine the effectiveness of VR compared with an alternative intervention on cognitive function for different ABI (TBI, stroke).

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STUDIO PILOTA SULL'APPLICABILITÀ ED EFFICACIA DELL'UTILIZZO DI VALVOLE FONATORIE E DEGLUTITORIE UNIDIREZIONALI A SISTEMA CHIUSO IN SOGGETTI CON GRAVE CEREBROLESIONE ACQUISITA

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Introduzione. La disfagia associata alle alterazioni di coscienza, alla gravità del quadro clinico ed alla presenza di cannula tracheale (CT), risulta predittiva per lo sviluppo di polmoniti. L'utilizzo di una valvola fonatoria unidirezionale (VFU) a sistema chiuso potrebbe essere di aiuto nel processo di svezzamento da cannula tracheale: a) ripristinando il sistema respiratorio chiuso; b) le dinamiche deglutitorie fisiologiche; c) contribuendo a stimolare la gestione autonoma delle secrezioni; d) mantendo la motilità cordale; e) consentendo la vocalizzazione e la fonazione.

Scopo. dello studio è A) valutare l'applicabilità clinica di VFU in soggetti con Grave Cerebrolesione Acquisita (GCLA), B) verificare l'eventuale presenza di miglioramenti degli atti deglutitori, della saturazione e della gestione delle secrezioni tracheali.

Materiali e metodi. Lo studio è stato realizzato presso l'U. O. di Neuroriabilitazione e Unità Risveglio dell'I.R.C.C.S. Fondazione Salvatore Maugeri di Pavia su un campione di 14 soggetti con GCLA e presenza di cannula tracheale. Criteri di esclusione: instabilità clinica e eccessiva presenza di secrezioni. Lo studio è stato condotto in tre tempi: T0 (baseline), T1 dopo 2 giorni di posizionamento di VFU per 12 h al giorno, T2 dopo 4 giorni di posizionamento della VFU per 12h ed 1 giorno di posizionamento per 24h. Al T0 è stata effettuata una valutazione logopedica mediante protocollo sperimentale che prevede: 1) valutazione logopedica della gestione delle secrezioni salivari, 2) conteggio delle deglutizioni spontanee, 3) rilevazione della $Sp0_2$ 4) misurazione delle secrezioni tracheali. Sono state effettuare rivalutazioni al T1 e T2.

Risultati. In seguito a comparsa di problematiche cliniche non correlate allo studio è stato necessario sospendere il protocollo in 5 soggetti. Due soggetti, su un totale di 4 soggetti che presentavano inalazione delle secrezioni salivari rilevate mediante colorazione con blu di metilene, mostravano un miglioramento della gestione delle secrezioni orali al sia al T1 che al T2. In 8 soggetti si è osservato

un incremento del numero delle deglutizioni spontanee. Sette soggetti hanno mostrato un miglioramento alla gestione delle secrezione tracheali.

Conclusioni. Lo studio rileva che l'applicazione delle VFU in soggetti con GCLA è possibile anche se l'instabilità clinica e l'eccessiva quantità delle secrezioni hanno ridotto il numero dei soggetti reclutabili. Questo studio, seppur condotto su un piccolo campione di soggetti, ha rilevato miglioramenti dopo 5 giorni di posizionamento di VFU a sistema chiuso in particolare nella gestione delle secrezioni salivari, nel numero di atti deglutitori spontanei, in linea con la letteratura che evidenzia come l'utilizzo di VFU possa migliorare i meccanismi deglutitori attraverso la normalizzazione della pressione sottoglottica. Lo studio è tuttora in corso.

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TREATMENT OF NEUROGENIC BLADDER WITH VESICOURETERAL REFLUX: IMMEDIATE-RELEASE OXYBUTYNIN VERSUS EXTENDED-RELEASE TOLTERODINE. A CASE REPORT.

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Introduction. In patients with spinal cord injury (SCI) the presence of bladder hypertonicity can result in vesicoureteral reflux (VR), compromising urinary tract. Pharmacological treatment has the objective to modulate the vesicosphincter activity, helping to alleviate the irritative and obstructive symptoms, thus allowing a better function of the phase of filling and emptying bladder.(1) The therapy of overactive bladder (OB) involves the use of anticholinergic drugs, such as oxybutynin and tolterodine. In our study we tested a possible change in bladder hypertonicity and in the clinical conditions of a SCI patient, treated with tolterodine ER for years and with vesicoureteral reflux (VR), replacing immediate-release (IR) oxybutynin to extended-release (ER) tolterodine.

Materials and methods. A paraplegic patient, 25-year-old male, admitted to the Spinal Unit of the Salvatore Maugeri Foundation in Pavia, submitted to:

- a first cistouretrography.
- replacement tolterodine ER 4 mg/day with oxybutynin (IR)10 mg/day.
- a second cistouretrography performed 6 weeks after the therapy change.

Results. The first cistouretrography showed an OB and a VR to the left kidney. After a 6- weeks treatment with oxybutynin IR10 mg/day (instead of tolterodine ER 4 mg/day) another cistouretrography showed the disappearance of VR. The therapy change was well tolerated, there were no side effects, and the patient declared also an improvement in bladder symptoms.

Conclusions. Many Authors say that tolterodine ER has similar efficacy but is better tolerated than oxybutynin (2). In this case report there is not only the complete absence of side effects after the replacement tolterodine ER with oxybutynin (IR), but also a significant improvement in the OB, until the disappearance of VR. This result underscores the need for a strictly personal approach to anticholinergic therapy in patients with SCI. This case, presented as case report, seems to go against the tide and might suggest, if it were possible to expand the statistics, that perhaps there are still points to be clarified on the activity of intravesical receptors and their interaction with anticholinergic drugs.

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LA PRATICA DI AMMINISTRATORE DI SOSTEGNO: ESPERIENZA DEL CRT

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Introduction. I pazienti con grave cerebro lesione acquisita GCLA presentano i postumi di un danno cerebrale, di origine traumatica o di altra natura, tale da determinare una condizione di coma, più o meno protratto, e menomazioni sensitivo-motorie, cognitive e comportamentali, che comportano disabilità grave. Si tratta di persone che dopo un ricovero ospedaliero per trattamenti rianimatori o neurochirurgici di durata variabile da alcuni giorni ad alcune settimane, sono sottoposti a trattamenti medico- riabilitativi di tipo intensivo in regime di ricovero ospedaliero. La persona con grave cerebro lesione acquisita di frequente non è in grado di provvedere autonomamente ai bisogni primari della vita e necessita di essere sostenuta e accudita nell'espletamento delle sue funzioni, spesso anche le più elementari.

Materials and methods. È evidente che il soggetto con GCLA in fase di postacuzie non può dare il proprio consenso al trattamento dei dati personali sensibili, né tantomeno al percorso riabilitativo progettato per lui.

Tutti i cittadini hanno il diritto di essere informati sul loro stato di salute e/o di malattia e devono prestare il loro consenso agli atti diagnostici e terapeutici cui vengono sottoposti. Con la legge n 6 del 9 gennaio 2004 si provvede ad identificare, accanto alle misure tradizionali dell'interdizione dell'inabilitazione, un nuovo istituto di protezione civilistica per tutti coloro che non sono in grado di prestare il proprio consenso: l' "Amministratore di Sostegno". Nel nostro Centro Riabilitazione Terranuova, dove vengono accolti soggetti con grave cerebro lesione acquisita, stiamo lavorando per incrementare le misure a tutela dei Nostri pazienti, ed è in questa logica, che utilizziamo un protocollo condiviso con l'azienda ASL 8, che ci consente, già dall'ingresso in reparto dei soggetti con gravi GCLA, di iniziare subito la pratica per la nomina dell'amministratore di sostegno.

Results. Dall'agosto 2010 abbiamo ricoverato in reparto Gravi cerebro lesioni acquisite 160 pazienti. Abbiamo inoltrato richiesta di parere nomina di amministratore di sostegno alla UO di Medicina Legale per 99 pazienti. Di questi abbiamo ottenuto 72 nomine. I tempi di attesa per la disposizione della nomina sono andati da un minimo di 1 giorno ad un massimo di 72 giorni. La presenza di un ads ci ha consentito di eseguire interventi invasivi programmati. Un esempio: abbiamo posizionato la PEG a 16 soggetti con consenso al posizionamento da parte del soggetto individuato dal Giudice Tutelare.

Conclusions. Tramite l'applicazione della Legge vengono riconosciute alle persone con riduzione delle attività e della partecipazione misure di protezione flessibili, che si adattano nel tempo alla persona offrendole momenti di protezione quando è necessario, senza mai arrivare ad una totale esclusione delle sue capacità di agire. Il legislatore ci ha concesso uno strumento da utilizzare a tutela anche dei pazienti con postumi di GCLA..

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L'ADOZIONE DI UNA SCHEDA FILTRO IN TOSCANA PER IL MONITORAGGIO DEL PERCORSO ASSISTENZIALE DEI DISTURBI DELLO STATO DI COSCIENZA: STATO VEGETATIVO E STATO DI MINIMA COSCIENZA. I PRIMI RISULTATI

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Introduction. Il percorso assistenziale del paziente con Grave Cerebrolesione Acquisita (GCA) prevede molteplici attori e si articola dalla fase acuta in rianimazione, alla fase riabilitativa ospedaliera fino al rientro sul territorio. Al fine di strutturare specifiche offerte di cura e assistenza alle persone con GCA e in stato vegetativo o di minima coscienza (SV-SMC), la Regione Toscana è intervenuta con la delibera 599/2009, delineando un percorso assistenziale standard e affidando all'Agenzia Regionale di Sanità (ARS) il monitoraggio dell'attuazione dello stesso. ARS ha costituito un gruppo di lavoro composto da professionisti toscani (terapie intensive, sub-intensive, neuroriabilitazioni, neurochirurgie e neurologie) esperti nell'assistenza di pazienti affetti da GCA per la sperimentazione di un sistema di rilevazione dati utile al monitoraggio sistematico del percorso assistenziale di tali soggetti.

Materials and methods. Lo strumento ideato per monitorare il percorso assistenziale dei pazienti in SV o SMC è la Scheda Filtro (SF). La SF è un applicativo web-based con accesso on-line protetto, che accompagna il paziente dalla fase acuta a quella riabilitativa e assistenziale a lungo termine. È costituita da vari campi che il medico che ha in carico il paziente con GCA deve compilare al termine delle singole fasi del percorso: terapia intensiva e/o sub-intensiva, riabilitazione ospedaliera a III-VI mesi e assistenza territoriale a I-II anni. Gli item comprendono età del paziente, eziologia della lesione cerebrale, valutazione clinica e accertamenti strumentali comuni o specifici per ogni fase: craniotomia decompressiva, coma barbiturico, monitoraggio pressione intracranica, punteggio scala GCS, riflesso fotomotore, crisi epilettiche, punteggio Coma Recovery

Scale-R, segni clinici e/o elettromiografici di CRIMYNE, punteggio Disability Rating Scale e Level of Cognitive Functioning, lesioni cerebrali rilevate con TC/RM o classificazione lesioni cerebrali secondo ICF; è prevista inoltre dove possibile una valutazione strumentale elettrofisiologica con EEG, PE stimolo ed evento-correlati sia in fase acuta che post-acuta. L'analisi dell'EEG prevede subitem relativi a attività dominante, reattività, ampiezza, anomalie epilettiformi, componenti del sonno.

Results. Presso il Centro di Riabilitazione Terranuova Spa CRT spa nel corso del 2011 abbiamo somministrato la scheda a tutti i pazienti che entravano come gravi cerebro lesioni acquisite senza distinzione nel livello di coscienza e senza considerare il percorso precedente.

Conclusions. Lo scopo della SF è tracciare il percorso diagnostico e terapeutico del paziente con GCA che esce dalla TI in stato vegetativo o di minima coscienza, così da seguirne l'evoluzione nei 2 anni successivi. L'intero progetto mira a soddisfare la richiesta di uniformità della presa in carico, dei criteri diagnostici e dei trattamenti applicati, migliorando la fiducia nell'operato dei sanitari e l'appropriata gestione delle risorse sanitarie; in secondo luogo tale raccolta dati è preziosa per individuare eventuali fattori prognostici precoci dato il follow-up a lungo termine previsto.

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UTILIZZO DELLA CRS-R NELLA VALUTAZIONE DELLO STATO DI COSCIENZA DEI PAZIENTI CON GRAVE CEREBROLESIONE ACQUISITA

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Introduction. L'esame neurologico e l'osservazione clinica ripetuta hanno un ruolo fondamentale nella diagnosi dello stato vegetativo e dello stato di minima coscienza. Nel caso di pazienti con disturbo prolungato di coscienza è necessario ripetere periodicamente l'osservazione clinica associando la somministrazione di scale cliniche validate come la Glasgow Coma Scale (GOS), la Level of Cognitive Functioning (LCF) e la Coma Recovery Scale –Revised (CRS-R).

Materials and methods. In tal senso abbiamo somministrato all'ingresso, ogni 15 giorni e alla dimissione scale validate per la valutazione dello stato di coscienza CRS-R, GOS, LCF a 102 pazienti ricoverati presso il reparto delle Gravi Cerebro Lesioni Acquisite del Centro di Riabilitazione Terranuova del Valdarno nel corso del 2011. Sono stati inclusi nello studio anche quei soggetti che all'entrata si presentavano in contato con l'ambiente per avere una quantificazione delle eventuali oscillazioni della vigilanza osservate clinicamente. Inoltre, abbiamo distinto un sottogruppo, per evidenziare se nell'ambito degli item della CRS-R se ne potevano distinguere alcuni maggiormente predittivi per il recupero del Pazienti.

Results. Dei 40 soggetti entrati in reparti con una GOS di 4, CRS compresa tra 0 e 3, dal punto di vista clinico ed elettroencefalografico inquadrabili in uno stato vegetativo, il 50 % è passato ad uno stato di minima coscienza. Nell'ambito del gruppo della GOS 3 si inserisce una scala di quadri clinici estremamente vasta, che mostrano valori di LCF e CRS estremamente vari. Sarebbe utile trovare delle corrispondenze tra LCF e CRS-R per poter classificare i paziente ed eventualmente ottenere dei nuovi criteri prognostici.

Conclusions. In questo studio non è stata fatta alcuna correlazione con l'intervallo dall'evento acuto e con il tipo di lesione cerebrale. I risultati confermano che i gruppi della GOS sono troppo ampi per la classificazione dei pazienti, la CRS-R permette una distinzione tra stato vegetativo e di minima coscienza ma non permette poi di seguire ulteriormente l'evoluzione del paziente nei vari step successivi.

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PERCORSO RIABILITATIVO DELLE GRAVI CEREBROLESIONI ACQUISITE PRESSO L'AZIENDA SANITARIA LOCALE 8 AREZZO

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Introduction. L'approccio assistenziale e riabilitativo alle persone in stato vegetativo rappresenta un problema di grande rilevanza medica e sociale. Il percorso riabilitativo dei pazienti in stato vegetativo e di minima coscienza deve garantire interventi riabilitativi specifici, intensivi, mirati e proporzionati al bisogno nelle diverse fasi di evoluzione del processo patologico, volti a garantire il massimo recupero funzionale. La sinergia tra reparti per acuzie e strutture per le gravi cerebrolesioni acquisite ha prodotto negli ultimi anni significativi risultati come la netta riduzione della condizione di stato vegetativo tra ingresso ed uscita dal percorso riabilitativo. L'efficacia delle attività di Alta Specialità Riabilitativa è subordinata ad una forte integrazione tra Ospedale e Territorio.

Materials and methods. I momenti di criticità, nella gestione dei pazienti con grave cerebrolesione acquisita (GCA) si presentano nei due tempi: Precoce trasferimento dall'Area Critica (Neurochirurgia e Rianimazione) verso il reparto di Riabilitazione delle GCA. Dimissioni dalla fase di riabilitazione a termine del Progetto Riabilitativo e reinserimento nella zona di residenza. La riabilitazione delle GCA richiede professionisti competenti e una rete riabilitativa sanitaria che accompagni il soggetto dalla fase di acuzie al rientro a domicilio.

Results. I professionisti della riabilitazione della nostra AUSL agiscono con il coinvolgimento delle famiglie, elaborano in team (Equipe Riabilitativa) progetti riabilitativi individuali successivamente portati a conclusione tramite programmi individuali inerenti le criticità complessive del paziente, condividendo i percorsi con i professionisti e con i familiari.

Conclusions. Le GCA costituiscono una importante causa di disabilità residua, una patologia acuta che coinvolge numerose funzioni e che richiede un intervento specialistico complesso e un'organizzazione specifica sia sanitaria-riabilitativa che sociale-riabilitativa e assistenziale territorialeL'obbiettivo del lavoro svolto nel nostro Centro è quello di garantire il massimo recupero possibile al soggetto con grave GCA, e la missione dei nostri reparti è quella di reinserire il soggetto nel proprio contesto di vita.

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POSTUMI DI FRATTURA DI FEMORE E DI STROKE: VALUTAZIONE DEGLI ESITI FUNZIONALI E DELLA QUALITÀ DELLA VITA A 6 ANNI DALL'EVENTO ACUTO.

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Introduction. Stroke e frattura di femore hanno importanti ricadute sociali, però si sa molto poco degli esiti a medio e lungo termine. Facendo seguito a uno studio (1) che ha esaminato gli esiti a medio termine (15 mesi), abbiamo valutato gli stessi pazienti 6 anni dopo l'evento acuto.

Materials and methods. Abbiamo considerato i ricoverati in Medicina Fisica e Riabilitativa del P.O. di Portogruaro nel 2006, per esiti di stroke o di frattura di femore. I principali criteri d'inclusione dei 30 pazienti dello studio a medio termine (1) erano: primo evento e assenza di comorbilità invalidanti. A 6 anni di distanza, 16 pazienti erano deceduti così sono stati inseriti nel nostro studio 14 soggetti (7 post stroke e 7 post frattura di femore). Si sono sommi-

nistrati il questionario sullo stato di salute SF-36 e la FIM. Si sono riportati la media, la deviazione standard, la mediana, il valore minimo e il massimo. Per l'analisi statistica abbiamo utilizzato il test di Wilcoxon dei ranghi con segno. La relazione tra la FIM a 6 anni e le varie voci dell'SF-36 a 6 anni è stata valutata con la correlazione lineare e con il test esatto di Fisher.

Results. L'età dei pazienti con esiti di stroke era più bassa (71,57) rispetto a quella dei pazienti con frattura di femore pregressa (82,57). Il punteggio FIM a 6 anni dal ricovero è stato di 112 nei post stroke, con netto miglioramento rispetto al controllo a 15 mesi; nei post frattura di femore è stato di 120, con incremento graduale dopo la dimissione. Dai dati ottenuti da SF-36 risulta che nei post stroke c'è stato un miglioramento statisticamente significativo solo su AF (Attività Fisica) con un $p = 0,0313$, mentre nei post frattura di femore c'è stata una differenza statisticamente significativa solo su AS (Attività Sociali) con un $p = 0,0313$. La relazione tra la FIM e le varie voci dell'SF-36 al controllo a 6 anni ha evidenziato che:

– Nei post stroke le relazioni risultate significative ci dicono che la funzionalità correla con alcuni degli altri parametri che influiscono sulla qualità della vita valutate dall'SF-36 (Attività Fisica, Ruolo e Salute Fisica, Salute in Generale, Vitalità e Salute Mentale).

– Nei post frattura di femore risultano significative tutte le relazioni, con un'alta significatività per le relazioni FIM, SF-36 AF e VT ($p < 0,0001$) eccetto la relazione FIM, SF-36 RF ($p = 0,0632$) quindi l'aspetto funzionale ha una relazione significativa con quasi tutte le diverse componenti di SF-36 ad eccezione del Ruolo e salute Fisica (RF).

Conclusions. Gli studi sulla valutazione funzionale a lungo termine nei post frattura di femore evidenziano un recupero pressoché completo, mentre nei post stroke la valutazione funzionale indica che c'è stato un ulteriore miglioramento a distanza di anni (2, 3). La valutazione sulla qualità della vita ha messo in evidenza che per i soggetti con esiti di stroke l'aspetto dell'attività fisica è strettamente correlato con la qualità della vita, mentre per i soggetti con pregressa frattura di femore lo sono le attività sociali. Rispetto alla valutazione a medio termine (che evidenziava che nei pazienti con problematiche neurologiche non bastava puntare al miglioramento funzionale, mentre nella patologia ortopedica l'aspetto funzionale era predominante), nei 5 anni seguenti i risultati ottenuti dai due diversi campioni si sono pressoché uguagliati. Gli ulteriori costi riabilitativi dei soggetti con esiti di stroke e con pregressa frattura di femore sono stati praticamente nulli. Durante il colloquio, quasi tutti i post stroke hanno manifestato la mancanza di un supporto psicologico e ciò sottolinea le conclusioni a cui si era giunti nel precedente lavoro, cioè che l'intervento sulle restrizioni della partecipazione e sull'umore abbia una potenziale capacità di aumentare la qualità della vita indipendentemente dal danno fisico e dalle limitazioni dell'attività.

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EFFECT OF NEURO MUSCULAR TAPING (NMT) ON NEUROPATHIC PAIN IN SUBJECTS WITH SECONDARY PROGRESSIVE MULTIPLE SCLEROSIS: A PILOT STUDY

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Introduction. NeuroMuscular Taping (NMT) is a biomechanical therapy, that consists of the application of an elastic tape on the skin with a direct therapeutical effect both local and distant by reflex. The application of NMT with an eccentric, decompressive technique rises the skin and dilates the interstitial spaces and consequently improves circulation and the absorbtion of liquids reducing the subcutaneous pressure. This probably cause inhibition of pain by preventing further stimuli from entering the exteroceptive system. The aim of this pilot study is to determine if NMT may reduce pain or hyperalgesia in secondary progressive MS patients.

Materials and methods. Ten secondary progressive MS inpatients (age 49, 24 + 9,39aa; sex 4 M/6 F; disease duration 15,58 + 7,53 years; FIM 75,08 + 14,39; EDSS 6,54 + 1,14), admitted in the center for a conventional rehabilitation treatment, suffering from neuropathic pain syndrome at lower limbs, were included in this pilot study. The MS patients did not have any mood and cognitive symptoms, neither did they present any relapse episode in the last three month. At the begin of the study they did not receive new drugs for pain treatment. Pain, physical and cognitive disability and the degree of impairment of patients were evaluated with VAS, Neuropathic Pain Inventory Score, Functional Independence Measure (FIM) scale, Quality of Life (Short Form 36, SF-36) and Expanded Disability Status Scale (EDSS). The NeuroMuscular Taping was applied twice a week for a total of six weeks. The NMT was positioned on two districts: 1. Lymphatic (bilateral iliac fossa, bilateral popliteal fossa, and bilateral sole of the feet). The tape had a width of 5 cm and a length equal to the identified segment. It was cut in 5 strips each with a width of 1cm held together by an anchorage of 2 cm. It was positioned with the skin in maximum elongation and without traction (decompressive) covering 10% of the area to be treated. 2. Muscular (lumbar paravertebral, upper trapezius bilateral, rhomboid bilateralbilateral thigh adductor, medial/lateral bilateral gastrocnemius) the NMT always with a width of 5 cm and a length equal to the identified muscular segment, was cut in two strips of o width of 2.5 cm each with an anchorage of 2 to 5 cm depending on the muscle treated, always with the muscle in maximum elongation and without traction, but in this case covering 30% of the muscle treated. This technique will be incorporated into patient's daily activity associated to 2 hour of aerobic training and conventional neuromotor therapy (stretching, positioning, balance). The treatment will last about 2 months and will be scheduled on 1 hours daily for 5 days a week, for six weeks.

Results. The effect of rehabilitative treatment on Quality of Life (Short Form 36, SF-36) and Functional Independence Measure (FIM) was not significative. In each participant there was an evident pain reduction with a remarkable improvement on the VAS scale (pre treatment 67,8 ± 9,1; post treatment 33,4 ± 15,2). The percentage of responders on Neuropathic Pain Inventory Score, defined as patients with a minimum decrease of 50 % of their maximum neuropathic pain dimension (either pain or dysesthesia) present at baseline, was significative in score 1, 2, 3, 7, 9, 10 (pain intensity, sharp sensation, hot sensation, itchy sensation, unpleasant sensation, deep/surface pain severity).

Conclusions. This pilot study sustain the hypothesis that NMT may be used in the treatment of neuropathic pain of secondary progressive MS inpatients. Many other patients should be treated to confirm this and to understand the underlining mechanisms.

Bibliography

David Blow – Neuro Muscular Taping dalla teoria alla pratica edi-ermes.

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STRATEGY USED TO PERFORM A U-TURN BY PATIENTS WITH CEREBELLAR ATAXIA

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Introduction. Ataxic patients have an unsteady walk with widened base of support and increased variability of the gait parameters [1]. They show a high risk of falls, particularly when performing non stationary locomotor tasks inducing instability, such as turning or stopping. The U-turns (180°) are a challenging motor task, requiring a high level of coordination to reverse the body trajectory without stopping. The aim of this study was to analyse the turning strategies adopted by ataxic patients, in order to possibly develop a task-specific rehabilitation approach aimed at improving the maintenance of balance and preventing falls.

Materials and methods. We enrolled 10 ataxic patients and 10 age-matched controls. The movement of markers (22 for the lower body and a 15 for the upper body segments) placed over anatomical landmarks was acquired by an optoelectronic motion analysis system, according to validated biomechanical models [2, 3]. Patients and controls were required to walk and turn at self-selected speed and low speed, respectively. Participants were trained to walk straight ahead and, only in response to an acoustic cue, to execute 180° turns to the right side. The turning trials were randomly interspersed with linear walking trials. Five trials for each turning task and 5 linear walking trials were acquired per subject. We evaluated the number of steps needed to complete the U-turn, as well as the following parameters for each step: i) center of mass velocity and rotation; ii) step length and width; iii) peaks of hip, knee and ankle flexion at initial contact, loading response and mid-stance respectively, and the corresponding extension ROM during the stance phase of each step. We also evaluated the correlation between the reported number of falls per year and the turning parameters. Two-way repeated ANOVA was used to evaluate the effect of group and steps on the turning parameters. We used repeated contrasts to evaluate whether the spatial and reorientation parameters differed among steps within groups. The Bonferroni adjustment for multiple comparisons was used for pairwise post-hoc analyses. P-values < 0.05 were considered statistically significant. The Pearson test was used to correlate the ICARS scores and disease duration with turning parameters.

Results. Ataxic patients were slower than controls in decelerating and re-accelerating the body during 180° turns and performed an homogeneous degree of rotation among steps, whereas controls exerted most of the rotation in the first 2 steps. Moreover, patients strongly shortened the step length (particularly

at 3rd step after the cue) and were not able to modulate the step width among steps in comparison to controls. Consequently, patients needed more steps than controls to complete the U-turn. As regards the kinematic behaviour, patients executed turns with a lower level of joints flexion. A significant correlation between the degree of knee flexion at 2nd step after the cue and the number of falls was found.

Conclusions. Patients with cerebellar ataxia showed an abnormal pattern of U-turn compared to age-matched healthy subjects. Among the observed alterations, the ones which probably deserve more attention are the reduced knee flexion at 2nd step after the acoustic cue, which correlates with the number of fall per years, and the extreme reduction of the length of the 3rd step after the acoustic cue. Since such motor task is associated with a potentially high risk of falls, adequate turning training should be included in the rehabilitation protocol of patients with cerebellar ataxias.

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FRACTURES IN THE ANKLE AND FOOT: DO THEY JUSTIFY IN-HOSPITAL REHABILITATION?

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WESTERN GALILEE HOSPITAL, WESTERN GALILEE HOSPITAL, NAHARIYA, ISRAEL [1] - WESTERN GALILEE HOSPITAL, WESTERN GALILEE HOSPITAL, NAHARIYA, ISRAEL [2]

Introduction. Broken ankle or foot bones occur at all ages and can range from a simple break in one bone, which may not even prevent the patient from walking, to several fractures, which may require surgical treatment in order to avoid ankle or foot instability. A splint is usually used until the swelling goes down, replaced by short leg cast. Weight-bearing is not allowed on the involved leg for at least 6 weeks. The aim of this study was to evaluate the reasons why relatively young patients request in-hospital rather than home-based rehabilitation following lower leg, ankle or heel fracture.

Materials and methods. Eleven patients (4 men and 7 women, age range between 38 and 73 years old) following fractures of the ankle, in the distal tibia and fibula or in the heel bone, were surveyed. Ten underwent surgery by orthopedic surgeons and only one received conservative treatment. All eleven patients asked to remain in hospital to undergo rehabilitation our department, rather than at home, utilizing HMO and community services. The control group included 16 patients (6 men and 10 women, age range between 19 and 79 years old) who suffered from the same fractures and requested to return home following surgery, and undergo rehabilitation in the community.

Results. Seven patients lived alone and maintained that they had no possibility to get around by themselves. Among them, three patients suffered from psychiatric disorders and another one from uncontrolled epileptic seizures. One patient suffered from ataxia, due to inherited spinocerebellar disease. The other three were academically educated patients who were eager to return to work, but suffered from apprehension after the accident and ask to complete at least part of the rehabilitation program as inpatients.

Conclusions. Social problems, mental and neurological health disorders, but not necessarily physical conditions, are the main reasons for patients' preference to undergo the rehabilitation process in-hospital rather than at home, following tibial, ankle or heel fracture.

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REHABILITATION AFTER ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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Materials and methods. A retrospective study in 20 athletes taken care in the National Center of Medicine and Sports Science after anterior cruciate ligament reconstruction. They received an initial assessment with an epidemiological data, a joint and muscle balance, and a statement of muscle pain. Athletes are reviewed in consultation to one month, two months and four months after the start of rehabilitation. At the end of the fourth month, all athletes underwent an isokinetic assessment done on machine type Cybex ®.

Results. There were 12 men and 8 women, mean age 21.1 years old. The consultation period after surgery was an average of 20.45 days. 70% of patients benefited from a ligament kind Kenneth Jones. 55% were footballers. The evolution of four months was in favor with a recovery in articular amplitude and good recovery of the quadriceps muscle trophism. Three patients have maintained postoperative pain phenomena having regressed after one month. Wearing a knee brace was noted in 9 patients for a period of one month. The recovery of the support was precocious on average of 16 days. The isokinetic evaluation showed a persistent deficit in the quadriceps at four months after surgery. The recovery of sports was around the seventh month.

Conclusions. Control of wound healing, prevention of trophic disorders and the fight against pain are the primary objectives of rehabilitation after anterior cruciate ligament reconstruction. The muscular toning of the quadriceps muscle should be started early. The fight against flexion deformity and recovery of the extension is necessary for the recovery of sporting activity. The recovery of sporting activity should be around the seventh month.

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INSTRUMENTAL EVALUATION OF THE POSTURAL PROFILE OF TUNISIAN HANDBALL PLAYERS - PILOT STUDY ABOUT 22 HANDBALL PLAYERS

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Introduction. The handball is a sport which requires static and dynamic control of the body balance. The objective of the study is to study the postural profile of the senior Tunisian handball players.

Materials and methods. Cross sectional study made in the department of physical and rehabilitation Medicine in the Military Tunis hospital during June 2012, concerning senior handball players. All the subjects had a clinical and instrumental evaluation with static platform, on two conditions: open eyes then closed eyes. The main postural parameters evaluated were the surface of the ellipse of confidence, the average position of the center of pressure following the laterolateral and anteroposterior axis, the quotient of Romberg, the length according to the surface and the variance of the average speed of movement of the center of pressure.

Results. 22 handball players were included in the study. The main disturbed parameters were respectively the surface of the ellipse of confidence, the quotient of Romberg, the length according to the surface and the variance of the average speed of movement of the center of pressure.

Conclusions. The alteration of stabilometric parameters may be explained by the nature of the sport evaluated, where the control of the body during movement is more important than the control of static posture, whereas our instrumental evaluation was on static and none on dynamic.

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PLAGIOCEPHALY: MOST FREQUENT CLINICAL PICTURES (103 CASES); INDICATIONS FOR PREVENTION AND TREATMENT.

ORZES SANTE [1] - VERGERIO AMEDEO [2] - RASORI ELENA [3] - CENTA FULVIA [4] - VIVA ELENA [5] - RIZZO FRANCA [6]

RRF, OSP. ULSS N.2, FELTRE, ITALIA [1] - U.O. PEDIATRIA, ULSS N.2, FELTRE, ITALIA [2] - U.O. PEDIATRIA, ULSS 2 FELTRE, FELTRE, ITALIA [3] - RRF, ULSS N. 2, FELTRE, ITALIA [4] - CLINICA ORL, BORGO ROMA, VERONA, ITALIA [5] - RRF, ULSS N.2, FELTRE, ITALIA [6]

Introduction. AIM: Assess, through Scoliometer, the change of scoliosis in order to enable a qualitative and quantitative comparison, investigate its causes and contributory causes and set a rational and effective therapy. - Inclusion: scoliosis with complete rachis' radiography in upright position with scoliotic curve of at least > 10° Cobb. - Exclusion: lumbago – lumbo cruralgie – lumbosciatica etc.; major spinal disc herniation; spinal tumors, rheumatic

diseases, outcomes of operations for disc herniation, stenosis, scoliosis, spinal fractures, neurological diseases, acute internistics, recent rachis'manipulative therapies etc.

Materials and methods. Considering: 1) sex, 2) age, 3) type of scoliosis, 4) Cobb degrees of the curve/s, 5) index-to-ground distance. Scoliometer was used to test the degrees at the apex of the curve/s in the following positions: 6) bending, 7) prone, 8) extension; 9) variation of humps (<,>) in the different positions, 10) conducted treatments (corsets, kinesitherapy, etc.).

Results. 1) 84 scoliotic patients assessed (17 m, 67 f) by 3 physicians. 2) Age: 7-80 years. Average age = 19.8 years (f = 20.5, m = 18.4). 3) 33 had lumbar scoliosis (L) (21 left, 12 right), 5 dorsal (D) right, 46 had double curve (37 L left and D right, and 9 L right and D left). 4) Cobb: the average value of total lumbar curves (79) is = 19.4 °; the average value of total dorsal curves (51) is = 16.4 °. 5) average index-ground distance = 16.3 cm. 99 curves in total (59 lumbar, 40 dorsal)> to the Scoliometer in bending, compared to prone position, 18 <(12L; 6D). 13 (8L; 5D) were equal. 96 (70L, 26D) curves > in bending compared to the extended position; 11 (3L; 8D) <; 23 (6L, 17D) were equal. 58 (44L, 14D) curves < in extension compared to prone; 16 (5L; 11D)>; 56 (30L; 26D) were equal. Scoliometer: average values of total lumbar curves: 7 in bending, 4.7 prone and 3.9 in extension. Average values of total dorsal curves: 6.2 in bending, 4.1 prone, 3.9 in extension. 10) 38 cases were wearing or had worn corset. 57 were performing or had performed kinesitherapy for scoliosis.

Considerations and conclusions. Many humps > in bending and < in prone position and in extension. The difference between extension-prone is little. During the day no one remains in a neutral position as the spine is stressed in various degrees and flexion may potentially be a cause-contributing cause in scoliosis' development. In a rachis (without scoliotic deformities), this is described as an asymmetry of flexion of one (or more) vertebrae. In the convexity side, the posterior articular apophyses are freer to diverge compared to the concavity side, while the articular ones in the concavity side are more limited to carry out the bending. For us, the most likely mechanism is 1) an asymmetric relative muscular tone (hypotonia from the convex side and / or hypertonia in the concave side, especially of the intrinsic muscles), and / or 2) myofascial, ligamentous retractions in the concave side (in bending, that is elongation, those yield less than the contralateral ones). The persistence of the myofascial asymmetries can be fixed in the connective, which systematically retracts when not stretched. The piezoelectric effect fixes the asymmetry in bone and joints. This justifies, among other things, decompensated techniques of global elongation etc.

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ASSESSMENT OF THE MODIFICATION OF SCOLIOTIC CURVES IN BENDING, PRONE AND EXTENTION POSTURES THROUGH SCOLIOMETER (84 CASES).

ORZES SANTE [1] - DALLA CORTE GIUSEPPE [1] - LUNGHI FRANCESCO [2] - AMBROSONE MARIO [3] - SERGI ANTONIO ROCCO [4]

RRF, ULSS N.2, FELTRE, ITALIA [1] - RRF, ULSS N. 2, FELTRE, ITALIA [2] - IST. ORTOPEDIA E TRAUMATOLOGIA, MILANO-BICOCCA, MONZA, ITALIA [3] - ISTITUTO SONCIN, ULSS N. 16, PADOVA, ITALIA [4]

Introduction. AIM: Assess, through Scoliometer, the change of scoliosis in order to enable a qualitative and quantitative comparison, investigate its causes and contributory causes and set a rational and effective therapy. - Inclusion: scoliosis with complete rachis' radiography in upright position with scoliotic curve of at least > 10° Cobb. - Exclusion: lumbago – lumbo cruralgie – lumbosciatica etc.; major spinal disc herniation; spinal tumors, rheumatic diseases, outcomes of operations for disc herniation, stenosis, scoliosis, spinal fractures, neurological diseases, acute internistics, recent rachis'manipulative therapies etc.

Materials and methods. STUDY METHOD. Considering: 1) sex, 2) age, 3) type of scoliosis, 4) Cobb degrees of the curve/s, 5) index-to-ground distance. Scoliometer was used to test the degrees at the apex of the curve/s in the following positions: 6) bending, 7) prone, 8) extension; 9) variation of humps (<,>) in the different positions, 10) conducted treatments (corsets, kinesitherapy, etc.).

Results. 1) 84 scoliotic patients assessed (17 m, 67 f) by 3 physicians. 2) Age: 7-80 years. Average age = 19.8 years (f = 20.5, m = 18.4). 3) 33 had lumbar scoliosis (L) (21 left, 12 right), 5 dorsal (D) right, 46 had double curve (37 L left and D right, and 9 L right and D left). 4) Cobb: the average value of total lumbar curves (79) is = 19.4 °; the average value of total dorsal curves (51) is = 16.4 °. 5) average index-ground distance = 16.3 cm. 99 curves in total (59 lumbar, 40 dorsal)> to the Scoliometer in bending, compared to prone position, 18 <(12L; 6D). 13 (8L; 5D) were equal. 96 (70L, 26D) curves > in bending compared to the extended position; 11 (3L; 8D) <; 23 (6L, 17D) were equal. 58 (44L, 14D) curves < in extension compared to prone; 16 (5L; 11D)>; 56 (30L; 26D) were equal. Scoliometer: average values of total lumbar curves: 7 in bending, 4.7 prone and 3.9 in extension. Average values of total dorsal curves: 6.2 in bending, 4.1 prone, 3.9 in extension. 10) 38 cases were wearing or had worn corset. 57 were performing or had performed kinesitherapy for scoliosis.

Considerations and conclusions. Many humps > in bending and < in prone position and in extension. The difference between extension-prone is little. During the day no one remains in a neutral position as the spine is stressed in various degrees and flexion may potentially be a cause-contributing cause in scoliosis' development. In a rachis (without scoliotic deformities), this is described as an asymmetry of flexion of one (or more) vertebrae. In the convexity side, the posterior articular apophyses are freer to diverge compared to the concavity side, while the articular ones in the concavity side are more limited to carry out the bending. For us, the most likely mechanism is 1) an asymmetric relative muscular tone (hypotonia from the convex side and / or hypertonia in the concave side, especially of the intrinsic muscles), and / or 2) myofascial, ligamentous retractions in the concave side (in bending, that is elongation, those yield less than the contralateral ones). The persistence of the myofascial asymmetries can be fixed in the connective, which systematically retracts when not stretched. The piezoelectric effect fixes the asymmetry in bone and joints. This justifies, among other things, decompensated techniques of global elongation etc.

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FIRST RIB: DYSFUNCTION WITH EXPIRATION LIMITATION (305 CASES). RELATION WITH "SHOULDER PAIN" (127 CASES).

ORZES SANTE [1] - AMBROSONE MARIO [2] - SERGI ANTONIO ROCCO [3] - RANAUDO PIERO [4] - VIVA ELENA [5]

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Introduction. The 1st rib is atypical; it holds close relations with important structures: 1) muscle insertions: scalenus medius and anterior, small serratus posterior superior, iliocostalis, serratus anterior, subclavius, external, middle and internal intercostal, levator costarum. 2)Vessels: subclavian vein and artery; internal mammary artery, the truncus arteriosus cervico-intercostal, posterior branch of the subclavian, bifurcates at the neck of the rib and supplies: deep cervical artery and superior intercostal artery. 3) Many ligaments, including the internal and external costopleural. 4) It articulates with the body of D1 and with the transverse of D1. 5) Nerves: stellate ganglion. The neck rib lies in a fork made by the anterior branch of the root C8 and the anterior branch of D1 (which gather in front of it). The phrenic nerve descends on the anterior face of the scalenus anterior and passes between the subclavian artery and vein. Behind the sternocostoclavicular joint, passes the nerve vague etc. 6) Lymphatic system: thoracic duct, right lymphatic vein, etc; 7) thymus; 8) middle cervical aponeurosis. etc. Its dysfunction (e.g. hypomotility associated with muscle, ligamentous, articular, vascular, lymphatic, nervous alteration etc.) can interfere with many important functions. In Manual Medicine it is common to find a static-dynamic asymmetry, a suffering at this level. This, despite clear, it is difficult to objectivise with instrumental tests. For this, we had to rely on our palpatory sensitivity and on the pain (induced by the pressure of the thumb during the operation of lowering the 1 ° rib) perceived by the patient (although aware of the margin of error related to the subjectivity of the method).

Aim. verify frequency and laterality of its dysfunction and its relation with the "shoulder pain (S.P.)". C. inclusion: cervicalgia, cervicobrachialgia, cephalalgia etc. C.exclusion: genetic disorders, malformations, acute internistics, outcomes of interventions in the thorax, cervical rachis, shoulders, laterocervical emptying etc.

Materials and methods. *Patients and study method:* with the patient supine, the descending of the 1st rib was tested by gently pressing with the thumb on its lateral side. We evaluated 1) the resistance opposed by the rib; 2) the pain perceived by the patient during the maneuver (VAS scale). The side with the highest resistance and/or pain was reported. Only the "clear" cases were reported, given the margin of error. Among these, 127 (80m, 47f) suffered from "shoulder pain" Excluded: previous fractures, luxations, etc. The sides of the "S.P." and of the 1st rib were compared. Sex and age were reported.

Results. 305 cases (196 f, 109 m) aged between 5 and 88 years. Average age: 42.6 (f 46.3, m 36.1). 1st rib in inspiration to the right: 65 cases (41f, 24m); to the left 79 (60f, 19m); 139 (82f, 57m) were equal. 10 cases, with e.o. clearly + (5 right, 5 left) reported equal VAS; 2 had the 1st rib in bilateral inspiration; 5 only subjective (2 left, 3 right); 5 a subjective framework opposed to an objective framework. -31 Cases of "S.P." left had: 20 the 1st rib in inspiration ipsilateral, 3 contralateral, and 8 equal. 70 cases of "S.P." right had: 44 the 1st rib ipsilateral; 9 contralateral and 17 equal. 8 "S.P" bilateral symmetric showed the 1st rib symmetric in 4 cases, to the left in 3 cases and to the right in 1 case. The 9 cases of bilateral + right "S.P." showed the 1st rib ipsilateral in 2 cases, symmetric in 2 and contralateral in 5. The 9 cases of "S.P." bilateral + left had the 1st rib ipsilateral in 4; equal in 3 and contralateral in 2.

Considerations and conclusions. The dysfunction is common in this important area. Given its relationships, it may act to cause complex dysfunctions, even distant. It should be noted the considerable ipsilateralty of the 1st rib in inspiration with the "S.P" The 1st rib must always be examined and possibly treated. From a personal experience, only by treating the 1st rib, there can often be an immediate improvement of cervicalgias, shoulder pains etc.

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RIABILITAZIONE INTENSIVA IN PAZIENTI NEUROONCOLOGICI AFFETTI DA LESIONI MIELOVERTEBRALI RIPETITIVE; OUTCOME FUNZIONALE

FERRIGNO ROSALBA (1) - DE CICCO DOMENICO (2) - DE PALO ANGELA (2) - VERDERAME FRANCESCO (3) - CONDELLO SALVATORE (4)

FONDAZIONE SALVATORE MAUGERI, PO GIOVANNI POALO II ASP 2, SCIACCA, ITALY (1) - FONDAZIONE SALVATORE MAUGERI, PO GIOVANNI PAOLO II ASP 2, SCIACCA, ITALY (2) - UO ONCOLOGIA, PO GIOVANNI PAOLO II SCIACCA, SCIACCA, ITALY (3) - FONDAZIONE SALVATORE MAUGERI, PO GIOVANNI PAOLO II ASP2, SCIACCA, ITALY (4)

Introduction. Le metastasi nel midollo spinale sono una evenienza che si riscontra nel 5% delle neoplasie; tale evenienza peggiora significativamente l'autonomia del paziente oncologico. Lo scopo dello studio è quello di individuare l'utilità di un percorso riabilitativo intensivo in pazienti neoplastici con lesioni mielovertebrali.

Materials and methods. Abbiamo registrato dati di pazienti portatori di lesioni vertebro -midollari ripetitive afferenti alla Nostra UO di riabilitazione intensiva dal 1/01/2007 al 31/10/2011. Tutti i pazienti sono stati sottoposti a valutazione neurologica ed oncologica,a valutazione funzionale all'ingresso ed alla dimissione con scala FIM, a valutazione del dolore con scala VAS. È stata effettuata una valutazione di un numero sovrapponibile di pazienti affetti da lesioni mielovertebrali post traumatiche appaiati per età ed entità del danno.

Results. Complessivamente dal 1/1/07 al 31/10/11 sono stati ammessi alla Nostra UO 18 pazienti con compressione midollare da lesione ripetitiva. Dei 18 pazienti esaminati 14 hanno completato il percorso riabilitativo e 4 non hanno completato il percorso. I guadagni in termini di valutazione motoria dei 14 pazienti che hanno completato il ciclo erano di 8,11,19,19,2,1,3,6,4,12,55,19,39,7, la differenza media punti FIM al punteggio motorio era di 16,8 punti. Abbiamo esaminato inoltre 14 pazienti affetti da mielolesioni di natura traumatica che presentavano una distribuzione delle sede della lesione analoga ai pazienti oncologici.I Guadagni in termini di valutazione motoria erano:21,7,11,20,3,6,6,5,6,12,10,43,19,5, la differenza media i punti FIM era di 12,5.

Conclusions. Con i miglioramenti delle cure oncologiche, sta crescendo il numero di pazienti che sviluppano una malattia metastatica secondaria. Diversi studi pubblicati hanno dimostrato un guadagno funzionale, dopo percorso riabilitativo, sulla mobilità e sulle ADL in pazienti affetti da lesioni compressive midollari metastatiche. I nostri dati hanno dimostrato che questa classe di pazienti ha beneficiato del trattamento riabilitativo, in maniera sovrapponibile a quella di pazienti affetti da mielolesioni post-traumatiche, sebbene nella popolazione dei pazienti post -traumatici nessuno ha dovuto interrompere il percorso riabilitativo per complicanze che hanno richiesto il trasferimento in reparto per acuti. Le osservazioni che scaturiscono dal nostro lavoro dimostrano l'utilità di un percorso riabilitativo intensivo in selezionati gruppi di pazienti con lesioni ripetitive e prognosi migliore.

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EXPLORING VARIABLES ASSOCIATED WITH REHABILITATION LENGTH OF STAY IN BRAIN INJURIES PATIENTS

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Introduction. The impact of outcome measure as early variables on rehabilitation length of stay (LOS) in traumatic brain injury (TBI) patients remains poorly investigated. The aim of thi study was To investigate a) the association between LOS and motor and functional outcomes; b) the predictive factors of LOS in TBI patients admitted to a rehabilitation centre.

Materials and methods. 241 TBI patients (190 males and 51 females, mean age 43.61 ± 19.4 years, initial Glasgow Coma Scale of 6.96 ± 3.39). We recorded demographic characteristics (age, sex, setting and LOS in the acute phase, rehabilitation LOS) and outcome measures (Glasgow Outcome Scale, Disability Rating Scale, Levels of Cognitive Functioning, Functional Independence Measure).

Results. Average rehabilitation LOS was 58.82 ± 58.0 days; 191 (79%) subjects were discharged from the rehabilitation center within 90 days. Rehabilitation LOS was significantly correlated with acute-care LOS (p=0.001) and Glasgow Coma Scale, but not with patients' age (p=0.250) or sex (p= 0.348). Rehabilitation LOS was significantly correlated with functional and cognitive admission outcome scores but not with gains during rehabilitation. Rehabilitation LOS was significantly less in the group of patients that returned back home respect to others. Regression analysis also illustrated that longer acute-care LOS was independently associated with significantly increased rehabilitation LOS (p<0.001).

Conclusions. Our retrospective study suggests that rehabilitation LOS in TBI patients is correlated with timing of and score at admission to the rehabilitation setting rather than with gains in functional outcome.

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UN PROGETTO DI DIMISSIONE COMPLICATO DALLA BUROCRAZIA: UN CASO CLINICO CHE SOTTOLINEA L'IMPORTANZA DELL'OPERATORE SOCIALE NELL'EQUIPE DELL' UNITÀ SPINALE.

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Introduction. La riabilitazione è un processo come la prevenzione e la cura. I termini prevenzione, cura e riabilitazione non rappresentano però l'evoluzione temporale di uno stesso percorso, ma tre ambiti distinti e non omogenei tra loro, dove la medicina svolge la propria attività in difesa della condizione di salute, intesa come uno «stato di completo benessere fisico, mentale (psichico) e sociale».(1) Non deve sfuggire in questa definizione dettata dall'OMS il peso della parola "sociale", come condizione indispensabile perché l'individuo possa essere considerato veramente in stato di salute, cioè di pieno benessere.(2) Questa è la finalità di lavoro dell'equipe dell'Unità Spinale dell'Istituto di Pavia della Fondazione Salvatore Maugeri. Per programmare il reinserimento sociale la presenza dei familiari è spesso determinante. La loro mancanza rende indispensabile l'attivazione dei Servizi Sociali ed in particolare dell'Operatore Sociale. In questo contributo esporremo il complesso lavoro di collaborazione tra Medico, Operatore Sociale, Operatori dei Servizi Socio-Assistenziali del territorio e le gravi difficoltà burocratiche incontrate a conclusione del progetto riabilitativo di un paziente abbandonato dai familiari e sprovvisto di una residenza anagrafica.

Materials and methods. Abbiamo analizzato le tappe del percorso riabilitativo e del difficile reinserimento sociale di un paziente di 64 anni, accolto tra ottobre 2011 e marzo 2012 nella nostra Unità Spinale affetto da paraparesi e sindrome ansioso-depressiva. In particolare abbiamo considerato gli ostacoli e le facilitazioni presenti nella storia personale e clinica del paziente, che hanno determinato il rallentamento nel percorso riabilitativo, ma hanno anche stimolato e messo alla prova la rete di collaborazione interdisciplinare presente nell'Unità Spinale e tra questa ed il territorio. Il paziente, vedovo, con 4 figli, sino al momento del ricovero viveva con una compagna ad un indirizzo non corrispondente alla residenza anagrafica presente sulla carta d'identità. Unico riferimento del paziente sul territorio era la frequenza al Centro Psico Sociale (CPS) del distretto Asl di Pavia a cui apparteneva l'indirizzo della compagna. Abbiamo considerato le gravi problematiche cliniche e di gestione del paziente in reparto, quelle psichiatriche e sociali emerse (abbandono da parte dei familiari), descrivendo l'attività intrapresa dall'Operatore Sociale presso il Comune di residenza anagrafica del paziente, il Comune di domicilio e d il CPS per identificare l'Assistente Sociale di riferimento. Il Medico di reparto ha coordinato e programmato una dimissione protetta, coinvolgendo: Direzione Sanitaria dell'Istituto, Responsabile dei Servizi Socio-Assistenziali dei Distretti Asl coinvolti e Giudice Tutelare del Tribunale di Pavia.

Results. La stretta collaborazione tra Medico, Operatore Sociale ed Operatori dei Servizi di competenza sul territorio hanno permesso di tessere una rete di supporto per il paziente: alla dimissione è stato adeguatamente inserito in una struttura di lungo degenza per pazienti psichiatrici.

Conclusions. In questo lavoro è emerso come sia ancora difficile un'efficace comunicazione all'interno dell'equipe, in particolare quando questo termine coinvolge non solo gli appartenenti alla struttura che ospita il paziente, ma anche i servizi che territoriali. Le criticità sono senza dubbio il sovraccarico lavorativo degli addetti ai lavori, ma anche la mancanza di un linguaggio comune, capace di snellire i percorsi burocratici e ridurre la possibilità di stime soggettive e non oggettive della disabilità fisica e psichica del paziente. In quest'ottica l'utilizzo dei codici ICF sul territorio potrebbe facilitare percorsi analoghi a quello descritto.

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LA REALTÀ VIRTUALE COME STRUMENTO DI RIABILITAZIONE COGNITIVA NEL DISTURBO ATTENTIVO IN PAZIENTI POST-STROKE ISCHEMICO

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Introduzione. Le attuali conoscenze relative ai meccanismi neuropsicologici dei deficit cognitivi conseguenti a lesione cerebrale permettono di attuare specifici training di riabilitazione cognitiva per il recupero delle funzioni compromesse. Nei pazienti post-stroke, oltre ai deficit motori spesso risultano associate selettive alterazioni dei processi cognitivi [1]: primario sembra essere il coinvolgimento del controllo attentivo, secondario l'interessamento di altre funzioni tra cui la riduzione nell'autonomia quotidiana del soggetto che ne è affetto. La realtà virtuale, dato il suo grande potenziale, è una tecnologia sempre più utilizzata nel campo della riabilitazione [2]. Nel nostro studio è stato utilizzato il BTS Nirvana, strumento originariamente concepito per la riabilitazione motoria, quale soluzione innovativa per consentire una completa immersione visiva ed uditiva in un ambiente virtuale. Obiettivi del nostro studio sono stati: 1) valutare l'efficacia della realtà virtuale per il recupero delle difficoltà attentive in un campione eterogeneo di pazienti post-stroke; 2) validare l'utilizzo della realtà virtuale attraverso BTS Nirvana come strumento per la riabilitazione cognitiva.

Materiali e metodi. Sulla base delle valutazioni neurologiche e neuropsicologiche d'ingresso, sono stati selezionati 10 pazienti pervenuti in Riabilitazione Neurologica in fase post-stroke ischemico e che rispettassero specifici criteri d'inclusione: adeguate vigilanza e collaborazione, controllo del tronco (Trunk Control Test=50-100), decadimento cognitivo lieve-moderato (MMSE>18), deficit selettivi a carico dei processi attentivi (con particolare riferimento ai punteggi ottenuti nei test neuropsicologici Matrici Attenzionali, Trail Making Test A e B). Tutti i pazienti sono stati sottoposti ad un trattamento di riabilitazione cognitiva attraverso il sistema BTS Nirvana per un totale di 20 sedute (3 incontri settimanali) mediante un approccio terapeutico non convenzionale bensì in grado di fornire al paziente la ricezione di stimoli cognitivi e motori che potessero coinvolgere altresì il profilo motivazionale. Originariamente concepiti per la riabilitazione motoria, gli esercizi in dotazione con il sistema BTS Nirvana sono stati selezionati, adattati e somministrati nelle modalità e nei tempi ritenuti opportuni in accordo con i modelli metodologico-scientifici della neuropsicologia cognitiva. Al termine del programma di riabilitazione cognitiva, tutti i pazienti hanno eseguito la valutazione neuropsicologica di follow-up.

Risultati. Il confronto dei punteggi ottenuti alle valutazioni neuropsicologiche (ingresso e follow-up) hanno evidenziato un significativo incremento nelle performance delle funzioni attentive ai tre test neuropsicologici, confermando miglioramenti nella riduzione dei tempi di reazione, nella capacità di selezionare stimoli e informazioni rilevanti dall'ambiente circostante, nel mantenimento dell'attenzione durante l'esecuzione di due o più compiti.

Conclusioni. Il presente studio suggerisce un'efficacia del trattamento specifico ed intensivo delle funzioni attentive in seguito a riabilitazione cognitiva mediante il sistema di realtà virtuale BTS Nirvana con miglioramenti alle prove strutturate e correlata riduzione dell'impatto della disabilità sia nelle attività quotidiane [3] sia nelle relazioni socio-familiari.

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SWALLOWING NEUROREHABILITATION TREATMENT AFTER POSTERIOR CRANIAL FOSSA SURGERY. A CASE STUDY.

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Introduction. Proprioceptive cervical receptors have important and multiple connections to the vestibular and visual-auditory apparatus as well as to the central nervous system. The dysfunctions of these receptors, due to posterior cranial fossa surgery, may alter the normal afferents of sensorimotor control and therefore the postural system of head and neck. We performed a search of the current literature to analyze the correlations between postural alterations of the cervical tract and swallowing disorders resulting from a damage to the mixed cranial nerves after posterior cranial fossa surgery. We reported the results of the rehabilitation procedure following the G.Jull and D.Falla method in 8 patients who underwent posterior fossa meningioma surgical removal.

Materials and methods. A search for scientific articles was conducted using online databases like MEDILINE, PEDro and Pubmed. Only clinical trials, meta analysis, randomised controlled trials and systematic reviews were investigated.

Results. A total of 16 articles were identified in the research, 10 of which rejected because they did not meet the selection criteria. As a consequence, 6 randomised clinical trials (RCT) were analysed.

Conclusions. The systematic review makes it clear that therapeutic exercise can help reduce pain, disability and the dynamics of cervical spine. Moreover, learning motor control of the head and neck allowed the eight people observed to recover oral feeding without aspiration for the entire length of the meal, data which may not be found through specific and sensitive tests limited to the time of analysis of the swallowing act.

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PERIOPERATIVE MANAGEMENT OF HALLUX VALGUS: PERSONAL EXPERIENCE.

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Introduction. Hallux valgus can be a debilitating disease which influences the quality of life (QoL). Usually, post-operative pain is relevant. A more appropriate hallux valgus management should consider the following topics: minimization of surgical invasiveness, prevention of complications, optimization of functional recovery, QoL improvement, optimization of pharmacological treatment.

Aim. of this poster is to evaluate effectiveness and safety of our protocol for hallux valgus surgery.

Materials and methods. We consecutively enrolled patients with symptomatic hallux valgus. Our management protocol (Standard Operative Procedure) consisted in: Day Surgery treatment, local anesthesia with mepivacaine 2%/5ml + ropivacaine 7,5%/5ml, percutaneous distal mthaphysis first metatarsal osteotomy, postoperative pain management with oxicodon/naloxone 10/5 mg bid starting 6 hours after anesthesia, early post-operative rehabilitative management with full weight bearing walking wearing a talus shoe. Inclusion criteria were: age >18 years, symptomatic hallux valgus. Exclusion criteria: other major diseases or painful foci, specific contraindications to the protocol. The outcomes we considered with relative measurement tools were: valgus angle and inter-metatarsal angle on X-ray for efficacy in valgus correction, VAS foot and ankle outcome score for QoL [Richter '06], VAS score for pain, clinical reports for adverse effects and/or complications.

Results. We present step by step of the procedure used at "Maggiore della Carità" Hospital of Novara for the surgical and post-operative treatment of Hallux Valgus. The outcomes measured in our cases are statistically analyzed.

Conclusions. According to our on-going experience in hallux valgus surgery, this protocol is effective and safe for the patients: the mini-invasive approach, effective pain treatment with appropriate and better tolerated drugs

combination and early rehabilitation decreases side effects and complications and improves QoL.

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VALUTAZIONE DELL'EFFETTO DELLA TECARTERAPIA SUL DOLORE MUSCOLO-SCHELETRICO: STUDIO OSSERVAZIONALE

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Background. Il dolore muscolo-scheletrico interessa diversi distretti corporei: muscoli, ossa, legamenti, tendini e nervi. Indipendentemente dall'area interessata, il dolore può ostacolare il programma terapeutico prolungando i tempi di recupero ed impedendo il completo raggiungimento degli obiettivi definiti dall'equipe riabilitativa. L'obiettivo di questo studio è valutare l'effetto della tecarterapia nel migliorare il percorso riabilitativo in alcune patologie osteoarticolari, con presenza di dolore. Per la valutazione dell'efficacia di questa terapia sono stati individuati come indicatori la percezione del dolore e l'escursione articolare (ROM).

Materiali e metodi. Per poter effettuare lo studio, sono stati raccolti, da cartelle riabilitative, i dati di 10 pazienti (età media 53.2± 16.7ds), 3 uomini e 7 donne, con dolore all'apparato muscolo-scheletrico in patologie infiammatorie, traumatiche e degenerative. Ciascun soggetto ha seguito un percorso riabilitativo di sedute quotidiane di terapia manuale e terapia fisica (8 sedute di tecarterapia da 20 minuti). La terapia manuale prevedeva mobilizzazione attiva e passiva dei distretti interessati seguendo un programma personalizzato per ogni paziente; inoltre, ad ognuno di essi era stata prescritta la tecar terapia. La sintomatologia è stata valutata tramite VAS (scala visiva analogica) con punteggio che va da 0 a 10, in cui 0 corrisponde all'assenza di dolore e 10 al massimo del dolore soggettivamente percepito. I dati sono stati elaborati statisticamente tramite il test T di Student per dati appaiati.

Risultati. Nello studio sono stati arruolati 10 pazienti, 3 uomini (età 47,6±4,6 ds) e 7 donne (55,57±19,7). La valutazione del dolore, misurata con la VAS, ha evidenziato una riduzione costante in tutti i soggetti, con una variazione media di 6 punti ($p<0.001$). Per quanto concerne la funzione articolare si osserva, anche in questo caso, un miglioramento significativo dei ROM.

Conclusioni. La mancanza di un gruppo di controllo e la presenza di un trattamento personalizzato per ogni paziente sono sicuramente dei bias che non consentono di trarre conclusioni certe. Tuttavia, da questi primi dati preliminari sembra che la tecarterapia possa rappresentare un valido strumento, all'interno del percorso riabilitativo del paziente, nel ridurre la sintomatologia algica. Nello studio è stata scelta una popolazione eterogenea in quanto si voleva valutare un eventuale effetto della tecarterapia sul dolore non legato ad una determinata patologia. Tale decisione è motivata dal fatto che spesso i meccanismi che generano la sintomatologia dolorosa sono indipendenti dalla sede del problema del paziente. La valutazione della percezione del dolore, misurata tramite la VAS, evidenziava un miglioramento della sintomatologia algica già dalle prime sedute con una sensazione di sollievo da parte del paziente subito dopo la terapia fisica. Inoltre, è emerso un miglioramento significativo dell'escursione articolare valutato mediante la rilevazione dei ROM. Pertanto si può dedurre che la tecarterapia può essere una terapia efficace da affiancare al trattamento riabilitativo con l'obiettivo di ridurre i tempi di recupero e di conseguenza i tempi di trattamento. Questo studio pilota necessita, quindi, di ulteriori approfondimenti che devono essere intrapresi per poter definire con maggiore chiarezza la metodologia e gli schemi di somministrazione di questa terapia fisica.

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DIAGNOSIS OF GAIT DISORDERS AND TREATMENT EVALUATION USING COMPUTERIZED GAIT ANALYSIS AND DYNAMIC ELECTROMYOGRAPHY

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Introduction. Computerized gait analysis is a well-known and powerful tool for evaluation and documentation of the rehabilitation progress of motor-disabled patients. Its goal is to ensure accurate and objective evaluation of patients, thereby providing them with the means to (i) restore functional gait ability (ii) maintain stability during gait, thereby preventing falls and further injury, and (iii) conserve energy during gait. Computerized gait analysis is widely utilized in research laboratories worldwide, thereby enriching the literature with insights into the gait characteristics of different pathologies. In the clinical setting, however, the complexity of the gait analysis systems prevents its accessibility to the physicians and physiotherapists who treat the patients in the rehabilitation daycare department. Our goals were therefore to make computerized gait analysis accessible to our daycare center, user-friendly, with simple post analysis, and un-complicated reports.

Materials and methods. Our gait analysis tools comprise of a motion capture system that tracks passive reflective markers during dynamic activities and a telemetric surface electromyography (EMG) device that monitors the electrical activity of the muscles during motion. Both systems are put to daily use at the center of the rehabilitation department. Custom-made protocols were designed according to the clinicians' requirements for acquiring spatial-temporal data, muscle activity patterns and joint angles, velocities and accelerations. The conclusions and recommendations for the examinations are provided by the gait lab's team, composed of physicians, physiotherapists, and a biomedical engineer. Several different test protocols can be chosen to evaluate a patient and produce reports. The lab is accessible to both in-patients and out-patients and its daily integration in the rehabilitation department for all populations is unique.

Results. Our custom-made test protocols, fitted to the clinical settings needs, are utilized on a routine daily basis in our department to evaluate gait disorders in patients suffering from stroke, poliomyelitis, amputations, cerebral palsy, multiple sclerosis, traumatic brain injury and more. The precise and objective data provided to the physician is essential for the decision-making process. Treatment plans, administered following the examinations performed in the gait lab, may include surgical corrections, orthotic/prosthetic prescriptions, physical therapy or reducing spasticity tone with phenol or Botulinum toxin injections or neurosurgery intervention. Data is also used for research of the gait characteristics related to different pathologies.

Conclusions. Computerized gait analysis is cutting-edge technology that provides the clinicians with additional data, which is necessary to make the diagnosis, provide quality care, and create the optimal treatment plan for a quick recovery. Without this insight into the exact mechanism causing the gait disability, the patient's rehabilitation period may be extended, unnecessary surgery may be performed, and the patient's return to daily activities may be unnecessarily delayed. The integration of our gait lab into the heart of the rehabilitation department and its accessibility to both in-patients and out-patients for all populations is unique. We conclude that utilization of custom-made test protocols of gait analysis can be regarded as a standard clinical tool for the evaluation and documentation of the patients' progress during the rehabilitation period. Using these protocols, the maximal potential of gait rehabilitation can be achieved.

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GENDER AND DEGREE OF GENETIC HOMOZYGOSITY IN PATIENTS WITH MANIFEST STROKE FROM SERBIA

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Introduction. It is shown that stroke is multifactorial disease with genetic component. There are studies addressing possible role of gender in the etiopathogenesis of manifested stroke. Aim of our study was to evaluate degree of genetic homozygosity among different genders in patients with manifested stroke from Serbia.

Material and methods: We evaluated 50 patients with manifested stroke that were referred to Rehabilitation Clinic for physical treatment. There were 28 (56.0%) male individuals and 22 (44.0%) female individuals. The patients belonged to the same population-Serbian. The study included 20 recessive phenotype traits that were analyzed in each patient. To ensure equal quantification of phenotype expression, one person performed the data collection.

Results. There is significant difference in individual recessive phenotype traits distribution (χ^2=280.99; p<0.01) with 65.0% of overall traits more frequently expressed in female individuals. There is significant increase in the degree of recessive homozygosity in female patients versus male patients with manifested stroke (t=3.106; p<0.01).

Conclusions. Our study pointed out that there is significant increase in recessive homozygosity in female individuals with manifested stroke, implying to the possible assumption that females could have to the certain degree more genetic predisposition for the development of stroke. These findings could be of benefit in further evaluation of patients with stroke and therapy planning.

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GLOBAL POSTURAL REEDUCATION OF TREATMENT OF CHRONIC LOW BACK PAIN, A CONTROLLED TRIAL

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Introduction. Back pain is a most common clinical condition and has a great clinical importance, economic and social issues. The annual prevalence of chronic low back pain range from 15% to 45%, with an average of 30% and appears to be increasing in all age groups. The treatment of chronic low back pain is still very controversial. Many interventions, including education, specific exercise and spinal manipulation are claimed to be effective in the short term, but the magnitude of functional improvement and pain relief is generally low. To further improve the responsiveness of Chronic Disease Management Programmes to patients' needs, it's better to monitor 'patient relevant outcomes' that might be based on the ICF-model. The objective is to compare the self reported effects on pain and function of global posture reeducation (GPR) and individual therapy composed by back school exercises associated with manual therapy (massages and/or pompages) in the treatment of chronic low back pain.

Materials and methods. Patients aged 18 tears and over addressing the facility with a fisiatric prescription of GPR for chronic (>6 months) non-specific low back pain were progressively recruited. A control group of patients with the same diagnosis undergoing individual standard physiotherapy was also recruited. GPR and individual physiotherapy (IP), both scheduled 15 1-hour-sessions, twice a week. Both interventions included education and ergonomics; GPR consisted of muscle chain stretching. IP included: exercises, passive mobilization and soft-tissue treatment. Outcome: Roland Morris Disability Questionnaire (scoring 0-24) and Visual Analogical Scale (VAS; scoring 0-10) assessed at baseline and on discharge. The vitality (energy/fatigue) section of SF36. Were also requested pregress physiotherapy treatment, use of drugs, smoke, work and weight.

Results. From June 2011 to June 2012 were enrolled 99 patients with diagnosis of chronic mechanical low back pain: GPR group, 14 males and 34 females (mean age 51.0 ± SD 13.1), IP group, 16 males and 35 females (mean age 65.5 ± SD 14.8). The groups were similar with regard to RM, the VAS, SF36, use of drugs and physiotherapy. After treatment both groups showed a significant (p<0,05) improvement in the RM (GPR -5,4; IP - 4,6) and VAS (GPR -2,6; IP -2,7) However, the comparison between groups after the treatment only on RM improvement was more evident in the GPR group (p<0,02).

Conclusions. In our sample of patients with chronic non specific LBP, both treatments induced a greater improvement in the minimum clinically significant difference about function and pain. Both treatments produced an improvement on pain and function, while the group GPR achieved an improvement higher than the IP group about the function. In this study GPR was more effective than standard individual physiotherapy in reducing disability.

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REHABILITATION TREATMENT OF GERIATRIC PATIENTS IN POST-ACUTE SETTING

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Introduction. With the aging of the population, providing health care on an outpatient basis has become more attractive. Community based rehabilitation (CBR) for geriatric population following different injuries has been demonstrated to produce durable, in some cases comparable to inpatient rehabilitation, outcomes (1). It was previously shown, that inpatient rehabilitation was significantly shorter in the older population, while outpatient care was longer in comparison with the younger age categories (2). The aim of the study was to investigate, whether the geriatric population from Tel-Aviv Jaffa Clalit district is staying in Loewenstein Hospital Rehabilitation Center (LHRC) the same time, as younger patients do, what is the destination of their discharge, and do geriatric patients get the same CBR after discharge in comparison with younger people.

Materials and methods. For 22 month of the study 135 patients from Tel-Aviv Jaffa district were treated in the LHRC. 81 of them were from geriatric age group (65 and older - 75±7) and 54 patients at younger age (46±16). Functional Independence Measure (FIM®) parameters at admission and discharge were measured in both groups. Length of stay (LOS), place of destination and the existence of CBR after discharge was registered and compared in both groups.

Results. FIM® was found to be higher in young patients at admission (62.2±32; 52.7±30.7) and even more at discharge (91.4±29.8; 71.7±33.4), but the difference was not significant. FIM® gain was also not significantly lower in geriatric population (19±16.6; 29.2±19.8). LOS was equal in both groups: 51.1±41.1 in young and 57±36.5 in geriatric. FIM® Efficiency was found to be significantly higher in younger patients (0.57) in comparison with geriatric group (0.33). Both groups showed almost equal parameters of discharge destination. In younger population 4 patients died (7.4%), 1 was discharged to nursing home (1.8%) and 49 returned home (90.7%). In geriatric patients 5 died (6.1%), 1 transferred to nursing home (1.2%) and 75 returned home (92.6%). Significantly more geriatric patients continued their rehabilitation treatment in CBR settings - 49 (65.3%) in comparison with younger patients - 16 (32.7%).

Conclusions. Geriatric population shows lower efficiency of sub-acute rehabilitation according to FIM® in comparison with younger patients. More geriatric patients continue their rehabilitation treatment in CBR settings than younger patients do.

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TETRAPARESIS IN THE ICU: A CHALLENGING DIAGNOSIS - CASE REPORT

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Introduction. Spinal cord injuries may arise from traumatic or atraumatic causes. Amongst atraumatic causes of spinal cord dysfunction the most common are degenerative, infectious, neoplastic, vascular and metabolic. Spondylodiscitis is associated with multiple small emboli progressing to intra-vertebral body infarcts, insufficiency fractures and spine deformity. We report a complex case of coexisting sensory-motor toxic polyneuropathy and high-cervical spinal cord injury due to low-grade trauma on a pre-existing cervical spine spondylodiscitis.

Materials and methods. Single case description of a 52 years old male with heavy alcohol consumption and poorly controlled type 2 diabetes. 23/03/12 (AM): Admitted to the Emergency Department with right hand cellulitis and progressive neck pain and stiffness. He reported, for the past month, difficulty walking with stumbling and frequent falling and loss of hand strength and dexterity. He discharged himself from the hospital against medical advice. 23/03/12 (PM): Found fallen on the street confused and disoriented. There was hypoxemic respiratory failure and radiologic evidence of right lower lobe pneumonia. He was put on vancomycin and meropenem and, due to persistent altered conscience, was sedated, intubated and admitted to the ICU. ICU (24/3/-23/04/12): Improvement of clinical, laboratorial and

radiologic indicators of infection with suspension of antibiotics (D8), sedation (D9) and finally extubation (D10). At D12 he was evaluated by PRM and Neurology showing generalized muscle atrophy and flaccidity, no active limb movements, arreflexia and absent pinprick and light touch sensitivity below C4 level. Neuro-urological examination showed no perianal sensitivity, voluntary sphincter contraction or anal reflex with preserved bulbocavernosus reflex. Studies showed: -Electromyography: diffuse axonal sensory-motor axonopathy. -Cervical magnetic resonance: C2-C3 and C3-C4 spondylodiscitis with C3-C4 fractures and posterior subluxation of C3 on C4 with signs of cervical spine myelopathy. He was classified as having an American Spinal Cord Injury Association (AIS) type A tetraplegia with a neurological level by C4 superimposed on previous flaccid distal tetraparesis due to probable toxic/metabolic polyneuropathy. At D22 he was submitted to interbody fusion at C3-C5 and C4 corpectomy. Surgical specimens microbiology were found negative. Rehabilitation protocol included non-invasive ventilation with high-tidal volume ventilator and an as-needed protocol of mechanical in-exsufflation. Standard guidelines were followed regarding prophylaxis of DVT thrombosis, peptic ulcer, orthostatic hypotension, pressure ulcer and management of neuropathic pain and neurogenic bladder and bowel. Passive range-of-motion exercises, gentle stretching and positioning techniques were used.

Results. At D32 the patient was admitted to the PRM ward and started intensive multidisciplinary rehabilitation including psychobehavioural, occupational and physical therapy. Planned technical aids include: motorized jaw-controlled wheelchair, posture ankle-foot and balanced forearm orthosis, alternate pressure overlay and silicone gel wheelchair cushion. Neurological status remained C4 AIS A tetraplegia.

Conclusions. Severe muscle weakness at the ICU setting might result from different causes ranging from critical illness polyneuropathy to central nervous system involvement. Investigation warrants a thorough review of medical history, neurological assessment and choice and interpretation of imaging and neurophysiological studies.

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SHOULDER REHABILITATION AFTER CARDIAC DEVICE IMPLANTATION - A CASE REPORT

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Introduction. Cardiac implantable devices use has been steadily increasing and clinical applications widened to incorporate from asymptomatic structural/functional disturbances in young adults to advanced-stage heart failure in older disabled patients. Their implantation is usually in the pectoral region, either submuscularly (under the pectoralis muscles) or subcutaneously (over the pectoralis muscle). The surgical procedure might be associated with an array of pocket and shoulder related problems. We report a case of a 28 year old woman with a subcutaneous implantation of a definitive pacemaker device due to advanced atrioventricular block after heterotopic heart transplant, who developed persistent shoulder pain and impaired mobility. Using the clinical case we will discuss the differential diagnosis for shoulder pain, in patients with such devices, and the possible treatments especially with regard to the type of physical agents used and the precautions needed in their use in this specific cases.

Materials and methods. A 28-year-old right-handed woman with a previous history of heterotopic heart transplant and subcutaneous implantation of a definitive pacemaker device in a pectoral location (MAY 2010). After 2 years she was referred to PRM for assessment and treatment of persistent pain and stiffness of the right shoulder (ipsilateral to the pacemaker´s pulse generator placement). There was no previous history of trauma or shoulder complaints prior to surgery. The pain was mainly mechanical and located to the right shoulder and pectoral regions, with difficulty In activities associated shoulder elevation above 90º and internal rotation, occasional nocturnal awakenings and intolerance to ipsilateral decubitus. On physical examination, there was point tenderness over the acromioclavicular joint and the coracoid process. There was slight limitation of shoulder mobility (PROM restricted above 130º of shoulder elevation). Positive impingement signs and specific rotator cuff testing compatible with supraspinatus tendinitis/partial rupture. Cervical spine and neurological examination was unremarkable. Shoulder X-ray and ultrasound revealed a partial supraspinatus tear with slight distension of the subacromial bursa. Rehabilitation treatment consisted of thrice-weekly sessions of superficial heating, deep tissue massage in the deltoid region, modalities including pulsatile ultrasound (1,2W/cm2, 7min) applied in the subacromial area with 45º arm abduction and pillow interposition between arm and chest wall. active/active-assisted ROM exercises with multi-quadrant capsular stretching exercise and specific strengthening exercise (Theraband®) for the scapula-thoracic stabilizers and shoulder internal and external rotators.

Results. After 4 weeks there was full recovery with no symptoms or limitation in daily activities. Shoulder examination was normal with full pain-free active and passive ROM.

Conclusions. Shoulder dysfunction after cardiac device implantation is not only frequent but has a multiplicity of possible causes, such as movement restriction in the post-operative period, biomechanical imbalances due to direct muscle damage both in the shoulder and pectoral areas. Physical rehabilitation is effective and safe in treating this group of high-risk patients. Further studies are needed to assess effectiveness of preoperative rehabilitation (including education) and different treatment options (type, duration, setting).

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CHANGES IN WALKING PERFORMANCE AFTER LOWER LIMB ROBOTICS REHABILITATION.

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Introduction. PD is characterized by a progressive decline of locomotor abilities of lower limb so that gait rehabilitation is an essential, but often frustrated, aim of the treatment. The effectiveness of non-pharmacological options such as exercises has been demonstrated; in particular an example for patient tailored exercises is physiotherapy. The goal of physiotherapists is to enable PD patients to maintain their maximum level of mobility, activity, and independence. The use of electromechanical devices such as treadmill training (a supplement to conventional Therapies) in the last years has also been used with PD patients. The specific aims of this project are: to verify whether the robotics lower limb treatment with body weight support is more effective than the treadmill treatment in the reduction of motor impairment in PD patients, and to improve the quality of the gait and the endurance and to analyze possible improvements in terms of physiological biomechanical gait through analysis of spatio-temporal parameters.

Materials and methods. Study design: RCT. Subjects: 18 patients with a diagnosis of PD. Inclusion criteria: evidence of motor deficit in one lower limb, age between 18 and 79 years. Exclusion criteria: Association of neurological, orthopaedic or cardiopulmonary pathologies. Psychiatric disorders reducing. patient collaboration. At the beginning of the treatment and after 20 sessions, optocynematic analysis of gait and clinical scales Hoehn and Yahr, were delivered. Treatment: all patients will receive traditional treatment (Physiotherapy, Occupational Therapy and Speech Therapy). All subjects excepted will undergo inpatient rehabilitation consisting of a treatment cycle using the G-EO system (Reha Technologies) or treadmill device GAIT TRAINER, according to individually tailored exercise scheduling. (Group A and CG.) All the treatment consists of 20 sessions for the lower limbs, each lasting 45 minutes, 5 days a week for 4 weeks.

Results. The clinical characteristic of the experimental groups were: Hoehn and Yahr Stage range 2-3 median 3, Age 70.00 ± 8.396 yrs, Weight 70.22 ±17.14 kg, Height 159.6 ±9.13 cm. The clinical characteristic of the control groups were: Hoehn and Yahr Stage range 2-3 median 3, Age 70±10,2 yrs, Weight 85,11± 19,27kg, Height 162± 11 cm. The ones treated with GEO showed a significative improvement of Barthel (45 vs 62) and FIM (57vs 86) scores at discharge compared to admittance. No statistical difference at T0 were found. The spatio-temporal parameter (Mean velocity, Stride length, Stance and Swing time) showed a statistical improvement in Robot group.

Conclusions. Our preliminary results show that G-EO system treatment is well tolerated by patients with a statistical improvement of intra group performance and compared to Treadmill group.

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REHABILITATION OF A CHILD WITH MB. BLOUNT AFTER SURGICAL TREATMENT OF BOTH LEGS; PRESENTATION OF CASE

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Introduction. Morbus Blount (tibia vara) is a disorder of growth in the medial part of the proximal tibiae epiphyseal cartilage with abnormal growth in the metaphysis and epiphysis ossification center, what leads to varus angulation bilateral or unilateral. It is classified in "stress injuries.". The goal is to present a clinical case of this disease, and diagnostic and therapeutic approach.

Materials and methods. We present a case of 12 years old boy. The boy is from the first regular pregnancy, with 8 months he was placed in stand and started to walk with 9 months. In the third year of life his mother noticed bending of his legs. In age of four he was examined by the orthopedist who prescribed orthotics which the boy didn't use regularly. He also didn't go to ordinary controls. In age of 10.5 years he was referred to our institution because of the difficulty waddling walk with hips in external rotation, varus knees in a distinct position, reduced flexion in the knees and ankles joints. No able to squat and lift the squat. Te boy was referred to child endocrinologist and orthopedic. The surgery on both lower extremities was requested and on September, 23rd,2011 it was done: Aplicatio ap. pro-C-D ad cruris et pedis bill Illizarov sec. The boy was included to rehabilitation treatment, walk with crutches was allowed and standing on a full feet. On February, 29th 2012, was removed Illizar apparatus and gypsum was applied till April, 4th, 2012. Orthopedist and physiatrist recommended the continuation of habilitation treatment which included kinesiotherapy, occupational therapy and thermal treatment.

Results. After completion of the treatment, the boy walks independently, stands on the full feet, varus of knee significantly smaller, flexion of the knees and hocks terminally reduced, lower leg compared to pre surgery period 4 cm longer.

Conclusions. Because of delayed and irregular treatment and lower leg deformity, surgery enable ordinary walk of the patient and involvement in ordinary life.

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EFFECTS OF PHYSICAL THERAPY AND EDUCATION OF PATIENTS WITH HEBERDEN ARTHROSIS – CASE STUDY

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Introduction. Heberden arthrosis is the arthrosis of distal interphalangeal joints. It is characterezed by bone thickening of the base of distal phalange of particular or all fingers of both hands in the form of nodes – Heberden nodes. They press the joint in the side or volarly, thus creating deformations. It causes pains, redness and numbness of fingers. The joint has decreased function, muscle strength is lower, activites of everyday life are diffcult. Therefore, physical therapy and rehabilitation have as the task to decrease subjective difficulties and to increase functional capacity of joints, as well as to improve the quality of life through education of patients. This work was meant to show the significance of education of patients within the scope of physical – rehabilitation treatment.

Materials and methods. 70- years old patient felt the first difficulties – pains in joints of the hand 20 years ago. Pains werw followed by swelling and morning stiffness in duration of 30 minutes. Of drugs, she took NSAIL the most often, After the confirmation of the diagnosis – Osteoarthritis Heberden on the basis of clinical examination, laboratory findings and rheumatologist to physical treatmant to our Institution. Clinical finding on the first check-up: she moves with difficulty, right schoulder is painful when palpated, reduced movements of rotation, elbows are not painful when palpated, mobility reduced for final amplitude in the direction et exstension. Both RC joints and small joints of the hands painful when palpated. On PIP joints, visible are deformitties –spindle –like thickenings, on DIP joints visible are Heberden nodes. Mobility of joints is painful and reduced, first is not formed of hands weakened. Plan of physical therappy and rehabilitacion comprised of kinesitherapy, thermoterapiy,electrotherapy, functional and occupational therapy and education of patients. Folowed were the parameters of subjective condition: pain,morning stiffness and parameters of clinical condition: scope of movements in joints – measured by anglometer and manual muscle test –test of grip of hand measured by pressure meter. Measurements were made in the beginning and end of the treatment. Evaluation of functional condition of the patient was followed by DREISER –s questionnaire.

Results. At discharge, the patient had the following subjective difficulties: intensity of pain was decreased, morning stiffnes was schorter. Clinical finding-scope of movements in joints was increased, strenght of hand grip improved which was schown also by evaluation of functional condition of the patient according to DREISER-s questionnaire.

Conclusions. In patients having Heberden arthrosis, besides use of physical agents in treatment, very significant is the education of patients aimed at slowdown of progression of disease and prevention of new deformities. It leads to improvement of quality of life of the patients.

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ORTHOPEDIC REHABILITATION OF ADULT PATIENTS WITH CEREBRAL PALSY

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Introduction. Although frequently addressed during pediatric rehabilitation care, different orthopedic problems still prevail in adults with Cerebral Palsy (CP) (1). Functional deterioration and high level of orthopedic injuries is noted in the aging adult with CP particularly those with abnormal movement patterns during ambulation (2). Orthopedic care and rehabilitation of those patients has not been well documented in the professional literature (3). The aim of the study was to determine the orthopedic problems experienced by adults with cerebral palsy (CP), which bring them to inpatient rehabilitation settings and to investigate the effectiveness of the rehabilitation treatment.

Materials and methods. For 7 years of the study 9 adult patients with CP were treated in orthopedic department of Loewenstein Hospital Rehabilitation Center (LHRC). All of them were admitted because of functional deterioration due to different compliances. Mean age of the patients was 36.4±13 (20 to 62) years. Length of stay (LOS), main reason of the hospitalization, level of ambulation before the functional deterioration and at discharge was registered.

Results. LOS was 30.7±19.3 days. The reason of admission in 4 patients (44.4%) was different orthopedic operations due to deterioration of ambulation level (1 total hip replacement, 1 wedge osteotomy, 2 muscle releases). 2 patients (22.2%) were injured at falls (hip fracture and brachial plexus injury). 2 patients (22.2%) reduced their ambulation level due to prolonged inactivity without any trauma or orthopedic intervention. One patient (11.1%) developed abscess after old ankle arthrodesis. All patients were ambulating independently with different aids through their adult life before the deterioration and all of them were on wheel chair at admission. In 8 patients (88.9%) independent ambulation was achieved till the discharge. All patients returned home after the inpatient rehabilitation period and continued treatment in appropriate community based settings.

Conclusions. Adults patients with CP can be admitted to orthopedic inpatient rehabilitation due to loss of ambulation ability as a result of different general and orthopedic compliances. The orthopedic inpatient rehabilitation can be very effective in this population and can rebuild the independent ambulation ability in most of them.

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THE CLINICAL AND DEMOGRAPHIC PARAMETERS ASSOCIATED WITH DEVELOPING POST-POLIO SYNDROME AMONG POLIO SURVIVORS IN JERUSALEM

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Introduction. High percentage of polio survivors goes on to develop post-polio syndrome (PPS). The extent and the influence of PPS on the quality of life of polio survivors as well as the parameters associated with the development of this syndrome in Israel are unknown. The objective of this study was to determine the medical, demographic, socioeconomic and psychological parameters associated with the development of PPS among polio survivors in Jerusalem.

Materials and methods. A prospective cohort study of polio patients attending the post-polio clinic in Hadassah Medical center in Jerusalem was conducted. Demographic, medical, social, and functional data were recorded using a particular questioner which was adjusted to the polio population. The existence of PPS was diagnosed according to the March and Dimes criteria while the severity of PPS had been determined using the index of PPS score (IPPS, Kalpakjian CZ *et al.* 2005).

Results. Among 200 polio patients screened, 114 (58.1%) were diagnosed as suffering from PPS among them 55 (48.3%) were women. Polio patients with PPS have significantly more difficulties in walking outdoor and indoor and in ADL functions (P=0.009, P=0.02, and P=0.027, respectively). Demographic and clinical parameters were identical between polio patients with or without PPS and the only significant risk factor to develop PPS was being single. The correlation between IPPS findings and the severity of PPS as well as the validation of IPPS among our population will be present.

Conclusions. The prevalence of PPS in our population was similar to other studies (Wekre L *et al.* 1998, Ivany B. *et al.* 1999) and lower than others (Takemura J *et al.* 2004). Polio survivors with PPS show significant difficulties in ambulation at home and work and in ADL function, in comparison with polio survivors without PPS and the general population. These findings promote the need for specific rehabilitation programs for Polio survivors in order to maintain their function and to prevent further deterioration due to PPS.

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EVALUATION OF PROBLEMS AND NEEDS OF SEVERE BRAIN INJURED PATIENTS' FAMILIES: A STUDY CARRIED OUT IN THE NORTH OF ITALY

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Introduction. In our study head injury is the most frequent cause of severe brain injury and it often affects young men who need many admissions to hospital, extended and special treatments. The main cause is due to road accident (75.8%), then 7.6% is represented by work accident; 1.5% is due to domestic accident and 4.5% is represented by sport accident and least 10.6% is due to other causes. Most of this patients need to find help in their family in order to continue rehabilitation and reintegration in daily life. "Associazione Genesis" and "La rete associazioni riunite per il trauma cranico" (United Associations for head injury handicap recovery) carried out research a study in the North of Italy in order to evaluate problems and needs of brain injured patients' families, their quality of life changed and how institutions intervened to help them.

Materials and methods. Thanks to "Associazione Genesis" and "La rete associazioni riunite per il trauma cranico" (United Associations for head injury handicap recovery) we contacted severly brain injured patients' families and we sent them a Family Questionnaire to collect patients data (gender, education, how injury occurred, level of injury, situation after discharge..) and family data (needs, supports, expenses, discomforts…).

Results. We sent 200 questionnaires and we collected 144. The majority of the participants showed that families are the most important care giver (95.8%) and only 4.2% go to hospices or continue to live alone. Care givers age is in the range from 66 to 80 years old: parents provide for children with severe brain injured. The participants considered land services inadequate (36.3%) or enough adequate (38%) and only 25,7% full adequate even if 62% of patients need 1 or more admissions to hospital also in relation to GOS (Glasgow Outcome Scale): the worst scores need many hospitalizations. Many of these patients need also special aid supports (such as wheelchairs…) but 65,5% had to buy them by themselves. Families feel discharge as an hard moment: uncertainty of relatives' future health condition, high costs for their rehabilitation and medical examinations and sensations of weakness make families worried, anxious, tired and angry. Their quality of life change: they have to sell properties or ask for a loan; their interpersonal relationships become very rare or rare (60.9%).

Conclusions. Analyzing collected data we can assert that despite many difficulties Italian families hold out, even if their social and quality of life change drastically. The majority of the participants never thought about their injured relative's death as a problem solution but they ask above all medical information, social and emotional support. We demonstrate that establishments can spend much efforts to help these families such as volunteers associations do.

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IL RUOLO DELLA CIMT NELLA RIABILITAZIONE DELLE CEREBRO LESIONI ACQUISITE

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Introduction. Le cerebro lesioni acquisite (GCA) rappresentano la principale causa di disabilità nei paesi occidentali e l'emiparesi è il deficit che maggiormente si manifesta. Dopo l'evento acuto esiste una riorganizzazione corticale per effetto di attività intensa ("use-dependant plasticity"), ma dell'80% dei pazienti sopravvissuti, una percentuale variabile tra il 30% ed il 60% non riacquista l'uso dell'arto superiore colpito. Tra le motivazioni addotte si ritiene il fenomeno del "*Learned non Use"* come elemento pregiudicante il recupero post-ictale, lì dove il danno risparmi una quota di movimento. Accade che ripetuti insuccessi nel tentativo di utilizzare l'arto colpito conducano il paziente a sopprimerne l'utilizzo. Vi è pertanto la necessità di guidare la riorganizzazione mediante uso pianificato dell'arto in attività finalistiche ("plasticity driving"). Tra i diversi protocolli studiati la Constraint-induced movement therapy (CIMT) ha guadagnato una popolarità considerevole come tecnica di trattamento per la riabilitazione dell'arto superiore affetto da paresi e si basa sull'immobilizzazione dell'arto non paretico mediante splint con l'obiettivo di incrementare la performance dell'arto lesionato mediante un concomitante training intensivo di tipo task-oriented. A differenza della maggior parte delle tecniche classiche di neuro riabilitazione largamente impiegate nella pratica clinica, la CIMT può essere considerata la più ampiamente studiata ed il nostro scopo è quello di verificarne l'efficacia e la riproducibilità all'interno della clinica "Quarenghi" di S. Pellegrino Terme utilizzando uno specifico protocollo redatto.

Materials and methods. Sono stati studiati 24 pazienti, 16 maschi ed 8 femmine di età compresa tra i 19 ed i 76 anni ricoverati presso la clinica "Quarenghi" per esiti di GCA. Di questi 12 erano affetti da esiti di ictus cerebri ischemico, 10 da esiti di trauma cranio encefalico e 2 presentavano esiti di lesione cerebrovascolare emorragica. 18 mostravano paresi lato sinistro e 6 lato

destro. Il tempo medio trascorso dall'evento era di circa 4 anni. I soggetti risultavano reclutati secondo i seguenti criteri:
- Presenza di motilità residua attiva all'arto superiore leso con almeno 20° di estensione di polso e di 10° di estensione delle dita;
- Punteggio<50 dell'Action Research Arm (ARA);
- Capacità di deambulare autonomamente senza ausilio di tripode;
- Assenza di afasie severe e punteggio MMSE>22/30;
- Assenza di importanti patologie internistiche associate.

I pazienti inizialmente sono stati sottoposti ad esame neurologico, valutazione delle abilità linguistiche e MMSE. Il trattamento è durato 4 settimane consecutive, 5 giorni alla settimana per 6 ore giornaliere secondo tecniche di shaping mantenendo l'arto immobilizzato l'arto sano con uno splint rimovibile solo per dormire, vestirsi, lavarsi. I trattamenti sono stati eseguiti dai terapisti operanti all'interno della struttura sotto la supervisione del medico fisiatra ed utilizzando oggetti d'uso comune (mollette per i panni, costruzioni tipo Lego, posate). Per la valutazione degli effetti sono stati utilizzati i seguenti test: Action Arm Test (ARA), Motricity Index, Funtional Independence Measurement (FIM), Motor Activity Log (MAL) in versione riadattata all'interno della clinica e per l'indagine statistica è stato utilizzato il test t di Student per dati appaiati.

Results. Alla fine del trattamento si è verificato un sensibile miglioramento nella capacità di utilizzo dell'arto superiore paretico rispetto all'inizio dello studio ed i risultati più rilevanti si sono verificati nella sezione qualità e quantità del test Motor Activity Log; meno rilevanti, ma comunque significativi anche gli out come della destrezza manuale (ARA) e l'indice di motricità.

Conclusions. Benché lo studio sia ancora in corso i risultati appaiono molto incoraggianti anche per quelli in cui l'intervallo temporale dall'evento lesivo risultava più lungo. Ciò conferma quanto già precedentemente presentato nei lavori di Van Der Lee *et al.* Tutti i pazienti trattati riceveranno un'intervista telefonica a distanza di un anno per valutare se i miglioramenti persistono.

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PRIMARY CONGENITAL LYMPHEDEMA: CASE REPORT

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Introduction. Primary Lymphedema (PL) is a rare and disabling condition, usually associated with abnormalities in the lymphatic system development during the latest stages of lymphangiogenesis, causing protein-rich interstitial volume overload. Complete Decongestive Therapy (CDT) is the current international standard of care for managing lymphedema, however in some particular cases, surgery may be indicated. The aim of this study is to report a case of PL and to highlight some specificity of the primary forms of lymphedema and its implications on the rehabilitation program and clinical response to treatment.

Materials and methods. We report a case of a 12 years old Portuguese boy with known obesity, who addressed to our outpatient with assymetric edema of the inferior limbs (edema grade II, without indentation to digitopression) with 11 and a half years of evolution, without any treatment. It was diagnosed Congenital Primary Lymphedema.

Results. After being admitted to our outpatient, he started Complete Decongestive treatment (CDT), with successful clinical response, despite the advanced stage of the edema. These primary forms of lymphedema are associated with relative lack of fibrosis while comparing with the secondary forms, which perhaps not only can lead to larger accumulation of lymphatic fluid, but also can direct better clinical response, even in later stages of the disease.

Conclusions. LP is a chronic and progressive condition; as a result, it is important to diagnose it at the earliest stage possible, as this is leads to more effective treatment. However, even in later stages, CDT can be effective, particularly in the primary forms of lymphedema.

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STIMOLAZIONE PERIFERICA DEL NERVO MEDIANO E MONITORAGGIO CON SCALA CRS-R IN PAZIENTI CON GRAVE CEREBROLESIONE ACQUISITA

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Introduction. Numerosi trattamenti farmacologici e modalità riabilitative sono state sperimentate per cercare di raggiungere il recupero di coscienza e consapevolezza in pazienti con Gravi Cerebrolesioni Acquisite (GCA): stimolazione spinale, stimolazione elettrica cerebrale profonda e superficiale, stimolazione magnetica, stimolazione sensitivo-sensoriale. Tra le varie modalità di attivazione sensoriale sperimentate, la stimolazione percutanea del nervo mediano suscita numerosi dibattiti in merito alla sua efficacia. Nel nostro studio abbiamo sottoposto a tale metodica 5 pazienti, con postumi di emorragia cerebrale, monitorando gli effetti a breve termine nel recupero di coscienza e consapevolezza utilizzando la scala Coma Recovery Scale-Revised.

Materials and methods. Sono stati selezionati tra i pazienti ricoverati nel 2012 come Gravi Cerebrolesione Acquisita (GCA) 15 soggetti con postumi di emorragia cerebrale, 7 sinistre, 8 destre. I pazienti sono assegnati in modo random al gruppo di controllo ed al gruppo sperimentale, mantenendo una distribuzione equa per quanto riguarda l'emisfero interessato dalla lesione. I soggetti assegnati al gruppo sperimentale hanno ricevuto una stimolazione sensoriale del nervo mediano bilaterale, due sequenze ogni lato. Il periodo di trattamento è stato di 4 settimane. I soggetti assegnati al gruppo di controllo sono stati sottoposti ad una stimolazione riabilitativa aspecifica. A tutti i pazienti è stata somministrata all'inizio del tempo di osservazione e ogni settimana la Coma Recovery Scale-Revised (CRS-R).

Results. Al termine del mese di osservazione, i valori raggiunti negli items della CRS-R dai Pazienti sottoposti a stimolazione del nervo mediano, erano superiori in confronto ai pazienti che hanno ricevuto una stimolazione riabilitativa aspecifica. In entrambi i gruppi c'è un incremento nel risultato della CRS-R, ma nel gruppo con stimolazione del nervo mediano, l'aumento appare più importante, sebbene non statisticamente significativo.

Conclusions. Nonostante lo scarso numero di soggetti dello studio, la stimolazione periferica del nervo mediano sembra favorire il recupero della coscienza e della comunicazione in pazienti con emorragie. Trattandosi inoltre di una metodica facile da usare, di basso costo, non invasiva, che si può attuare al letto del Paziente può essere suggerita come utile modalità riabilitativa.

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PERSONA CON DISABILITÀ: UN PROGETTO RIABILITATIVO INCOMPIUTO?

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Introduction. Il modello biopsicosociale pone al centro del sistema il cittadino con disabilità ed il suo contesto globale nella prospettiva del miglior governo clinico da attuare attraverso la corretta individuazione e misura degli outcomes. L'utilizzo di tale modello permette ai professionisti del SSN di individuare un equilibrio tra la qualità delle cure per gli utenti e le esigenze finanziario-amministrative. È necessario, però, definire il "percorso" per rendere l'obiettivo praticabile nella realtà del nostro operare quotidiano, con il supporto delle evidenze scientifiche.

Materials and methods. La condivisione di casi clinici tra professionisti della riabilitazione di strutture territoriali di due ASL, ha fatto emergere le criticità presenti nella presa in carico riabilitativa e nei percorsi individuali di persone con disabilità afferenti alle due diverse strutture. Sono stati analizzati i fattori barriera che non permettevano di ridurre la disabilità e i fattori facilitatori che permettevano di migliorare il funzionamento delle persone e di rendere realizzabile il loro Progetto di Autonomia e di Qualità della vita. Le strategie operative utilizzate dai professionisti della riabilitazione delle due strutture, alla luce delle criticità riscontrate, per migliorare l'outcome della persona con disabilità sono state diverse perché diverse le esperienze professionali degli operatori, le storie ed i contesti delle due strutture.

Results. Il "pensare in ICF" ha avuto un impatto positivo sull'elaborazione del Progetto Riabilitativo Individuale da parte dei due team interprofessionali riabilitativi. In particolare un'attenta analisi dei fattori ambientali (facilitatori

e barriere) ha permesso di lavorare sul miglioramento delle performances della persona con disabilità, riducendo i tempi di presa in carico e quindi i costi dell'intervento riabilitativo, con soddisfazione sia degli operatori che dei soggetti trattati e della famiglia.

Conclusions. Nonostante la passione, la competenza e l'impegno profuso dai professionisti della riabilitazione nel loro lavoro quotidiano, persistono numerose criticità. Per migliorare ulteriormente l'Appropriatezza clinica ed economica del Percorso riabilitativo, si rendono necessari la formazione al "pensare in ICF" di tutti gli operatori della riabilitazione, l'informatizzazione per il passaggio dal "pensare in ICF" al "codificare in ICF", la collaborazione con l'Ufficio Epidemiologia e Statistica, il coinvolgimento delle Direzioni Aziendali e della Regione per l'integrazione nelle attuali piante organiche di figure professionali non presenti, ma indispensabili per la realizzazione del Progetto riabilitativo individuale (terapista occupazionale, infermiere della riabilitazione, tecnico ortopedico).

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BMD OF SPINE IN THE PATIENTS WITH FRACTURE OF THE FEMORAL NECK

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Introduction. There are numerous hip fracture risks. Bone mineral density (BMD) measured by dual-energy X-ray absorptiometry (DXA) is the main determinant of the clinical evaluation of hip fracture risk. The aim of this study was to determine BMD of spine in the patients with osteoporosis with and without fracture of the femoral neck and to estimate if the BMD of spine is a potential predictor of the fracture in these patients.

Materials and methods. This study included 136 of the patients (126 female and 10 male), average age of the 65,7±8,9 years (range of 44.1 to 87.3 years). The first group of patients included 36 of the patients with osteoporosis and with fracture of the femoral neck. All patients in this group were managed operativelly by hip arthroplasty, after clinical and radiological diagnostic procedures. DXA measurement was performed on Advanced Prodigy Lunar device for these patient postoperatively. Age, sex, hight, weight, BMI and BMD of the spine at the level of L1-L4 were estimated. The control group included 100 of the patients with osteoporosis (93 female and 7 male), average age of the 65.1±8,5 years (range of 44.1 to 87.3 years). Student´s t-test and Logistic regression were used for statistical analysis. Dependent variable was presence of the fracture of the femoral neck and indipendent variables were age, sex, BMI and BMD of the spine at the level of L1-L4.

Results. Of our study showed statistically significant difference between BMD of the spine in patients with fracture of the femoral neck and in the control group of the patients with osteoporosis without fracture ($t=1.94$, $p<0.05$). BMD of the spine at the level of L1-L4 was significant predictor of fracture of the femoral neck ($p<0,01$) when was controled by age, sex and BMI.

Conclusions. BMD of the spine was statisticaly significantly higher in patients with fracture of the femoral neck than in patients with osteoporosis without fracture. BMD of the lumbar spine was significant predictor of fracture of the femoral neck. Probability of femur neck fractures increased with the increase of BMD of lumbar spine in patients with osteoporosis. These results can help in predicting femur neck fractures.

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MIRROR THERAPY IN NEGLECT REHABILITATION: THEORETICAL BACKGROUND AND PRELIMINARY DATA

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Introduction. It is well know that Mirror Therapy exploits the mirror neurons system activation, trying to lead the nervous system plasticity. In the last few years some studies have suggested that not only movement but also imaging and observing movement could stimulate motor circuit and improve motor recovery of unimpaired limb. In stroke patients this technique involves performing movements of the unimpaired limb while watching its mirror reflection superimposed over the unseen impaired limb, thus creating a visual illusion of the impaired limb. It remains unclear which cognitive symptoms can be improved with Mirror Therapy.

Materials and methods. In our hypothesis this technique can be a promising method to improve spatial neglect, viewing mirror reflection of the moving hand and improving visual spatial research. We present some experimental clinical cases treated with the mirror therapy and with neuropsychological treatment.

Results. Their performance were compared with those of patients treated with just neuropsychological treatment. All patients were identified with visuospatial neglect and they were followed up for two months with monthly clinical and neuropsychological testing.

Conclusions. Our preliminary data can suggest new therapeutic rehabilitation treatment for spatial neglect.

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VALUTAZIONE DELLA FATICA MUSCOLARE ATTRAVERSO LA GAIT ANALYSIS SU TREADMILL IN PAZIENTI SOTTOPOSTE A RADIOTERAPIA PER CARCINOMA MAMMARIO: CASISTICA CLINICA E CONSIDERAZIONI RIABILITATIVE

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Introduzione. La Cancer related fatigue rappresenta un persistente e soggettivo senso di stanchezza correlato alla patologia neoplastica e alle relative terapie, non proporzionale al livello di attività svolta, che interferisce significativamente con le normali funzioni quotidiane. È una condizione complessa che include aspetti psicologici, sociali e biologici, tra cui un alterato metabolismo muscolare. Questo studio si propone di valutare la fatigue in pazienti affette da carcinoma mammario attraverso scale di valutazione soggettive e, contemporaneamente, di analizzare le modificazioni dell'attività muscolare in condizioni di fatica attraverso la Gait Analysis prima e dopo il trattamento, al fine di valutare il ruolo svolto dalla fatica muscolare nell'insorgenza e nella percezione della CRF.

Materiali e metodi. Lo studio include 6 pazienti tra i 49 e i 63 anni, affette da carcinoma mammario in stadio I-IIa, trattate con protocollo QUART(quadrantectomia+ RT). Ogni paziente è stata sottoposta, prima e dopo la radioterapia, ad una Gait analysis in condizioni di fatica, ossia cammino su treadmill per 30′ (6 acquisizioni di 5′) ad una velocità di 4 km/h ed una pendenza del 2%. In ogni esame sono stati analizzati elettromiograficamente i muscoli tibiale anteriore, gastrocnemio, retto e bicipite femorale bilateralmente per un totale di 576 valutazioni. Per ogni muscolo sono state esaminate le strategie di attivazione muscolare in condizione di fatica mediante la valutazione del numero e del timing delle contrazioni muscolari, e i segni elettromiografici di fatica attraverso la rappresentazione grafica della frequenza media dello spettro di potenza di ogni muscolo, considerando come segno di fatica un decremento

del coefficiente angolare della retta di almeno il 2%. In ogni incontro sono state inoltre somministrate 3 scale di valutazione soggettiva della fatigue: VAS, BFI e FACT-B.

Risultati. Il muscolo tibiale anteriore presenta con maggior frequenza modificazioni fatica-indotte: maggior numero di anticipazioni della contrazione muscolare nel tempo ed un più evidente shift del segnale elettromiografico verso le basse frequenze, (ruolo predominante del piede nelle strategie di compenso dell'arto inferiore alla fatica). Al termine del trattamento si nota un timing di attivazione muscolare prevalentemente anticipatorio dei muscoli distali del lato dominante e di quelli prossimali del lato non dominante. Lievi segni elettromiografici di fatica sono stati invece riscontrati quasi esclusivamente a carico del lato non dominante, lato normalmente meno allenato e con un potenziale di forza inferiore. Confrontando il timing di attivazione muscolare con lo spettro di frequenza, si nota come la strategia anticipatoria della contrazione si manifesti prevalentemente nei muscoli che non presentano segni elettromiografici di fatica: l'anticipazione potrebbe rappresentare un meccanismo di compenso all'affaticabilità dei muscoli dell'arto inferiore sia omo che controlaterali. La valutazione soggettiva della fatigue attraverso le scale VAS e BFI non mostra variazioni significative dopo radioterapia. Una diminuzione del punteggio si riscontra solo nella FACT-B, indice globale della qualità di vita delle pazienti e non una stima specifica della percezione di fatica.

Conclusioni. Questi risultati, da approfondire attraverso ulteriori studi, mostrano alcune caratteristiche riguardanti l'attività muscolare degli arti inferiori in condizioni di fatica indotta dal cammino su treadmill: prevalenza bilaterale del muscolo TA e contrazione anticipatoria dei muscoli "non affaticati" come meccanismo di compenso. Sia le modificazioni delle strategie di attivazione muscolare che i segni elettromiografici di fatica dopo la radioterapia hanno però un'entità tale da non poter essere considerate specifiche e significativamente diverse rispetto ai dati ottenuti prima del trattamento, in accordo con i risultati delle scale di valutazione che non mostrano variazioni nella percezione soggettiva della fatigue dopo il trattamento.

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CLINICAL AND INSTRUMENTAL ANALYSIS OF CASES OF SUSPECT IDIOPHATIC PISA SYNDROME

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Introduction. The Pisa syndrome is a dystonia characterized by flexion of the trunk to one side and by its rotation and maintenance of a posture tilted sideways. It has been associated with the use of antipsychotics. However, it has also been reported, although less frequently, in patients who are receiving other medications, in those not receiving medication (idiopathic Pisa syndrome) and in those with neurodegenerative disorders. Pisa syndrome is characterized by an adult-onset, segmental truncal dystonia in patients with no previous exposure to antipsychotics. The anatomical and neurochemical bases for idiopathic dystonia are currently unknown [1]. As mentioned by several authors, the prevalence of idiopathic dystonia is underestimated, due to variations in expression or misdiagnosis, and mild cases may never be identified because some affected individuals do not seek medical attention [2]. The aim of our study is the recruitment and reporting of cases of suspect idiopathic dystonia in very old people.

Materials and methods. A study protocol is administered to those cases of elderly patients characterized by suspect segmental truncal dystonia recruited from our Movement Analysis Laboratory. Exclusion criteria are: Parkinson's disease, intake of neuroleptics, neurological diseases, osteoporosis with rachis deformity, labyrinth syndromes, scoliotic deviation greater than 20°, serious rheumoarthropathies, heterometry of the lower limbs. The study protocol includes the following clinical tests: CIRS (Cumulative Ilness Rating Scale), Clarkson Testing, Tinetti Scale, V.A.S (pain evaluation), ADL (Barthel Index), IADL (Instrumental Activities of Daily Living),Walking Test, Standing Test, MMSE Short form, ICF Brief Minimal Generic Set, SF 12 Standard V1, ISEL Questionnaire. Instrumental analysis includes kinematic, kinetic and surface electromyographic analysis during standing (in open and closed eyes conditions), straight walking, and during the execution of the Functional Reach test. Six-camera SMART-D optoelectronic system (BTS), FREEEMG (BTS), 2 Kistler platforms and a Gait-rite system are used.

Results. Refer to a case study of a 80 years old woman, affected by suspect idiopathic Pisa syndrome but in good health status. MMSE= 10/10; BMI= 29; CIRS 1/52; ICF 4/28. Barthel Index 95/100; Tinetti balance 16/16; Tinetti walking 12/12. The deambulation functional index (FAP) was 96/100 (average value on 5 tests). The evaluation of the trunk on frontal plane shows a shift to the left of 2.5 cm between C7 and the buttock line. The patient feels no pain. Kinematic, kinetic, and surface electromyographic data are still under examination but preliminary results show reduced gait speed and reaching distance, longer stance phase and shorter steps, augmented pelvic tilt and hip flexion with enhanced hip flexion extension moment. Posturographic data seems normal though the mean center-of-pressure (COP) position is moved 8.3 cm forward w.r.t. ankle joints, towards the II metatarsal head. Moreover, the COP tends to be placed more symmetrically w.r.t. the two feet during the test in eyes closed condition.

Conclusions. The patient shows a considerable trunk shift. All clinical functional assessments seem good, given the old age. Clinical walking parameters are within normal limits, and whole body flexibility is apparently good. However, preliminary instrumental results show alterations at the functional level of the patient. This case study and those that will be examined in our laboratory, are expected to give additional information about this form of postural anomaly of the trunk and its impact on old people.

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EFFECTIVENESS OF CONSERATIVE REHABILITATION PROJECT, COMBINING BRACE AND EXERCISE, FOR ADOLESCENT IDIOPATHIC SCOLIOSIS

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Introduction. To date, one of goal strategies for patient with Adolescent Idiopathic Scoliosis (AIS), during young age, is to avoid or to delay as possible the invasive treatments through the use of brace and/or specific physiotherapy exercises. The literature is controversial, especially because of high variability of results and methodologies used. In recent years, the SRS and SOSORT proposed the methodological reference framework by which to select the study population and evaluate results. For many years in our rehabilitation center we have been offering a treatment protocol including brace and exercises respecting SOSORT criteria. The purpose of this study is to verify the effectiveness of the conservative treatment used in this center through the methodological and management criteria proposed in the literature.

Materials and methods. Were created a retrospective database on the basis of medical examinations. Were selected medical records of 843 patients diagnosed of spinal disorders. We considered eligible patients who completed the rehabilitation program and satisfied the SRS criteria: diagnosis of AIS, age 10 years or older, Risser test 0-2, Cobb degrees 25°- 40°, no prior treatment, start of treatment less than one year post-menarchal. Rehabilitation project consist in the packaging type of brace (Milwaukee-Boston, Chenau modified, Lapadula-Boston) and the physical therapy program for the period of preparation, during and removing brace, according individual need on basis a standard protocol. Outcome measure were on basis of SRS (unchanged, worsened 6° or more, over 45° at the end of treatment, surgically treated), ISICO (optimal, minimal) and clinical criteria (rib hump, plumb line distance). Statistics analysis were conducted in whole sample and in subgroups created on basis of type of curves, magnitude of curves, skeletal maturity.

Results. Final sample is compose of 39 patients, 7 males and 32 females with an average of Cobb degrees 31,5° and 33° and 31,1° respectively. Start treatment age was 13,3 and average duration was 3,2 years. Nobody progressed over 45° or fused. According to SRS criteria 3 patients (7,7%) worsened more than 6° Cobb, while in 93,3 % the progression was stopped or regress. Best results had for toracic curves and for 30°-35° subgroup respectively reducing 8,1° and 10,1°. According ISICO outcome in 25°-30° subgroup composed of 18 patients 8 had optimal result, 5 minimal and 5 worsened; in 30°-40°subgroup composed of 21 patients 13 had optimal result and 8 minimal. Mean rib hump were reduced from 15,5 mm to 7,4 mm and only 2 patients had a plumb line distance more than 2 mm at the end of rehabilitation project.

Conclusions. Respecting SRS criteria the rehabilitation project, combining brace and exercise, was effective in stabilizing and to reduce natural progression of AIS.

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NEUROREHABILITATION (COST BENEFIT ANALYSIS)

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Introduction. Although the main problem in fact is pathophysiological, the great amount of brain plasticity and capability for functional reorganisation, allow us, to modify abnormal musculosceletal motor, such as, the other brain functional shemas and to stabilise motor control at the level that exerts volitional movements.

Materials and methods. In evocing therapeutic benefits we tried with various currative methods, predominantly PNF kinesiotherapy and electrotherapy (TENS+FES), to stimulate patients motor control to be exerted on higher level, which expresses on their functional capabilities, on few phases:1. Hand skills,2. Locomotion,3. Selfcare, 4. Socialisation,5. Individuality.All phases can be monitored by some measuring instrument, such as:Ashwort scale,Fugl-Meyer scale and FIM Index.

Results. According experience in our institution we prefere, in situations of reaching plato in the brain lesions recovery, implementation of aditional therapeutic procedures such as: cooling muscles,PNF kinesiotherapy and electroneurolysis. We managed to reintegrate patients in environment,e.g. to help them to become efecttive, efficient in social stuffs and economically independent.

Conclusions. It's evidently, that management of ICV and TBI patients, in estimated seria, needs improvement, somewhat due to acceleration of adopting them to rehabilitation centers, somewhat, in attemption of optimising rehabilitation goals. According demands for individual benefits, one may resume, that summe of material or direct, also as indirect savings, in neurorehabilitation, estimated by this analytic method was evident. According this results, recovalescents,more then ever, obtained selfindependency. Meanwhile, many of them reach and an working ability, which means, not only, that thay continue to earning enough money for them, but at amount that allow to invest in health policy and social society funds, equal as the other workers.

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NEURORERHABILITATION (COST-BENEFIT ANALLYSIS)

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REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION FOR SPASTICITY TREATMENT OF MULTIPLE SCLEROSIS PATIENTS. PRELIMINARY DATA

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Introduction. Multiple sclerosis (MS) is the third cause of moderate to severe disability in patients aged 20 to 50 years. Spasticity is the most common of the many symptoms, with a prevalence of 84%. MS shows a characteristic pattern with flexor muscle involvement in the upper limbs and extensor muscle involvement in the lower limbs. This affects both gait pattern and limb ability, and subsequently patient quality of life. So, many scales have been proposed for spasticity measurement, either directly or indirectly, through MS clinical and/or functional implications. Repetitive Transcranial Magnetic Stimulation (rTMS) is a noninvasive technique for cortical excitability modulation of the motor area of the affected leg, by inducing remote effects on the excitability of the spinal circuits. Intermittent Theta Burst (iTBS) is a short-time, safe stimulation protocol that can also be used a therapy. The aim of this study is to analyze the therapeutic effect of iTBS-rTMS on lower limb spasticity through clinical parameters in patients with MS refractory to other treatments.

Materials and methods. We present preliminary data from the first 8 (3 experimental, 5 placebo) patients who took part in a clinical trial experimental study performed in our hospital. Treatment protocol: 10 iTBS-rTMS sessions applied on the motor cortex contralateral to the worst-affected spastic lower limb for two weeks.

Results. Are presented through both direct (Modified Ashworth Scale, MAS) and indirect (Penn Scale; analysis of foot sole and time required for an 8 meter walk, taken from the Hauser index) clinical parameters. Data are compared pretreatment, upon completion of all 10 TMS sessions and two weeks later, in order to examine effect persistence over time.

Results. These are the results obtained from the three treated patients: as for foot sole support, one showed improvement by going from plantigrade to heel-toe walk at the end of the treatment and two weeks later; the remaining two did not change. Parameters on the Modified Ashworth Scale improved in all three patients and persisted two weeks later (in two out of the three muscle groups analyzed). Parameters on the Penn Spasm Scale improved in two patients, but the effect did not persist. Gait speed improved in all three patients, both upon treatment completion and two weeks later.

Conclusions. No statistically significant differences were found between placebo and experimental groups in the analyzed parameters. At present, the data are inconclusive given the small number of patients analyzed.

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FASCIOSCAPULOHUMERAL DYSTROPHY. A FOUR-CASE REVIEW

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Introduction. Facioscapulohumeral Dystrophy (FSHD) is a progressive, autosomal dominant (4q35), inherited form of muscle degeneration. However, there are cases reported which are the result of new mutations. FSHD prevalence is 1 case in 20,000 persons. The usual presentation is in the second decade, with significant variability: facial asymmetry, shoulder girdle weakness, steppage gait, hyperlordosis, pelvic tilt and abdominal protrusion. Asymmetric involvement of affected musculature is highly characteristic of FSHD. Diagnosis is mainly clinical. However, studies such as EMG, muscle biopsy or genetic testing allow definitive diagnosis. There is no drug treatment for symptom improvement or progression delay. Kinesitherapy- and orthotics-based rehabilitation treatment is the mainstay therapy. In some cases, patients undergo surgery for scapular fixation.

Materials and methods. We present four FSHD cases, recently evaluated in our department. Case 1: 29-year-old female. Inherited FSHD. Diagnosed at 10 through genetic testing. Symptom onset at 12: limited motion in both shoulders. Subsequent progressive gait disturbance (steppage). Case 2: 20-year-old female. De novo FSHD. Diagnosed at 16 through genetic testing. Symptom onset at 14: bilateral facial paresis, limited motion in both shoulders and kyphoscoliosis. Subsequent difficulty to get up from sitting, gait disturbance and marked hyperlordosis. Case 3: 35-year-old female. De novo FSHD. Diagnosed at 34 through genetic testing. Uncertain onset. Progressive clinical deterioration for the last 7 years: gait disturbance and right shoulder weakness. Subsequent bilateral facial and scapular weakness. Case 4: 68-year-old male. De novo FSHD. Clinical diagnosis (pending confirmation though genetic testing). Symptom onset at 66: bilateral shoulder girdle amyotrophy and gait disturbance (steppage and marked hyperlordosis). Subsequent mild left facial weakness. From these cases, we present a review of the rehabilitation treatment for the disease, based on a literature review of the last 10 years.

Results. We present an updated view of FSHD rehabilitation treatment, based initially on kinesitherapy for both muscle balance and joint range maintenance, as well as on facial expression exercises. We stress the importance of hydrokinesitherapy in our experience as a good alternative to prevent muscle muscle fatigue. We believe orthotic treatment to be key for gait pattern correction, by using ankle-foot orthosis for flaccid-foot drop correction. Torso orthosis for hyperlordosis and kyphoscoliosis correction did not prove useful in our patients due to center of mass displacement. Indications for scapular fixation are also reviewed.

Conclusions. We stress the importance of symptom onset variability, since symptoms may not match the disease name, which may lead to delayed diagnosis in many cases. We also stress the importance of rehabilitation as the cornerstone for patient treatment.

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AFASIA FLUENTE CROCIATA E NEGLET DA LESIONE EMISFERICA DESTRA

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Introduction. la classica definizione di Afasia Crociata (CA) è un disturbo acquisito del linguaggio causato da un danno dell'emisfero destro in pazienti destrimani (1-2 % di frequenza). Il neglect unilaterale è un disordine neurologico caratterizzato da una difficoltà attentiva di orientamento verso gli stimoli dello spazio controlesionale. Il caso riportato presenta una concomitanza delle due sindromi, in paziente con lesione emisferica destra.

Materials and methods. il Signor AP (65 anni, destrimane) giunge alla nostra osservazione agli inizi del 2011, colpito da ictus ischemico, trattato con trombolisi sistemica. Il paziente presentava come fattore di rischio: ipertensione arteriosa e stenosi carotidea destra di circa il 50 % riscontrato all'ecodoppler effettuato durante la degenza. Alla RMN in acuto si evidenzia "vasta alterazione di segnale cortico-sottocorticale a livello temporo-fronto-parietale destro in lesione ischemica con screzio ematico; edema perilesionale a cui si associa impegno sottocorticale multifocale nucleo capsulare con particolare della testa del nucleo caudato omeolaterale". Non emergono quindi elementi riconducibili a quadro di deterioramento cognitivo. Dall'evento il paziente residuava una compresenza di afasia fluente, eminegligenza spaziale unilaterale con elementi di emisomatognosia sinistra ed emisindrome sinistra. A seguito della valutazione iniziale, il paziente ha seguito un programma riabilitativo cognitivo e fisioterapico in regime residenziale e semiresidenziale per tre mesi, ed ha eseguito follow-up alla dimissione. L'evoluzione dell'afasia durante il primo mese è stata monitorata attraverso "Esame del linguaggio al letto del malato" ed approfondita in seguito con "Esame del linguaggio-II"; le difficoltà di esplorazione spaziale sono state indagate tramite la batteria B.I.T. Il paziente ha seguito programmi di trattamento specifico:

– del linguaggio mirato al recupero lessicale e della lettura-scrittura con modalità segmentale;
– del neglect mirato al miglioramento della consapevolezza ed alla strutturazione di strategie di compenso automatiche e volontarie per l'esplorazione spaziale.

Results. Il Signor AP (65 anni, destrimane) giunge alla nostra osservazione agli inizi del 2011, colpito da ictus ischemico, trattato con trombolisi sistemica. Il paziente presentava come fattore di rischio: ipertensione arteriosa e stenosi carotidea destra di circa il 50 % riscontrato all'ecodoppler effettuato durante la degenza. Alla RMN in acuto si evidenzia "vasta alterazione di segnale cortico-sottocorticale a livello temporo-fronto-parietale destro in lesione ischemica con screzio ematico; edema perilesionale a cui si associa impegno sottocorticale multifocale nucleo capsulare con particolare della testa del nucleo caudato omeolaterale". Non emergono quindi elementi riconducibili a quadro di deterioramento cognitivo. Dall'evento il paziente residuava una compresenza di afasia fluente, eminegligenza spaziale unilaterale con elementi di emisomatognosia sinistra ed emisindrome sinistra. A seguito della valutazione iniziale, il paziente ha seguito un programma riabilitativo cognitivo e fisioterapico in regime residenziale e semiresidenziale per tre mesi, ed ha eseguito follow-up alla dimissione. L'evoluzione dell'afasia durante il primo mese è stata monitorata attraverso "Esame del linguaggio al letto del malato" ed approfondita in seguito con "Esame del linguaggio-II"; le difficoltà di esplorazione spaziale sono state indagate tramite la batteria B.I.T. Il paziente ha seguito programmi di trattamento specifico:

– del linguaggio mirato al recupero lessicale e della lettura-scrittura con modalità segmentale;
– del neglect mirato al miglioramento della consapevolezza ed alla strutturazione di strategie di compenso automatiche e volontarie per l'esplorazione spaziale.

Conclusions. il caso riportato aggiunge conferma alle rare evidenze riportate in letteratura di lateralizzazione del linguaggio, manualità, abilità visuo-spaziali, in paziente afasico con danno emisferico destro.

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QUALITY OF LIFE OF PATIENTS OPERATED ON DUE TO ANEURYSMIC DISEASE OF POPLITEAL ARTERY

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Introduction. Timely diagnosis and treatment of aneurysm of popliteal artery prevent complications, which not seldom results in irreversible ischemia of a foot and lower leg, when the only thing possible to do is the leg amputation. Even when urgent surgical treatment of a complicated popliteal aneurysm is successfully finished, the recovery is extended and the quality of life is disrupted.

Materials and methods. At the Clinic for Vascular and Endovascular Surgery of the Clinical Center of Serbia (CCS), in the period from 2000 – 2007, a survey was conducted in this area as a panel study. In the survey, 132 patients participated - 38 operated on urgently, and 94 of them electively. The quality of life of the operated on patients was assessed using the questionnaire SF-36 immediately after the surgery and a year later.

Results. The lowest values in the scores for the quality of life were registered in the domains: „Disability due to physical functioning" and „Pain". The possibility of physical functioning significantly correlated with the age of the respondents. Existence of acute ischemia prior to the surgery was correlated with poorer scores of the quality of life. The encouraging indicator was the increase of scores in all the domains a year after the surgery.

Conclusions. A significantly better quality of life of the patients operated on electively compared to those operated on urgently, which was established in the course of this survey, corroborates the results of the studies that deal with immediate and remote surgical outcome of popliteal aneurysm treatment. A timely diagnosis and timely surgery are definitely the factors of key importance for a satisfactory immediate and long-term effect of the surgical treatment of this disease.

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STROKE IN THE YOUNG PATIENT – REHABILITATION APPROACH

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Introduction. Intracerebral hemorrhage (ICH) accounts for nearly 10% of strokes and though its main cause is hypertension there are many nonhypertensive causes. The stroke, including the ICH, is much more common in the eldery but it may also occur in the young patient, normally related to other co-morbidities like vascular malformations. A comprehensive multidisciplinary inpatient rehabilitation program is often appropriate for individuals with moderate to severe stroke. The evaluation by a Physical Medicine and Rehabilitation expert is recommended within 24 to 48 hours after the clinical stabilization of the patient, which emphasizes the importance of an early rehabilitation. The rehabilitation plan needs to be customized on the basis of the severity and nature of the impairments caused by the stroke.

Materials and methods. We pretend to describe the rehabilitation plan of a 24 year old male, who had suffered a severe ICH due to a cavernous angioma with developmental venous anomalities. The rehabilitation plan included physiotherapy, occupational therapy and speech therapy while providing, when possible according to the best evidence based medicine, a timeline for the execution of the different neurophysiologic therapies.

Results. The patient improved significantly his neuromuscular condition after an inpatient rehabilitation plan of nearly two months. He is now independent in daily life activities without any functional limitations as ascertained by the highest possible scores in the Functional Independence Measure and Barthel scale.

Conclusions. Although the excelent outcome was not suggested by the initial magnitude of the problem, both the quality of the rehabilitation process and the young age of the patient had obviously favourly induced the full functional recovery. It is dificcult to find strong evidence in the literature for the best particular approach among all the neurophysiologic therapies available. It seems that the combination of different rehabilitation strategies seems to be the most effective.

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EFFECTIVENESS OF THE CLINICAL FEATURES THAT DISTINGUISH BETWEEN AN UPPER AND LOWER MOTOR NEURON LESION - ITS IMPLICATIONS ON THE REHABILITATION PLAN.

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Introduction. The clinical signs and symptoms that make the distinction between an upper motor neuron lesion (UMN) and a lower motor neuron (LMN) lesion are ubiquitous. The classical signs of an UMN lesion are spastic paralysis, hyperreflexia (elicited by muscle stretch reflex), no significant muscle atrophy, no fasciculations or fibrillations and the presence of pathological reflexes. On the other hand, the signs and symptoms of LMN lesion include flaccid paralysis among others that are generally depicted as being the opposite of an UMN lesion. It is described that localized traumatic lesions to the spinal cord may evoke LMN signs due to damage of the anterior horn cells of the specific spinal cord segment affected. Also, some clinical features that help make the distinction between an UMN lesion and a LMN lesion may not be so well delimited when there is an UMN lesion within the descending motor pathways in the spinal cord.

Materials and methods. We describe a clinical case of a 66 year old male who has recently been admitted for inpatient treatment under the suspicion of spondylodiscitis at the cervical level. Having also a previous suspected left brachial plexus lesion and a diagnosed atlantoaxial subluxation related to its long date and mistreated rheumatoid arthritis. The most evident neurological sign was the muscular weakness of the left upper limb. This could be related to an UMN, a LMN lesion or both. We intend to review how well the clinical signs and symptoms of an UMN or LMN lesion correlate with the specific neurological lesion of the motor neuron pathway residing between the first segment of the spinal cord and the muscle. The search was made in the main medical search engines for systematic reviews and randomized controlled trials. We also pretend to describe the specific adaptations needed for the rehabilitation plan.

Results. The clinical signs used for clinical differential diagnosis between an UMN traumatic lesion that occurred in the descending motor pathways in the spinal cord (i.e., caudal to the medulla oblongata) and a LMN lesion may be absent or dubious causing diagnostic uncertainty.

Conclusions. It is important to make the distinction between an UMN and a LMN lesion since it may have important implications for the rehabilitation approach and so have a positive impact on the functional outcome. Most of the times it is possible to make the distinction relying solely on the clinical examination but specific neurodiagnostic tests may be used as deemed appropriate.

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DISABILITY EVALUATION IN LOW CONSCIOUSNESS STATE PATIENTS: VALIDATED ASSESSMENT TOOLS AND ICF

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Introduction. In the post-acute phase after an Acquired Brain Injury (ABI) the rating scales of functioning are useful to plan the rehabilitation program and to plan an appropriate long term medical and social support. Two assessment tools widely used for the evaluation of disability in patients in vegetative (VS) and minimally conscious state (MCS) are the disability rating scale (DRS) and the Extended Glasgow Outcome Scale (GOS-E). However, the International Classification of functioning (ICF) is currently the comprehensive tool to assess the complexity of people's needs and describes in detail the limitations of functioning and environmental factors related to a health condition. The main objective of this study was to evaluate the knowledge on disability provided by some of the outcomes scales' in comparison with the contents from an ICF based tool in vegetative or minimally conscious state patients after acquired brain injury.

Materials and methods. We performed a review of the literature to relate the concepts contained in the items of the DRS and GOS-E scales with the second-level ICF categories. These scales were applied by an operator and a second researcher, blinded to the results obtained from the first, carried out an ICF based assessment of the functioning profile of the same patients. Persons in VS and MCS were evaluated at admission and discharge time from our intensive rehabilitation unit. We performed a preliminary analysis of the relations between the results of the outcome scales and the functioning profile from an ICF tool.

Results. Our results show that ICF is adequate to describe the contents of the outcome scales analyzed. The results on disability obtained by different operators at admission and at discharge are comparable. The ICF functioning profile is sensitive to scores variations obtained with the rating scales commonly used.

Conclusions. It's now clear that clinicians, researchers, and social and health policy makers would benefit from such assessment tools that are reliable, reproducible, easy to use and sensitive for the detection of alterations

of the' balance between the person after ABI and the environment. The ICF adequately cover the items of the compared tools and has proven to be not only flexible and adapted to monitor the outcome in ABI patients but also able to provide more comprehensive evaluation by adding the interaction with the environment.

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EFFETTI DEL PRECOCE COINVOLGIMENTO DEL CARE GIVER NEL PROGETTO RIABILITATIVO

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Introduction. Le persone affette da esiti di patologia cerebrale acquisita sono al centro dell' intervento nei reparti di neuro-riabilitazione poiché presentano bisogni riabilitativi specifici che devono essere presi in carico da un team multidisciplinare all'interno del quale siano coinvolti anche i caregiver. L'obiettivo di tale studio è valutare se il percorso post-dimissione dal reparto di riabilitazione intensiva è influenzato oltre che dal quadro funzionale e dalla disabilità residua anche dal coinvolgimento precoce dei familiari nei compiti di cura della persona con esiti di GCA.

Materials and methods. Sono stati inclusi nello studio i pazienti afferenti all' U.O. di Neuroriabilitazione della Fondazione Maugeri di Pavia dal gennaio 2011 a giugno 2012. È stato monitorato il percorso riabilitativo durante la degenza e dopo la dimissione con registrazione della Glasgow Coma Scale in acuto e sono state somministrate le seguenti scale standardizzate all'ingresso e alla dimissione: FIM, DRS. A tutti i parenti dei pazienti è stata offerta la possibilità di seguire un percorso di educazione sanitaria e di afferire al reparto al di fuori degli orari di visita per sperimentare un modello di ospedale aperto, favorire la consapevolezza della disabilità del loro congiunto ed incentivare il rientro al domicilio. I dati sono stati sottoposti ad analisi statistica per ricercare eventuali correlazioni significative.

Results. Da una prima analisi si osserva che una percentuale elevata di pazienti con parenti coinvolti precocemente nella presa in carico è rientrata al domicilio indipendentemente dal quadro funzionale e solo una minoranza ha proseguito il proprio percorso presso una struttura residenziale assistenziale. Saranno presentati i risultati dell'analisi della correlazione esistente tra il quadro clinico e funzionale attraverso le scale standardizzate ricordate in precedenza, la presenza di precoce coinvolgimento del caregiver nelle cure del paziente ed il percorso successivo alla dimissione.

Conclusions. Riteniamo che questa positiva esperienza di ospedale aperto con coinvolgimento attivo della famiglia nelle cure del paziente possa essere spunto di riflessione per gli operatori sanitari e sociali coinvolti nella definizione dei percorsi riabilitativi delle persone con esiti di lesione cerebrale.

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THE FUNCTIONAL REHABILITATION IN PATIENTS SUFFERING FROM CRI.MY.NE HOSPITALIZED TO MEDICAL REHABILITATION OPERATIVE UNIT

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Introduction. The CRI.MY.NE. (Critical Illness Myopathy and Neuropathy) is a muscular and peripheral nerves disorder; it develops in presence of septicemia and organic multiple inefficiency (Multiple Organ Failure, MOF) (120). The muscular outline is mainly characterized by atrophy and necrosis (Critical Illness Myopathy, CIM); the nervous one, by an axonal degeneration involving motor and sensory peripheral nerves (Critical Illness Polyneuropathy, CIP). On the clinical side, the CRI.MY.NE can fluctuating from electrophysiological studies (ENG – EMG, electroneurography and electromyography) pointed out clinically silent alterations to a muscular weakness till a full paralysis. The syndrome offers a great rehabilitation interest: in geriatric area, after a topic occurrence, it may prove unknown and misunderstand as hypokinetic syndrome. Our work aims at underlining CRI.MY.NE invalidating functional impact to prove the need of a deep and precocious action, getting a wide and enduring rehabilitation.

Materials and methods. The patients were analyzed by in/out-coming valuation scales and by a follow up within 3-6 months from the discharge. Our studies recruited 14 cases, hospitalized to our Operative Unit – Skilled Medical Rehabilitation Division, and 14 checkup-subjects, pneumonia or septic-shock diagnosis, CRI.MY.NE free, hospitalized to the same Operative Unit. The statistical tests were made by SPSS statistical program (Statistical Package for Social Sciences). The statistical data were analyzed by the following tests: Wicoxon test, uni-varied variance analysis (ANOVA), multi-varied logistic regression, chi-square test. 64,2% of case/checkup-subjects is female gender.

Results. On average the case-subject is 70,1±14,5 years old, the checkup-subject is 79,8±5,7 years old. The average school attendance is 5,2±2,7 years long in case-subject, and 5,9±2,4 years longin checkup-subject. The incoming pathologies average number is 8,8±2,5 in case-subject, and 6,4±2,0 in checkup-subject. The GIC gave intermediate values: 3,6±0,6 in case-subject, 3,7±0,5 in checkup-subject. The valuating scales, inquiring into the functional autonomy degree, the disability degree and the gait/balance, obtained the following results: BADL: 5,6±0,5 (case-subj.) / 4,4±1,1 (checkup-subj.); MRS: 4,9±0,4 (case-subj.) / 3,8±0,7 (checkup-subj.); BARTHEL index: 21,9±15,9 (case-subj.) / 48,4±21,1 (checkup-subj.); IADL: 3,7±3,1 (case-subj.) / 4,7±1,8 (checkup-subj.); Tinetti's: 2,3±4,2 (case-subj.) / 8,8±7,1 (checkup-subj.). The MMSE obtained the average score: 19,0±9,0 (case-subj.) / 19,0±7,7 (checkup-subj.). The GDS has: 9,2±6,6 (CRI.MY.NE patients) / 19,0±7,7 (checkup-subj.). The BIM has: 23,5±9,1 (case-subj.) / 23,5±4,6 (checkup-subj.). The pathologies number is: 8,8±2,5 (case-subj.) / 6,4±2,0 (checkup-subj.). The stay in acute-illness ward is: 62,7±50,0day long (case-subj.) / 19,1±22,0 day long (checkup-subj.). Though the case-subjects show a larger autonomy at home than the checkup-subjects, in in/out-coming rehabilitation ward they reveal a bigger self-sufficiency deterioration in their daily routine performing, analyzed by BARTHEL index (p0,009). The case-subjects don't succeed in obtaining a previous-unhealthy autonomy, allowing to state the under examination pathology has also an enduring negative impact. By Tinetti's analysis it is clear that the case-subject shows a very low incoming score than the checkup-subject, barring from a standing up straight preservation. At the discharging, the rehabilitation cases are remarkable (p 0,015), confirming how in CRI.MY.NE subjects the rehabilitation is essential. The same functional variables, analyzed during a 3-6 months' follow up, show a BARTHEL index improvement in case-subjects within 3 months, reaching a lasting functional rehabilitation in 6 months, without a pre-unhealthy independence. Instead, from 3 to 6 months, the checkup-subjects show a further functional improvement.

Conclusions. In our studies it appears CRI.MY.NE. patients, turned up the acute event, stay in a straight remnant disability condition. The syndrome invalidating impact should awaken doctors to an "early-rehabilitation" vision, replacing the stale concept of rehabilitation as a subsequent stage, not a previous one.

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FRAIL ELDERLY AND REHABILITATION OF PATIENTS WITH HIP FRACTURE

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Introduction. Aging of the population is characterized by an overriding of octogenarians (oldest old), which led to a profound change of care needs in relation to the emergence of a new category of older people: the so-called "frail elderly" characterized by extreme fragility of clinical, high risk of health status and level functional autonomy rapid deterioration. For this reason, the fractures of the femur in a frail elderly, greatly aggravates the clinical condition and the chances of recovery.

Material and method. 20 frail elderly patients were recruited in our department that needed a personalized rehabilitation plan must take into account factors: personal frailty, comorbidity, polypharmacy, and metabolic homeostasis and environmental socio-economic changes, nutritional etc. to improve health, quality of life and the globality of elderly patient. The anticipation of some postures (sitting-standing) in combination with passive mobilization exercises and other proprioceptive neuromuscular facilitation, can contribute to a rapid recovery of motor disability. More generally, this rehabilitation approach is intended to stimulation of various duties related to daily life despite the weakness of the muscle groups involved and is given from the beginning of rehabilitation treatment.

Result. The achievement of these objectives is through the stimulation of other systems such as the visual, the acoustic, the kinetic-posturo, the smell, which are of much greater segment of the simple functional neuro-muscular.

Conclusion. The rehabilitation project of the frail elderly should be aimed at ensuring: a) the execution of gestures and movements similar to those preceding the event, b) its autonomy, c) to observe periods of recovery, d) to evaluate all care strategies to prevent complications of the setting. Only thus can reach a global outcome, functional and social.

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WHAT, WHO, HOW, AND WHY DOING RESEARCH IN THE BENCH-TO-BEDSIDE PROCESS: TRANSLATIONAL RESEARCH IN REHABILITATION

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Introduction. The cost of research to society is enormous, which is mandatory for asking questions about the real impact on improving care and quality of life of people. Given the rapid evolution of new tools and methodologies in rehabilitation, it is important to consider and overcome the challenges issues occurring along the pathway of creating knowledge at the definitive aim to enhance the health of our communities. The main problem still concerns the poor relation between basic research and clinical practice. As clinician we are required to wonder how to bridge the gap between laboratory, clinical, and community ensuring methodological, practical and ethical coherence and agreement to this transition.

Materials and methods. Four related simple questions emerge when doing research in rehabilitation, addressing: what, who, how, and why. We describe different approaches adopted by researchers and clinicians over last decade, when the attempt to answer these questions has become urgent. To face many methodological challenges affecting the bench-to-bedside process, Evidence Based Medicine model has been adopted as guideline in clinical research. No longer based on subjectivity but on a critical hierarchical use of scientific evidence, this model has shown to be useful in outcome evaluation and cost-benefit analysis; however, a dissonance when trying to apply research findings to the clinical encounter still exists because of the complexity of socio-cultural context of care. A Narrative Based Medicine, based upon patients' emotional experience in their story of illness, has been introduced to take into account these individual and relational factors. Nonetheless these two approaches, both methodologically limited, has failed in filling the gap between theory and practice.

Results. Not only the knowledge gained through basic research can be directed to application phase, but also the clinical applications themselves can play an important stimulus to basic research to enable real progress in medicine. The role of translational research (TR) has been recalled in this context. TR suggests to reconnect laboratory to patient and patient to the laboratory starting from the coexistence, in the same research project, of basic research and clinical research through a multiphasic process. This multiphasic transition model must be conducted without wasting resource in terms of time and energies, saving quality and ethics.

Conclusions. Clinical and translational research should be empowered by policy makers at a national level, by academic institutions, and by individual scientists. Specialists in rehabilitation should be open minded clinicians as well as flexible and trained translational researchers, collaborating with Infrastructure and other Partnerships for the design, testing and evaluation of alternative models of health care to ensure innovation and quality of care to persons with disabilities.

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REHABILITATIVE APPROACH EARLY POLYNEUROPATHY, GUILLAIN-BARRE'

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Introduction. The Guillain-Barre disease is a radiculo-acute polyneuropathy manifested by progressive paralysis of the limbs with a distal-proximal pattern. Authors discuss the rehabilitation of motor disability caused by this disease. It assesses the role of a possible neuropsychological approach, allowing the development of compensation to the weakness and paralysis of the limbs, resulting in improved motor disability.

Material and method. 10 patients were recruited from several departments of our hospital complex. The anticipation of some postures (sitting-standing) in combination with passive mobilization exercises and other proprioceptive neuromuscular facilitation, can contribute to a rapid recovery of motor disability. More generally, this rehabilitation approach is intended to stimulation of various duties related to daily life despite the weakness of the muscle groups involved and is given from the beginning of rehabilitation treatment.

Result. The achievement of these objectives is through the stimulation of other systems such as the visual, the acoustic, the kinetic-posturo, the smell, which are of much greater segment of the simple functional neuro-muscular.

Conclusion. Rehabilitation of patients with Guillain-Barre syndrome allowed us to develop an appropriate rehabilitation plan, integrated collaboration of various health professionals involved. The sample is still very small to give statistically significant results, but still useful in the practical management of this patients.

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REHABILITATION OF THE BURNED PATIENT

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Introduction. Burned patient is a subject that has a destruction of the skin, variable depending on the degree of lesion. The main goals of rehabilitation ranging from preventing and reducing scar retraction and manipulation, to keep the joints mobile and then allow the patient to a location that avoids pulmonary complications. In this experience we presented a treatment protocol for burned patients in acute phase and for the scarring.

Material and method. 20 patients were recruited from Intensive Care Unit and Burns Centre of our hospital complex. Their assumption has provided to process a rehabilitation project depending by the depth and location of the lesion. The rehabilitation process begins in the ICU and continued and intensified with the improvement of the patient's condition.

Result. The rehabilitation setting was carried out both during the hospital stay in their departments of origin and after transfer in our department. Patients treated with our protocol rehabilitation have reached more efficient and faster outcomes. It provided intervention of numerous health professionals which gradually have alternated to handle the needs of the patient.

Conclusion. Discussion of our sample allowed us to develop an appropriate rehabilitation plan for the burned patient, integrated collaboration of various health professionals involved. The sample is still very small to give statistically significant results, but still useful in the practical management of patients burned.

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MULTIPLE SCLEROSIS AND OSTEOPOROSIS: RISK FACTORS IN YOUNG ADULTS

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Introduction. Multiple sclerosis (MS) is the most common chronic inflammatory disease of the central nervous system in young adults. Clinical evidence suggests higher frequency of reduced bone mass in young MS-

patient. The aim of this study was to evaluate factors influencing bone mineral density (BMD).

Material and method. We examined 115 patients with Multiple Sclerosis, mean age 48 years (range 27-73), with mean age of disease onset 41.5 years (26-53) and a mean age of diagnosis 44.7 years (35-58). We measured calcanear bone density by ultrasound device (Achilles Express,GE). The sample is divided in two group: age <40 years old and age >40 years old.

Result. 34.6% of MS patients showed osteoporotic values of bone densitometry, 42.3% had values of Osteopenia and 23.1% have bone density values in the normal range. The group aged >40 years old showed mean T-score -1.91 ± 3, Z-score -0.96 ± 2.5; Stifness 73.5 ± 2, absolutely overlapped to the mean of the sample. Despite the group aged <40 years old showed mean T-score -1.13 ±3, Z-score -1.12 ± 2.5, Stifness 85 ± 2.

Conclusion. MS Patients often have multiple risk factors for osteoporosis. Young MS patients (<40) have high levels bone mass but however into osteopenia range. it is important to put in place for these patients all measures to prevent osteoporosis.

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REHABILITATION ITINERARY OF EARLY STROKES: ROLE OF ART IN REHABILITATION

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Introduction. Individuals with severe functional lesions of the brain have a greater willingness to draw shapes with a strong artistic emotional content. Rehabilitation treatment is now practiced in all neurological patients in the acute phase, with diverse patterns and customized to precipue clinic conditions. Objectives are to prevent complications from prolonged bed rest and stimulate the attention of patient.

Material and method. We examined 15 patients with early stroke. Various art forms are an invaluable resource in the 'rehabilitation process because it allows the art to express and share all the sentiments of the human soul, enriches the personality and has a communication function and catharsis. The inclusion of artistic activities in a rehabilitation program can be established between patient and rehabilitation specialist and a channel of communication is more effective to stimulate compensatory strategies to improve attention and gain greater control of gesture.

Result. All patients have reached their goals early. The stimulus of their artistic predisposition to make up for lost functions now deemed.

Conclusion. In the light of their experience, the authors state that the successful completion of rehabilitation is linked to a treatment precoce.ad appropriate intervention strategies and realistic goals.

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PROTOCOLLO DI SENSIBILIZZAZIONE ALL'UTILIZZO DEL CATETERISMO INTERMITTENTE

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Introduzione. Il cateterismo intermittente (CI) resta il cardine della riabilitazione vescicole sia nella fase iniziale dello shock spinale che successivamente in presenza di una vescica neurologica con gradi variabili di ritenzione. Durante la degenza ospedaliera è necessaria un'adeguata educazione sia dei soggetti mielolesi che dei caregiver all'utilizzo del CI che porti ad utilizzarlo sia nel periodo immediatamente post lesionale e soprattutto nel lungo termine, per prevenire le complicanze legate ad una gestione non corretta della vescica.

Materiali e metodo. sono stati reclutati 16 pazienti con vescica neurologica, a cui veniva rimosso catetere vescicale a permanenza e iniziavano la riabilitazione vescicale con CI. Sono stati consegnati 2 opuscoli informativi per la formazione del paziente, diversificati per sesso, sviluppati da un'azienda di presidi danese,e in collaborazione, modificati da un gruppo internazionale di 8 unità spinali europee. Il primo opuscolo fornisce informazioni su come praticare il CI,con una breve introduzione e spiegazione anatomica delle vie urinarie e sul cambiamento della funzionalità vescicale prima e dopo la lesione, l'importanza del CI, la tecnica corretta a seconda del catetere che si sceglie e le complicanze in caso di svuotamento vescicale scorretto. Il secondo opuscolo spiegava come perfezionare la tecnica acquisita per il CI, risulta essere in oltre un utile promemoria per ricordare ai pazienti tutte le informazioni e i consigli pratici ricevuti durante la degenza e quali sono i loro diritti sociali. Al termine dell'addestramento tutti i pazienti hanno risposto a un questionario riguardante la praticità e la comprensione del materiale fornito, hanno espresso un giudizio sull'importanza del CI dei riguardi della propria salute, e l'utilità di un supporto cartaceo ad integrazione dell'addestramento da parte dell'operatore.

Risultati. Tutti i pazienti hanno giudicato utile la possibilità di avere a disposizione del materiale cartaceo di consultazione che possa affiancare l'addestramento al CI. Gli opuscoli sono apparsi di facile consultazione e sono stati un utile supporto alla sensibilizzazione del paziente alla corretta gestione della vescica neurologica. La qualità degli opuscoli è stata giudicata molto buona.

Conclusione. I risultati evidenziano l'utilità di un supporto informativo per facilitare l'educazione al CI anche la comunicazione comunicazione tra paziente ed operatore risulta migliorata.

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VALUTAZIONE DEL PATTERN VESCICALE NELLA PERSONA CON LESIONE MIDOLLARE IN FASE ACUTA

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Introduction. Secondo le conoscenze neurofisiologiche, nella fase di shock midollare si instaura un quadro di ritenzione urinaria conseguente ad una ipoattività detrusoriale associata all'ipertono dello sfintere uretrale esterno e del collo vescicale. Superata questa fase, si registrano alterazioni dell'unità funzionale vescico-sfinterica con caratteristiche differenti a seconda del livello e della gravità della lesione. Nella nostra pratica clinica abbiamo invece constato che la correlazione esistente tra il livello lesionale, la sua completezza e il successivo quadro di alterazione dell'unità vescico-sfinterica, valutato mediante esame urodinamico, non è così standardizzato. Abbiamo quindi revisionato i dati desunti dall'esame videourodinamico, svolto in pazienti dopo la fase di shock spinale, valutando le caratteristiche funzionali del basso tratto urinario in relazione al livello lesionale e alla sua completezza.

Materials and methods. In questo lavoro abbiamo valutato dapprima il comportamento dell'unità vescico-sfinterica per ogni gruppo lesionale (C,T,TL,L), definendo la percentuale di rappresentazione di ogni quadro disfunzionale. Successivamente sono state valutate le differenze tra i diversi gruppi lesionali e tra le lesioni complete ed incomplete, mediante test anova univariata e post hoc. Lo studio è stato condotto sui dati videourodinamici di 172 pazienti dal 2002 al dicembre 2011. I pazienti (range età: da 15 a 84 anni, media 42,59 ±17,7; Genere: Donne 25%,Uomini 75%) erano alla loro prima valutazione superato Il tempo trascorso dall'evento acuto all'esecuzione dell'esame variava da 1 a 12 mesi (media 4,94±2,18).

Results and conclusions. Nel gruppo delle lesioni cervicali (C) il 31% presentano dissinergia doppia, il 19% dissinergia semplice, il 29% dissinergia collo vescicale, il 19% ipoattività detrusoriale e il 2% iperattività detrusoriale sinergica. Nel gruppo delle lesioni dorsali alte (D) abbiamo riscontrato: 29% di dissinergie doppie, 15% di dissinergie semplici, 27% di iperattività detrusoriale con dissinergia del collo vescicale, 27% di detrusore ipoattivo e 2% di iperattività detrusoriale sinergica. Nel gruppo delle lesioni dorsali basse (DL) il 16% dei pazienti presenta dissinergia doppia, il 22% dei pazienti dissinergia semplice, il 19% iperattività detrusoriale con dissinergia dello sfintere liscio, il 38% detrusore ipoattivo e il 5% iperattività detrusoriale sinergica. Infine nelle lesioni lombari (L) abbiamo osservato il 6% di dissinergie doppie, nessuna dissinergia semplice, il 6% di dissinergie detrusore -collo vescicale, il 6% di iperattività detrusoriale sinergica e l'82% di detrusore ipoattivo. La compliance vescicale presentava differenze significative nei diversi gruppi (test ANOVA uni variata e Test Post Hoc per confronti multipli). Più precisamente le differenze riguardavano i valori medi delle compliance dei gruppi C,T e TL nei confronti del gruppo L. La compliance vescicale dei pazienti L risulta numericamente più elevata rispetto a quella dei pazienti C, T e TL. Non esistono invece differenze significative tra i pazienti C, T e TL. Infine è stata valutata l'influenza della gravità della

lesione (completa vs incompleta) sul comportamento del basso tratto urinario. Abbiamo confrontato le massime pressioni detrusoriali (Pdet max), la massima capacità cistomanometrica (MCC) e le compliance delle lesioni complete e incomplete su tutta la popolazione presa in considerazione e all'interno di ogni livello lesionale. Dall'analisi si evince che nella popolazione in toto presa in considerazione non esistono differenze statisticamente significative di pressione detrusoriale massima, massima capacità cistomanometrica e compliance tra paziente con lesione completa e incompleta.

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INFLUENCE OF SEPSIS ON FUNCTIONAL OUTCOME OF PATIENTS WITH DISORDERS OF CONSCIOUSNESS

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Introduction. Infective complications in patients in vegetative state (VS) or minimally conscious state (MCS) due to traumatic and cerebrovascular injuries, are common features in postacute Neurorehabilitation Units. They certainly contribute to increase the length of stay and interfere with the rehabilitation programmes, but it's still unclear if they play a significant role in the rehabilitative prognosis of these patients. Among infective complications sepsis are frequent in these patients, expecially in those first hospitalized in Intensive Care Units. The aim of this work is to analyze the possible correlation of sepsis on functional recovery in VS and MCS patients.

Materials and methods. An observational retrospective study has been conducted in the post-acute Neurorehabilitation Unit of Maugeri Foundation, Pavia, Italy. In the study were included 103 consecutive adult patients with outcomes of severe brain injury (GCS<9) admitted and discharged from January 1st, 2011 to June 30th, 2012. To evaluate the functional status and outcome, DRS was performed at admittance and discharge. Sepsis was defined by clinical signs, presence of bacteria in blood coltures and serum levels of procalcitonine. We divide the population into two groups. One formed by patients with no episode of sepsis and the other by patients who suffered from at least one sepsis episode. The ΔDRS values (difference between admission and discharge) were analysed for both groups and the influence of septic episodes on functional recovery was investigated.

Results. Sepsis occurred in nearly 50% of them. The most frequent bacteria involved in sepsis were Enterobacteria ESBL.

The results will be presented in order to point out if there is a direct correlation between sepsis and worst outcome or if the functional recovery is only influenced by severity of the neurological state, age, comorbidities, use of particular medical devices.

Conclusions. The results of this study could contribute to help healthcare operators in better understanding all factors influencing functional outcome in order to choose the best therapeutical strategies in the early phases of rehabilitation to minimize the incidence of infections (strict control of medical devices, nutrition supplementation, antibiogram-oriented therapies) and then allocate the most appropriated economical resources for the clinical and rehabilitative management of these patients.

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THE ULTRASONIC REPORTS ON CAROTID ARTERIES IN PATIENTS WITH CEREBROVASCULAR INSULT

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Introduction. Cerebrovascular insult is an abnormal state of the brain originated by the progress of ischemia in the definite brain region caused by the blood vessel occlusion provoked by a thrombus or an embolus or by the cerebrovascular hemorrhage,

Aim. is ultrasonic percepcion of organic and hemodynamic carotid artery changes which participate in the emergence of cerebrovascular insult.

Materials and methods. In the Special Hospital for Rehabilitation Gamzigrad in Gamzigrad Spa, ultrasonic screening of carotid arteries was run in 37 random patients with Dg. infartus cerebri. The patients had been commited to medical rehabilitation. All of them had at least one risk factor which causes the organic changes in carotid arteries and more than 50% of them had at least two risk factors. The examination was run by Colour Doppler duplex scan method with 7,5 MHz probe.

Results. 30-50% stenosis was detected in 17 (45,9%) out of total 37 echosonographically treated patients, ACI sin. in 2, ACI dex. in 7 and AACI in 8 patients. 60-80% stenosis was detected in 5 (16,2%) patients, ACI sin. in 1, ACI dex. in 2 and AACI in 2 patients. Occlusions were detected in 7 patients: ACI sin. in 4 and. ACI dex. in 3. Major organic changes were not detected in 1 patients. 1 patients had a kinking curve ACI sin. with hemodynamic flow disturbances.

Conclusions. The organic changes of carotid arteries, particularly the significant stenoses with the accompanying. hemodynamic disturbances, are responsible for the emergence of the ischemic brain changes. Echosonographic screening of carotid arteries should be aimed at the early detection of the carotid disease with the objective of treating, eliminating the risk factors and preventing of the cerebrovascular disease emergence. Echosonographic detection of symptomatic and particularly of asymptomatic significant carotid artery stenoses gives the opportunity to prevent the emergence of cerebrovascular ischemia by endartectomy of the carotid arteries.

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ACQUISIZIONE PROGRESSIVA DELL'AUTONOMIA DEL PAZIENTE SPINALE: VALUTAZIONE DEI PERMESSI DI USCITA

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Introduzione. Lo scopo di questo lavoro è stato quello di monitorare l'acquisizione progressiva dell'autonomia del paziente in Unità Spinale. Il permesso di uscita durante il ricovero rappresenta un'opportunità che consente al paziente di avere un contatto diretto con la realtà esterna dopo l'evento lesionale. Attraverso questa modalità di approccio alla quotidianità il soggetto mieloleso prende progressivamente coscienza del proprio "status" e l'equipe assistenziale è in grado di monitorare il percorso riabilitativo sia fisico che psicologico e di adattare in tempo reale gli interventi in base alle necessità del singolo. La creazione e l'utilizzo di uno strumento di valutazione tipo un questionario di facile applicabilità che consenta la raccolta e l'analisi dei dati rappresenta una tappa fondamentale in questo percorso.

Materiali e metodi. Sono stati reclutati 6 pazienti: 4 maschi e 2 femmine dei quali 4 paraplegici e 2 tetraplegici ricoverati presso l'Unità Spinale nel periodo marzo-agosto 2010. A ciascun soggetto è stato somministrato un questionario che permettesse di valutare le difficoltà percepite nell'accesso/fruizione degli ambienti sia domestici che esterni; lo strumento comprendeva domande chiuse: risposta a "crocette" associate ad una scala VAS, e domande aperte, che permettevano un commento più ampio e personalizzato. Il questionario veniva somministrato nelle prime tre uscite consecutivamente, quindi ad uscite alterne, salvo il presentarsi di modifiche ambientali o miglioramenti sostanziali. La compilazione era a cura del paziente stesso, o in caso di impossibilità, dell'operatore.

Risultati. Per l'analisi complessiva dei risultati sono stati presi in considerazione tre questionari per ogni soggetto: il primo, l'ultimo e uno intermedio. Nella quasi totalità dei casi si riscontrava una diminuzione del valore delle scale VAS dovuta sia al miglioramento delle performance del paziente sia alle modifiche strutturali.

Conclusioni. Lo studio evidenzia l'importanza della fruizione del permesso di uscita durante il primo ricovero: per il paziente, stimolato a prendere coscienza della propria condizione, applicare le strategie apprese durante il programma riabilitativo e adattare il proprio domicilio prima della dimissione; per l'equipe, che possiede uno strumento per analizzare e monitorare nel tempo il percorso di ogni soggetto, modificando in itinere ogni intervento; per i care-giver, poiché vengono a conoscenza delle abilità dell'assistito e dell'aiuto da prestare. Il numero esiguo di pazienti e la breve finestra temporale di osservazione possono rappresentare un limite; il lavoro offre comunque spunti interessanti, vista l'assenza di altre indagini di questo tipo e la possibilità di adottare il questionario come protocollo sistematico. Lo studio può quindi essere un buon punto di partenza per indagini future.

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ATTIVAZIONE COGNITIVA NELLO STATO VEGETATIVO E NELLO STATO DI MINIMA COSCIENZA: PROGETTO PILOTA

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Introduction. Obiettivo di questo studio è capire quali elementi possono guidare la costruzione di un protocollo riabilitativo cognitivo per i pazienti con GCA, verificare la concordanza di valutazione tra le scale GCS, CRS-R(JFK) e WNSSP, valutare il ruolo che i potenziali evocati possono giocare nella scelta della modalità di stimolazione e l'utilità dell'elettroencefalogramma quantitativo per misurare il grado di attivazione corticale raggiunto, determinare il numero di casi necessari per calcolare la potenza di uno studio analogo su vasta scala.

Materials and methods. Otto pazienti con grave cerebrolesione acquisita, indipendentemente dall'eziologia, con GCS >7 e <13, sono stati monitorati per 4 mesi attraverso valutazioni mensili cliniche, neuropsicologiche, EEG e mediante potenziali evocati somatosensoriali, uditivi e visivi. Si è proceduto alla costruzione di due protocolli neuropsicologici distinti in base al tipo di attivazione: uno 'passivo' o bottom-up (stimolazione degli organi di senso) ed un altro attivo o top-down (rievocazione dell'immagine motoria e comandi di compiti mentali1); la scelta di assegnare i soggetti all'uno o all'altro trattamento è stata fatta in base ad informazioni neurofisiologiche, cliniche e comportamentali.

Results. Al termine dello studio sono migliorati alle scale utilizzate 3 pazienti su 4 sottoposti a protocollo top-down mentre solo 1 su 4 sottoposti a stimolazione bottom-up. 4 pazienti risultavano migliorati sia alla GCS sia alla CRS-R/JFK e 4 a nessuna delle due; 4 risultavano migliorati sia alla GCS sia alla WNSSP e 3 a nessuna delle due; 4 risultavano migliorati sia alla CRS-R/JFK sia alla WNSSP e 3 a nessuna delle due; 1 paziente risultava migliorato solo alla WNSSP. Tra i due gruppi con diversa durata di malattia (> o < di 90 giorni) non è emersa una differenza di distribuzione dei miglioramenti dei punteggi alle scale, tranne che per la WNSSP che sembrerebbe migliorata più consistentemente nella popolazione con maggior durata di malattia. I potenziali evocati non hanno dato indicazioni importanti in quanto nella maggior parte dei soggetti risultavano essere normali o ai limiti inferiori di norma. Nell'EEG quantitativo la percentuale di ritmo alfa è aumentata, arrivando ad una media dell' 8,82%, contro il 6,6% iniziale. Si è calcolato infine il numero di soggetti necessari allo studio per avere una significatività statistica con potenza dell'80% ed è risultato che è necessaria una popolazione di 15 soggetti per gruppo.

Conclusions. Il percorso riabilitativo nei pazienti in SV e MCS non può essere omologato ai classici standard riabilitativi.2. È emersa una buona concordanza tra andamento della CRS_R e della GCS e WNSSP; la scala WNSSP indaga ogni modalità sensoriale tramite più items per cui sembra capace di fornire un migliore aggancio alle condizioni di comunicazione del paziente. Il ruolo dei potenziali evocati risulta essere utile solo come criterio di esclusione: laddove il potenziale evocato è alterato o assente dovrebbe giungere l'indicazione ad evitare l'approccio iniziale riabilitativo secondo quel canale, mentre un monitoraggio continuo non sembra utile. L'esame elettroencefalografico appare uno strumento utile da monitorare durante il percorso riabilitativo sia per caratterizzare il grado di reattività corticale ma soprattutto dal punto di vista quantitativo, ancora meglio potrebbe esserlo se si selezionasse un'area cerebrale da monitorare in maniera più particolareggiata.

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IL TRATTAMENTO RIABILITATIVO CON FREMS NELLA CERVICOBRACHIALGIA E NELLA LOMBOSCIATALGIA COMPRESSIVA.

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Introduction. L'obiettivo del nostro studio è quello di valutare l'efficacia clinica della stimolazione elettrica con FREMS (frequency rhythmic electrical modulation system), conosciuta anche con il termine di Lorenz, nel ridurre il dolore e le parestesie agli arti superiori e/o inferiori e migliorare la funzionalità e la sensazione di benessere globale nei pazienti affetti da cervicobrachialgia o lombosciatalgia bilaterale compressiva.

Materials and methods. Da luglio 2010 ad oggi nel nostro studio sono stati arruolati 126 pazienti, di età compresa tra i 28 anni e i 75 anni, di cui 54 affetti da cervicobrachialgia bilaterale e 72 da lombosciatalgia bilaterale, esenti da grave osteoporosi e crolli vertebrali. Tutti lamentavano parestesie agli arti superiori nel caso della cervicobrachialgia o inferiori nel caso della lombosciatalgia. Dopo una valutazione clinica completa e strumentale con ESAME RM O EMG/ENG, i pazienti sono stati sottoposti a 10 sedute di Lorenz terapia giornaliera, della durata di 21 minuti per il protocollo della cervicobrachialgia e 34 minuti l'una per la lombosciatalgia, come da protocollo dedicato. Inoltre, sono state somministrate all'inizio del trattamento e al termine riproposte a tutti i pz: la scala VAS (Visual Analogic Scale) per la stima della percezione della sintomatologia dolorosa da parte del paziente ed il questionario BDI (Beck Depression Inventory) per la stima del tono dell'umore e del grado di depressione associati al dolore e il Cervical Spine Outcome Questionnaire (CSOQ) per la valutazione del dolore, il deficit funzionale, la disabilità conseguente e lo stato psicologico e sociale per i pz affetti da cervicobrachialgia e il questionario OBDQ (Oswestry Low Back Pain Disability Questionnaire) per avere informazioni su come il dolore influenza la vita di tutti i giorni per pz affetti da lombosciatalgia.

Results. Tutti i soggetti hanno completato il trattamento riabilitativo con FREMS della durata di 10 giorni (da lunedi al venerdi) senza presentare eventi avversi. Tutti riferivano una diminuzione del dolore e riduzione delle parestesie con miglioramento della salute globale e della qualità di vita. Ogni paziente aveva sviluppato un atteggiamento positivo nei confronti della malattia. Nessuno era intenzionato ad effettuare una visita specialistica neurochirurgica.

Conclusions. In questo lavoro il trattamento riabilitativo con FREMS è stata una strategia di attacco nel ridurre la sintomatologia algica e favorire la scomparsa o l'attenuazione delle parestesie. I risultati positivi incoraggianti ci spingono ad ampliare la casistica e a considerare un gruppo di controllo e un follow up a 6 mesi.

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PATTERN URODINAMICI E DISFUNZIONI VESCICO-SFINTERICHE DOPO LESIONE CEREBROVASCOLARE ACUTA

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Introduction. L'incontinenza urinaria (IU) dopo lesione cerebrovascolare acuta (CVA) ha una prevalenza variabile dal 32 al 79% (1). I disturbi vescico-sfinterici (DVS) nel paziente affetto da ictus si manifestano comunemente con ritenzione urinaria in fase acuta ed IU in fase successiva; per la maggior parte degli Autori la manifestazione più frequente è rappresentata dall'IU da urgenza, sottesa, dal punto di vista urodinamico (UD), da un'iperattività detrusoriale (ID) con sinergia sfinterica (2). Uno studio di Khan e coll. (3) ha dimostrato come lesioni del lobo frontale portassero ad una ID e come la maggioranza dei pazienti esaminati con anormalità UD avessero una lesione dell'emisfero dominante (ED). In questo studio abbiamo voluto verificare l'eventuale presenza di alterazioni UD in soggetti con lesione CVA ed associati DVS, valutando le possibili differenze tra tali alterazioni, genere, emisfero colpito e territorio cerebrale coinvolto nella lesione. Materials and methods. Sono stati presi in esame 61 pazienti (età media 68 anni) con lesione CVA ischemica o emorragica intraparenchimale ed associati DVS: 29 donne (47,5%), di cui 18 con lesione a carico dell'ED e 32 uomini (52,5%), 18 dei quali con lesione dell'ED. Tutti i pazienti sono stati sottoposti ad un' accurata anamnesi minzionale e ad esame UD completo in accordo con le indicazioni dell' International Continence Society (ICS).

Results. Nella maggior parte dei casi (60,66%) era presente una sintomatologia da urgenza minzionale associata o meno ad IU da urgenza (37 pz., 17 M e 20 F); disturbi nello svuotamento vescicale sono stati rilevati nell'8,20% (5 pz, 2 M e 3 F), mentre il 18,03% (11 pz, 6 M e 5 F) presentava un quadro di ritenzione urinaria ed il 13,11% risultava asintomatico (8 pz, 7 M e 1 F). Il 6,56% (4 pz, 3 M ed 1 F, di cui la metà con lesione dell'ED) presentava un pattern UD normale; un'ipoattività detrusoriale si evidenziava nell'8,20% (5 F, di cui 3 con lesione nell'ED), mentre l'ID era presente nella maggior parte

dei pz. (75,41%, 46 soggetti, 25 M e 21 F, di cui 27 con lesione nell' ED), associata a dissinergia detrusore-sfintere (DDS) nel 6,56% (4 pz, 2 M e 2 F, 3 dei quali con lesione nell'ED). Nel 3,28% (2 M) era presente un' ID associata ad ipocontrattilità (DHIC). L'unico paziente con lesione cerebellare aveva un quadro di ID associato a DDS. Nelle lesioni parietali 15 pz.(7 M e 8 F) presentavano un'ID, 3 (2 M ed 1 F) un pattern UD normale mentre in 2 donne si evidenziava un'ipoattività. Anche per quanto concerne le lesioni temporali il pattern UD più frequente era l'ID (23 pz), presente in tutti gli uomini (9) mentre 2 delle 14 donne avevano un'ipoattività. In 8 uomini con lesione frontale si evidenziava un' ID; nelle donne con analoga sede di lesione invece il pattern UD era vario (2 ipoattività e 3 ID di cui una con DDS). Anche nelle lesioni dei gangli della base il quadro più frequente era l'ID (11 pz, 6 M e 5 F), in due casi (1 M ed 1 F) associato anche a DDS.

Conclusions. In conclusione, i risultati emersi dal nostro studio, si integrano in parte con gli studi precedenti ed evidenziano quanto segue: la maggior parte dei pazienti con alterazioni del pattern UD ha una lesione dell'ED; l'ID è il pattern UD più frequente in entrambi i sessi e predomina nelle lesioni a carico dell'ED e nell'uomo; l'ipoattività detrusoriale è presente esclusivamente nel sesso femminile e la DHIC nel sesso maschile. Tali osservazioni pongono l'accento non solo sulla localizzazione delle strutture deputate al controllo vescico-sfinterico, ma pure su una riconoscibile diversità tra i due sessi. Infatti, le differenze osservate potrebbero essere sottese da una diversa presenza e distribuzione delle aree preposte al controllo minzionale nei due sessi.

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DISFAGIA OROFARINGEA IN PAZIENTI AFFETTI DA NEOPLASIA CERVICO-CEFALICA SOTTOPOSTI A TRATTAMENTO COMBINATO RADIOTERAPICO, CHEMIOTERAPICO E CHIRURGICO

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Introduction. Molti pazienti affetti da neoplasie del distretto cervico-cefalico vengono sottoposti a trattamento chemio e radioterapico, associato talvolta a trattamento chirurgico, e possono presentare quadri clinici di disfagia orofaringea (DO). Le possibili alterazioni fisiopatologiche responsabili dell'insorgenza della disfagia sono fenomeni fibrotici a carico dei muscoli, della cute, delle ghiandole salivari e del connettivo e deficit della sensibilità orale, faringea e laringea da danno del sistema nervoso periferico. Scopo del nostro studio retrospettivo è stato quello di valutare le caratteristiche, i tempi di insorgenza della DO in pazienti radiotrattati per tumore del distretto testa collo.

Materials and methods. Sono stati reclutati 49 pazienti (36 maschi e 13 femmine; età media alla diagnosi di neoplasia 59.3 anni) affetti da carcinoma del distretto cervico-cefalico giunti all'osservazione dell' ambulatorio dedicato alla disfagia orofaringea dell' Unità semplice di Riabilitazione dell'Azienda Ospedaliera di Padova nel periodo compreso tra il 2004 e il 2010. Tutti i pazienti in esame sono stati radio trattati (radioterapia esterna 3D conformazionale; in media 30 sedute, dose media 60 Gy); tra questi, 31 pazienti sono stati sottoposti ad intervento chirurgico radicale e successivamente a radioterapia adiuvante; 9 pazienti hanno ricevuto trattamento radioterapico esclusivo e 9 pazienti sono stati sottoposti a trattamento combinato radio e chemioterapico. Nel 33% dei casi il tumore era localizzato all'ipofaringe/laringe, nel 29% all'orofaringe, nel 13% al rinofaringe, nell'11% alla cavità orale, nel 6% alle ghiandole salivari, nel 4% all'esofago, nel 4% dei casi si trattava di localizzazioni laterocervicali di linfomi.

Results. Tutti i pazienti esaminati presentavano disfagia oro-faringea documentata da un esame strumentale (videolaringoscopia con prove di deglutizione o video fluoroscopia) che metteva in luce nella maggior parte dei casi ipertono o discinesie dello sfintere esofageo superiore, nei restanti casi ipotonia della muscolatura faringea o stenosi esofagea cervicale. I pazienti presentavano disfagia orofaringea totale nel 39% dei casi, per alimenti solidi nel 33%, per liquidi nel 17%, per liquidi e solidi nell'11%. Il 28% dei pazienti ha presentato disfagia acuta (nell'immediato trattamento post-radioterapico); il 24% ha lamentato DO entro il primo anno, mentre nel 48% il sintomo è comparso in media dopo 10 anni. Nel 50% dei casi si trattava di una disfagia lieve (possibile nutrizione per os con alimenti di consistenza modificata); nell'altra metà dei casi si trattava di disfagia moderata (dieta modificata per os con integrazione per via enterale/parenterale) o grave (nutrizione enterale/parenterale esclusiva).

Conclusions. Alterazioni della deglutizione di diversa entità si osservano comunemente sia nel primo anno dall'inizio della radioterapia, sia come effetto iatrogeno ad esordio tardivo in pazienti affetti da neoplasie del distretto cervico-cefalico. Il ruolo del trattamento riabilitativo in questo ambito non è stato ancora chiarito ma sarebbe auspicabile prendere in carico precocemente i pazienti, monitorarli nel tempo e individuare possibili strategie terapeutiche.

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PICC E MIDLINE GUIDA PER IL PAZIENTE MIELOLESO

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Introduzione. Il Peripherally Inserted Central Catheter (PICC) è un catetere costituito di materiale ad alta compatibilità, solitamente di calibro compreso tra 1 e 2 mm inserito nel sistema venoso centrale (CVC), la cui punta viene a trovarsi in prossimità del cuore all'altezza della giunzione tra cava superiore ed atrio destro, attraverso una vena periferica a livello del braccio. Consente tutti gli utilizzi tipici dei CVC classici. Può essere utilizzato per trattamenti nutrizionali, chemioterapie e terapie farmacologiche in cui sia indicata la somministrazione venosa centrale. Il MIDLINE ha caratteristiche molto simili ma, a differenza del PICC, è un catetere periferico, la cui punta è posizionata a livello della vena succlavia. Non consente gli usi tipici dei CVC, può essere usato per terapie nutrizionali e farmacologiche compatibili con la somministrazione per via venosa periferica. I PICC e MIDLINE sono accessi venosi a medio termine, possono rimanere in sede per un periodo di tempo che varia tra 1 settimana e tre mesi. Per il corretto funzionamento devono essere sottoposti a periodici lavaggi e medicazioni da parte del personale sanitario. I lavaggi vanno effettuati dopo ogni utilizzo del catetere o ogni 7 giorni, se il catetere non è in uso. La medicazione va cambiata il giorno dopo l'inserimento e in seguito ogni 7 giorni.

Materiali e metodo. Sono stati reclutati 10 pazienti con lesioni midollari a diverso livello: a 7 è stato posizionato il PICC ed a tre il MIDLINE. La scelta del catetere era condizionata dalla tipologia della terapia da somministrare. Ai pazienti ed al personale infermieristico è stato somministrato un questionario qualitativo riguardante tale metodica esplicitata attraverso un protocollo comune alla divisione di Anestesia e Rianimazione.

Risultati. Il posizionamento dei PICC e/o MIDDLINE risulta vantaggioso per i pazienti in quanto permette di ridurre il numero di venipunture necessarie alla continuità terapeutica infusiva. La sintomatologia dolorosa determinata dal posizionamento risulta di intensità media:VAS = 4. Risulta vantaggiosa per il personale infermieristico perché riduce i tempi di assistenza pur dovendo effettuare controlli seriati.

Conclusione. L'applicazione del protocollo elaborato in collaborazione con i colleghi anestesisti e rianimatori ha consentito di ottimizzare i tempi le la qualità di gestione assistenziale e terapeutica del paziente mieloleso.

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EVALUATION OF FRENCH PHYSIOTHERAPY COMBINED WITH CASTING FOR INITIAL TREATMENT OF CONGENITAL IDIOPATHIC CLUBFOOT DEFORMITY.

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Introduction. The French method, also called the functional physical therapy method, is a combination of physiotherapy and splinting. This method consists of daily manipulations of the newborn's clubfoot by a specialized physical therapist that uses muscles stimulation techniques around the foot and temporary applies foot immobilization with elastic and non elastic ad-

hesive taping. Physiotherapy is optimized by early triceps sural lengthening. Sequences of plaster can also be used. If conservative treatment is no longer effective, surgery should be considered. The purpose of this study was to evaluate retrospectively the outcome of congenital talipes equinovarus (CTEV) treatment with French physiotherapy combined with casting using the Dimeglio Classification System (DCS).

Materials and methods. This study included twenty five idiopathic clubfeet managed during a 2-year period between 2009 and 2010 in the University Hospital, Department of Physical Medicine and Rehabilitation of Douera, Algiers - Algeria. Nine infants with bilateral and 07 with unilateral clubfeet were assessed with DCS and treated according to the French physiotherapy method combined with casting. The sixteen infants were less than two months of age [4 girls and 12 boys; mean age 28 ± 20 days, range 6 – 60 days] and did not undertake prior manipulation. Only Dimeglio grade I, II and III clubfeet were included in this study and were managed by the same physiotherapist. Statistical analysis was carried out using SPSS software, using Student's T and Khi2 test. By the end of the study, patients were reassessed using the same classification system: The Dimeglio score varies between 0 and 20,

- Grade I: benign deformity, score < 5.
- Grade II: moderate deformity, score = 5 < 10.
- Grade III: severe deformity, score = 10 < 15.
- Grade IV: very severe deformity, score = 15 to 20.

Success of the French physiotherapy combined with casting was defined with score < 5 at the end of the study, corresponding to grade I.

Results. The mean follow-up time was 12.4 ± 7.53 months. We found statistically significant differences between the two DCS scores before and after physical therapy (9.16 ± 1.95 Vs 3.8 ± 1.5; p< 0.0001).

Results. were considered good if the DCS<5. The rate of good results for grade II versus grade III was 83% Vs 25% respectively. The difference was statistically significant with p<0.01.

Conclusions. The French method combined with casting reduces clubfoot deformities but does not eliminate the need for mini-invasive surgical procedures. Equinus is the most difficult deformity to manage. Posterior release is sometimes necessary in a severe foot**.**

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ANTIGRAVITATIONAL TREADMILL AND BROKEN FEMUR IN ELDERLY PATIENTS: REHABILITATED COURSES COMPARISON.

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Introduction. Having a pain, the weakness are some of factors which make difficult, sometimes impossible, the deambulation recovery or holding oneself erect related to broken proximal femur in elderly patients permitted load. The main purpose is to value the effects and the possibility on the load reduction of the lower limbs in the precocius phases of the rehabilitated course.

Materials and methods. 20 patients, aged between 80 and 90, with broken proximal femur results have been followed up dealt with a reduction surgical operation and synthesis with intramedullary nail EBA type. People has been subdivided into two groups, a group making the antigravitational treadmill treatment and the control group. The Alter G parameters have been formulated following a protocol based on time increases according to the load percentage, the speed and the sitting lenght.

Results. Patients with antigravitational treadmill treatment have had a swifter recovery of motor performance, an easier control of pain and a better static and dynamic balance.

Conclusions. Emerged data, even though the restricted case histories, the brief studying lenght and the unhomogeneous group due to comorbidity, point out the time admission reduction on patients making antigravitational treadmill treatment compared with the control group.

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EARLY POSTOPERATIVE REHABILITATION AFTER RADICAL CYSTECTOMY FOR INVASIVE BLADDER CARCINOMA

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Introduction. One the most demanding procedures in urology is radical cystoprostatectomy for invasive bladder carcinoma. There are various approaches, both single and multimodal. Acceptable indication for radical intervention are high grade carcinomas with no possibility of endoscopic control and infiltrating carcinomas without distant metastatic spreading. Radicality in men is achieved by resection of bladder, prostate and seminal vesicles. Lymphadenectomy of pelvic nodes is performed for staging purposes. In women, radical operation assumes anterior exenteration and urethrectomy. It is also required to remove anterior vaginal wall, uterus, adnexa and ovaries. In various series, mortality rate varies from 1% to 3%, while the morbidity rate varies from 25% to 41%. Usual complications include infection, stomal disfunctionality, stenosis, bleeding or stomal ulcerations, peristomal dermatitis, wound infection and iatrogenic injuries od adjacent structures.

Materials and methods. From January 2008. to June 2010, we have performed 180 radical cystectomies for invasive carcinoma of bladder at Clinic for urology, Clinical center of Serbia, Belgrade. The study included 150 men and 30 women. Average age of patients was 62,5 ± 10 years (32 to 77 years). Ureterocutaneostomy was performed in 90 (50%) patients; ileal conduit was performed in 75 (42%) patients; orthotopic continet urinary diversion was performed in 13 (7%) patient, while 2 (1%) patients underwent sigma-rectum pouch method. Patients without any postoperative complication left the hospital between 10th and 21st postoperative day.

Results. Complications following this radical surgical intervention was bleeding, stenosis, ulceration and bleeding from stoma, wound infection and thromboembolic events. Patients with locally advanced disease and metastases in pelvic lymph nodes were treated with the ureterocutaneostomy as a method of urinary diversion. Complication rate in this group of patients was 28%, and they were mostly related to wound healing process duo to accompanying hypoproteinemia and secondary anemia. Overall mortality in this group of patients was 15%.Complications in the group of patients with ileal conduit were present in 9%, while mortality rate was 4%. Most common causes of death were thromboembolic events, sepsis, acute myocardial infarction, pneumonia and DIC. Complication in the group of patients with continent urinary diversion were present in only 5% of them. The most common complications were intestinal obstruction, stercoral and urinary fistulas. These complication usually required reoperation with ureterocuteneostomy or ileal conduit. Successfulness of early postoperative rehabilitation and physical therapy was measured by number of postoperative hospital days. (p<0,01). Patients without stoma placement or ileal conduit have left the hospital faster then patient who have received stoma or ileal conduit. Patients with ureterocutaneostomy were discharged from hospital up to 21 days after the intervention. Rehabilitation protocol included breathing exercises, exercises for periferal circulation, inhalation, verticalisation and kinesitherapy.

Conclusions. Good selection of patients and preoperative preparation with adequate early postoperative rehabilitation are very important in preventing postoperative complications. Important part of postoperative rehabilitation include respiratory rehabilitation, kinesitherapy for lower extremities, early verticalisation and intermittent pneumatic compressions. Preoperative placement of elastic bandages and early mobilization of patients after the surgery reduces thromboembolic complication by about 15%. Physical method, such as tapping for mucus discharging and breathing exercises help in prevention of pneumonia, atelectasis and acute respiratory distress syndrome. Providing the patients with the possibility of early walking or independent personal hygiene has positive effect on patients psychological status and can lead to faster healing.

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RAPID FUNCTIONAL RECOVERY AFTER SURGICAL MANAGEMENT OF ACROMIOCLAVICULAR DISLOCATIONS IN YOUNG ATHLETES

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Introduction. Acromioclavicular injuries in athletes are very common, especially in rugby, wrestling, judo, bicycling or other sport activites in general. In the treatment of acromioclavicular separations we prefer surgery, and use it in all cases of grade 3 injury, in some cases of grade 2 injury and in chronic cases of painful shoulder. We report our experience with original surgical technique, especially for young atletes. This technique stabilize the lateral end of clavicle only with thread suture, creating stable, elastic fixation. The lateral end of clavicle is resected for 5-7 mm. Three holes are drilled at a distance of about 1cm in, from each of the anteror and posterior edges of the outer third of clavicle. The clavicla is stabilized with a thread suture through these holes, primarily by its anterior edge to coracoacromial ligament below. The detached trapezius muscle is fixed with the holes on the posterior edge of the clavicle. This original technique was for the first time presented in Belgrade in 1988 at East and West combined Orthopaedic Meeting.

Materials and methods. With this presentation we would like to share our experience with this technique in solving the acromioclavicular dislocation just with active athletes. There were 19 cases of active athletes from 18 to 30 years old. Postoperative treatment- Arm is immobilized with triangle scarf for two weeks. On the first postoperative day, we start with early rehabilitation - active exercises for the elbow, and passive exercises for the shoulder with the elevation to 80 degrees. Then, active-assisted exercises and in the second week active exercises for the shoulder up to 120 degrees of elevation. At the beginning of the third week patient doesn't use a triangle scarf anymore, and gradual active elevation up to full volume is allowed. The exercises are performed with the control of physiatrist and operators.

Results. The follow-up examination were performed 2, 6, and 12 months after surgery. The patients were tested for range of mowement, shoulder strength and presence of pain. Repeat X-rays were obtained on each occasion. With the patients up to 30 years old we attained the best results- the full range of movements and painless shoulder still after 3 weeks of surgery. They returned to sport training at 3 weeks after surgery and to full sport activites at 5-6 weeks. No alteration in clavicular position occurred by any patient.

Conclusions. With this original technique there is an elastic fixation of the lateral end of clavicle to coracoacromial ligament. Therefore, it is possible to quickly start with the active movements of abduction and anteflexion in the shoulder without fear of cracking these links. Also, this type of clavicle fixation does not limit the physiological rotation of clavicle during arm elevation. The minimal resection of the lateral end of clavicle increases the joint space, and eliminating the possibility of collision of the lateral end of clavicle to the acromion, in turn significantly contributes to possible early involvement of initial exercises. Analyzing the results, we confirmed our long-term clinical experience that with the technique by Vukov, in young people up to age 30, we achieve very rapid recovery, which is especially important for athletes.

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ICF CORE SET PER LO STROKE: ANALISI DELLE CATEGORIE MAGGIORMENTE RILEVANTI IN UN SETTING RIABILITATIVO

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Introduction. L'applicazione dell'ICF core set per lo stroke (ed. 2004 e 2009) fornisce importanti informazioni nella pratica riabilitativa circa il profilo del funzionamento del soggetto affetto da stroke. Una modalità per la valutazione della sua fruibilità prevede l'analisi delle categorie che maggiormente risultano rilevanti nella valutazione del soggetto nel corso del programma riabilitativo. Scopo del presente lavoro è analizzare le categorie che con maggior frequenza vengono prese in considerazione in una popolazione di soggetti (ricoverati e non) in riabilitazione e appartenenti a 2 ASL differenti, onde identificare differenze nei profili riguardanti regime di ricovero, età e ASL di appartenenza.

Materials and methods. Sono stati reclutati soggetti ricoverati (R) o in DH-ambulatoriali (DH-A) presso le U.O. di Riabilitazione Specialistica degli Istituti Clinici Zucchi (Carate B.za) e della A.O. Ospedali Riuniti di Bergamo (Mozzo), cui è stato somministrato l'ICF core set per lo stroke (ed. 2004 e revisione 2009). È stato considerato rilevante ogni codice dei 4 settori ICF cui corrispondesse un'alterazione in almeno il 20% del campione. La distribuzione è stata analizzata prima nella popolazione generale, poi raggruppando i pazienti in base al regime di assistenza (R o DH-A), all'età (< o > 65 anni) e all'ASL di appartenenza (Monza-MB o Bergamo-BG).

Results. Reclutati: 56 soggetti (39 ASL-MB, 17 ASL-BG). Considerando *tutta la popolazione* sono risultate rilevati 30 categorie sulle 41 delle *funzioni corporee*, 2 su 5 riguardanti le *strutture corporee*, 49 su 51 *attività e partecipazione* e 19 su 33 l'*ambiente*. La revisione del 2009 non sembra aver aggiunto categorie importanti: nella nostra popolazione solo 1 categoria della parte *b* su 17 è risultata significativa. Riguardo al *regime assistenziale*, nei ricoverati sono risultate poco rilevanti solo 3 categorie della componente *attività e partecipazione*, mentre nei soggetti in DH-A si sono dimostrati molto più importanti alcuni *fattori ambientali*, la cui rilevanza non era emersa nella popolazione generale. La suddivisione per *età* ha evidenziato come più significative nei <65aa le categorie delle parti *b,d* ed *e* che fanno riferimento alle interazioni con gli altri e col mondo esterno, mentre nei soggetti >65aa quelle *funzioni corporee* più legate alle esigenze fisiologiche (es. sfinteri). La suddivisione per *ASL di appartenenza* ha evidenziato una variegata distribuzione delle categorie, con l'emergenza di 4 funzioni corporee e 1 fattore ambientale nella popolazione dell'ASL-MB e di 6 categorie *b*, 1 *s*, e 4 *e* nei soggetti dell'ASL-BG, rispetto all'analisi compiuta su tutta la popolazione. Infine 3 categorie b, 2 s, 1 d e 1e non sono mai risultate rilevanti per nessuna stratificazione.

Conclusions. Il core set per lo stroke contiene tutte le categorie principalmente interessanti il paziente in riabilitazione. Importanti differenze nella sua applicazione risultano soprattutto per il regime di assistenza, dove le alterazioni nelle voci relative alle relazioni esterne prevalgono nei pazienti in DH-A. Nei soggetti <65aa hanno grande rilievo le relazioni sociali, mentre le politiche sanitarie non sembrano differire nelle due ASL. Rilevante è che per tutti i tipi suddivisione le categorie più importanti per la riabilitazione riguardanti la sfera motoria e le alterazioni neuropsicologiche (vd afasia) sono sempre le emergenze principali, ovvero la riabilitazione non differenzia i giovani dagli anziani.

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THE EFFECT OF REHABILITATION IN PATIENTS AFTER THE SURGERY RECONSTRUCTION OF THE ANTERIOR CRUCIATE LIGAMENT

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Introduction. Recent years there is an increasing number and severity of knee ligament injuries, the most common of the anterior cruciate ligament (ACL), as well as, the aspiration of patients for the complete functional recovery. Treatment is conservative and surgical (ligamentoplasty). The objective is to determine the effect of rehabilitation treatment in increasinf the range of motion in the operated knee and rough driving force (RDF) of the femoral muscles.

Materials and methods. 40 male patients were involved, average age 25±5. All patients suffered knee injury during sports (basketball, football. NMR diagnosed the knee. Patients were treated by the arthroscopic reconstruction ACL method STG (semitendinosus-gracilis) graft fixed by the interference screws. All patients started with the rehabilitation treatment four weeks after the surgery. Interferential current was applied along and over the knee muscles of the treated leg. Electro stimulation for the muscle quadriceps, hydrokinezy therapy, as well as individual kinezy therapy were applied, in the aim of the increase of the range of motion in the treated knee, during the period of three weeks. In the next three weeks hydro-kinezy therapy and individual kinezy therapy were applied. Measuring of RDF of the femoral muscles was performed by the Manuel Muscle Test (MMT). Measuring of range of motion in the operated knee and RDF of the femoral muscles were performed before the rehabilitation treatment started, after three weeks, after six weeks of the rehabilitation program, as well. Achieved results were processed by the Pearson's $\chi 2$ test and Student's t- test.

Results. After three weeks of intensive rehabilitation treatment, there was statistically significant difference in the increase of the range of motion in the operated knee 40±2,5 degrees (p<0,05), RDF of the femoral muscles for the mark 3±0,5 according to MMT ((p<0,05), and after six weeks the range of motion was 90±5 degrees (p<0,01), RDF of the femoral muscles for the mark 4±0,5 according to MMT (p<0,05). None of the patients had undermined integrity of the graft.

Conclusions. Intensive rehabilitation treatment has a benefitial effect on the functional recovery of the patients after the ligament plastics of the anterior cruciate ligament.

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PROTOCOLLO DI PREVENZIONE DELLE LESIONI DA PRESSIONE NEL PAZIENTE MIELOLESO

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Introduzione. Il movimento è considerato la prima difesa dell'organismo contro i danni da compressione: al paziente valutato a rischio deve essere applicato un protocollo personalizzato di cambio di postura, per alternare le zone sottoposte a compressione ed evitare ostruzioni del microcircolo, quindi ischemia e necrosi. È essenziale stabilire un protocollo di cambio di postura specifico per ogni paziente a seconda delle sue condizioni e al tipo di superficie di appoggio. Viene indicato un intervallo di tempo di due ore perché è stato dimostrato che è questo l'intervallo di tempo medio necessario perché si instauri sofferenza cutanea con danni al microcircolo, nella realtà ciò può avvenire ad intervalli di tempo maggiori o minori per le diverse caratteristiche locali e generali del singolo soggetto. MATERIALE E METODI: è stato preso in considerazione il triennio 2009-2011, sul totale dei pazienti ricoverati sono stati estrapolati i pazienti che al momento del ricovero non presentavano lesioni da pressione. A tutti è stato applicato il protocollo di prevenzione delle lesioni da pressione: valutazione del rischio utilizzando scala di valutazione di Braden, e in base al punteggio attuato il piano di prevenzione apposito avvalendosi di presidi ed ausili e cambio posturale secondo protocollo. Per valutare l'efficacia di questo protocollo abbiamo considerato quanti pazienti hanno sviluppato lesioni da pressione sul totale dei pazienti entrati senza, e il motivo per cui sono insorte.

Risultati. Nel triennio 2009-2011 sono stati ricoverati in Unità Spinale 307 pazienti, tra questi 226 non presentavano lesioni da pressione. Dopo applicazione del protocollo 7 pazienti hanno sviluppato lesioni da pressione durante il ricovero nella nostra riabilitazione.

Conclusione. Il protocollo di prevenzione messo in atto in Unità Spinale ha consentito di ridurre al minimo l'insorgenza delle lesioni da pressione, ma prevede grossa collaborazione da parte del paziente. I limiti di questo protocollo, che a nostro parere possono aver determinato l'insorgenza delle lesioni negli 8 pazienti, sono da ricercare nella poca collaborazione del malato al protocollo stesso o/e nella compromissione dello stato generale del paziente.

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VERTEBRAL ROTATION IN ADOLESCENT IDIOPATHIC SCOLIOSIS CALCULATED BY RADIOGRAPH AND BACK SURFACE ANALYSIS BASED METHODS. CORRELATION BETWEEN THE RAIMONDI METHOD AND RASTERSTEREOGRAPHY.

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Introduction. The aim of the present research is to evaluate the relationship, between an X-ray based method (i.e. the Raimondi method), and rasterstereography in the evaluation of Vertebral Rotation (VR) in a sample of Adolescent idiopathic scoliosis (AIS) patients.

Materials and methods. A total of 25 patients (9 males; mean age: 14 ± 3 years; mean height 160.7 ± 11.9 cm; mean weight: 52.4 ± 10.7 kg) were considered for the present analysis. The mean Cobb angle was 30°± 9°. The evaluation of VR on radiographs was made using the Raimondi Method regolo (Marrapese Editore - Demi S.r.1., Rome). Rasterstereography was performed by means of Formetric 4D® (Diers International GmbH, Schlangenbad, Germany). For the purposes of the present research we analyzed the VR obtained by Raimondi Method and rasterstereography in all those vertebrae of both in thoracic and lumbar spine, in which the Raimondi Methods confirmed the presence of VR. Correlations between rasterstereographic and radiographic measurement of VR were calculated, both for the whole sample and for thoracic and lumbar spinal segments considered separately, using Spearman's correlation coefficient by rank (r_s).

Results. When applied to the entire spine, measurement of VR by means of the two methods highlighted a significant correlation (r=0,52; p< 0,0001). A significant correlation was found also when lumbar and thoracic VR were considered as separated groups (r=0,30, p=0,024 and r=0,47, p=0,002, respectively).

Conclusions. Rasterstereographic evaluation of VR shows a good correlation with the Raimondi Method, thereby confirming the possibility of use this non-invasive method for deformity assessment in AIS patients.

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LOSS OF BODY WEIGHT AS A RISK FACTOR FOR COMPRESSIVE NEUROPATHY NERVUS PERONEUS

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Introduction. Compressive neuropathy is nerve damage caused by pressure on the nerve due to disproportion between the volume of the peripheral nerve and the space through which the nerve passes.

Materials and methods. At the Clinic of Physical Medicine and Rehabilitation (Clinical Center of Serbia, Belgrade) viewed and treated 64 years old patient, due to difficulties in walking. On first examination, in objective status, was noted a discreet spasm of paravertebral muscles, mobility of the spine in lumbosacral spine area was satisfactory. Sciatic nerve stretch test and femoral nerve stretch test on both lower extremities were negative. On the right foot forces in myotomes L4 and L5 was assessed at 0/5 on MMT and the left 2 - / 5 on the right. Achilles and patellar reflexes bilaterally decreased. From the history it leads to the patient in the last few months lost 20kg (44 POUNDS). From diagnostic tests we have the following: MRI lumbosacral spine indicating polidiscopathy on several levels, abdominal ultrasonography (normal findings), and blood tests (the reference values). Electromyuneurography indicates mutal comressive peroneal nerve neurophaty. After this diagnosis, was started with physical therapy in the form of electrical stimulation, magnetic therapy, thermotherapy and kinesitherapy.

Results. Immediately after the first examination was administered peroneal orthosis on the right calf. After three months there is improvement and the right to assess -3 / 5 and left 4/5 on MMT test. Walk better, no further applications orthosis.

Conclusions. The rapid loss of body weight may be a risk factor for nerve compression neuropathy. Detailed anamnesis of the patient, EMNG diagnosis and treatment physical therapy, leads to improvement of walking.

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IL RIENTRO A DOMICILIO DELLE PERSONE CON GCA: RISULTATI DI UN PROGETTO SPERIMENTALE DI ACCOMPAGNAMENTO

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Introduction. Per le persone con gli esiti di una GCA dopo la dimissione dalla degenza riabilitativa si apre un periodo gravido di ansie e spesso irto di difficoltà nella gestione del quotidiano. La seconda Conferenza di Consenso

promossa dalla SIMFER nel 2005 ha raccomandato la continuità e l'integrazione dei servizi di assistenza sanitaria e socio sanitaria, la creazione di una rete territoriale che supporti in modo personalizzato le persone con GCA e le loro famiglie, la realizzazione di surveys finalizzate al monitoraggio delle condizioni di vita delle persone assistite. Scopo di questo lavoro è di presentare i risultati di un programma sperimentale di accompagnamento nel ritorno al domicilio di persone con GCA.

Materials and methods. Nella prima fase del progetto sperimentale sono state raccolte le testimonianze, riguardo al vissuto della fase di rientro a casa, di 94 persone dimesse da almeno due anni da un centro di riabilitazione intensiva per gli esiti di una GCA traumatica edei loro familiari. Sulla base delle criticità emerse sono state formate tre assistenti sociali le quali hanno realizzato tra il 2010 e il 2011 un servizio sperimentale di accompagnamento post dimissione che ha supportato 7 famiglie, per un periodo di sei mesi ciascuna, agevolando il contatto con gli enti erogatori dei servizi sanitari e socio sanitari secondo un progetto personalizzato.

Results. La survey ha evidenziato una complessa serie di problemi connessi al rientro al domicilio che vanno dalla gestione di problemi sanitari, alla difficoltà ad accedere ai servizi sociosanitari alla restrizione della partecipazione sperimentata sia dai pazienti che dai familiari. Il servizio sperimentale di accompagnamento ha permesso di individuare le priorità per ciascun paziente ed aggregato in una rete personalizzata i servizi più utili per il raggiungimento degli specifici obiettivi. Al termine del percorso la famiglia è stata resa autosufficiente nel rapporto con i servizi sociali e sociosanitari salvo saltuarie richieste di supporto che ricevono risposta per il tramite dell'Associazione Marchigiana degli utenti.

Conclusions. La dimissione dalle strutture di degenza riabilitativa è spesso una fase di complessa gestione per la persona con GCA e per la sua famiglia, sia per il vissuto emotivo, sia per le oggettive difficoltà a muoversi senza guida in un contesto in cui i servizi di supporto possono essere frammentari e difficilmente accessibili. L' affiancamento da parte di personale specificamente formato sulle necessità delle persone con esiti di GCA si è rivelato utile sia per contenere le ansie del paziente e dei familiari sia per risolvere molti problemi pratici fino a raggiungere la capacità di gestirli in autonomia, sia a creare una condizione di integrazione dei servizi sanitari e socio sanitari disponibili sul territorio.

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REHABILITATION AFTER HIP FEMOROACETABULAR IMPINGEMENT ARTHROSCOPY: CASE REPORT

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Introduction. Femoroacetabular impingement (FAI) is increasingly recognized as a cause of hip pain in young adults. It is due to the abnormal contact between the proximal femur and the acetabular rim which is more common with structural anomalies of the hip. FAI symptoms typically begin insidiously. Pain is localized to the groin and is often unilateral. Examination of patients will demonstrate a range of motion limited in hip internal rotation and adduction. MRI is considered the most specific and sensitive imaging study in the diagnostic of FAI**.** The initial approach is conservative but surgical treatment is warranted if symptoms persist. We present a case report of a young woman who underwent rehabilitation program following arthroscopic surgery for FAI.

Materials and methods. Case Report.

Results. Female patient, 29 years-old. The patient reported an insidious onset of right hip and groin pain six months prior to formal diagnosis. Increasing pain prompted her to see an orthopaedic surgeon. Diagnosis was confirmed by MRI which revealed a right cam femoroacetabular impingement. Given the persistence of symptoms and lack of success with conservative management, the patient elected to undergo surgical intervention via arthroscopy in February 2012. The patient was observed in Physical and Rehabilitation Medicine (PRM) consultation in March 2012 and reported slight pain at rest and moderate pain with ambulation. Passive range of motion of the right hip revealed the following: flexion 60 degrees, abduction 30 degrees, adduction 10 degrees. Internal and external rotation were not evaluated due to patient´s pain. The patient was apprehensive with actively moving the right hip. The degree of muscular strength was: hip flexors 2/5; hip abductors 4/5; hip adductors 3/5. The patient ambulated with two crutches. The patient underwent a rehabilitation program that consisted in assisted active and passive range of motion, muscle strengthening exercises, stretchings, cardiovascular conditioning, proprioception and gait training. In consultation of May 2012 the patient was reassessed and reported only slight pain with activities which involved greater efforts. The range of motion of the right hip was: flexion 100 degrees, abduction 45 degrees, internal rotation 20 degrees, external rotation 40 degrees. All hip, knee and ankle muscle tests were graded 5/5. The patient had normal gait without assistive device. Currently, the patient keeps in rehabilitation program and is going to be reassessed in our consultation next month.

Conclusions. Surgical treatment by arthroscopy has assumed increasing importance in the medical approach of FAI. The postoperative rehabilitation plays a key role in optimizing the functional outcome. The overall goal of postoperative rehabilitation is to return the patient to pre-injury level of activity, which involves restoration of normal range of motion, gait, and strength. Rehabilitation need to follow several basic principles: consideration of soft tissue healing constraints; control of swelling and pain to limit muscular inhibition and atrophy; early range of motion; limitations on weight bearing; early initiation of muscle activity and neuromuscular control; progressive lower extremity strengthening, proprioceptive and cardiovascular training. In this case report the patient achieved positive outcomes with a full return to the pre-injury level of activity. The overall success of the FAI depends on the appropriate surgical procedure and rehabilitation program.

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EVALUATION OF EFFECT OF BIOMAGNETOTHERAPY ON PAIN AND FUNCTIONAL ABILITY IN PATIENTS WITH HAND OSTEOARTHRITIS - "SHAM"- CONTROLLED SINGLE CENTRE STUDY

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Introduction. In the literature exist contradictory data about effect of electromagnetotherapy in various conditions. Such a therapy would have a potential in treatment of rheumatic pain diseases, including osteoarthritis of the hands. Therefore, in our study we tried to objectively explore the efficiency of electromagnetotherapy with novel physical parameters on pain and functional ability in patients with hand osteoarthritis.

Materials and methods. The study included 22 consecutive patients with verified diagnosis of hand osteoarthritis (according to ACR criteria) who visited the physiatric or rheumatological outpatient clinic of the Sestre milosrdnice University Hospital Center in Zagreb (Croatia). All patients underwent therapeutic exercise for hands and received the active or „sham" biomagnetotherapy in duration of 15 minutes on the device NiTe 50G (Festta). In the active group the frequency of the magnetic field was 900-1500 Hz and the power of the magnetic field was 0.5-52 Gauss, what is different according to standard electromagnetotherapy. In the „sham" group the device was not active. The following data were collected before the therapy, after 15 therapies and one month upon completion of the therapy: demographic data, patient's evaluation of intensity of pain in hands in rest and during movement, global patient's and investigator's evaluation (everything measured on the horizontal visual analog scale - VAS). Furthermore, grip strength of the dominant hand (with the dynamometer in mmHg), distance of the top of the finger which is the most distant from the palm (measured with the ruler in mm) were measured, as well as disease-specific AUSCAN questionnaire. The results were analyzed using statistic program Statistica. The data were presented as the mean value with standard deviation. For independent variable it was used the T-test for dependent and independent pattern. P value < 0.05 was considered significant.

Results. Regarding the initial data, mean values of the tested variables in all patients with hand osteoarthritis were statistically significantly decreased for intensity of pain in rest, upon second measurement, for intensity of pain in movement, global patient's and doctor's evaluation and AUSCAN values and also the grip strength was significantly improved, after second and third testing (Table 1 and 2). Comparing to "sham" group, in patients in active group upon therapy (second measurement) a pain in hands in rest statistically significantly alleviated (P=0.02) and there was observed statistically significant improvement in the parameter of body functions (peeling) (1.27, 2.18, t=2.56, df=20, p=0.02) – both tested parameters of AUSCAN. In other tested parameters there was no statistically significant difference between the active and the "sham" group.

Conclusions. In our sample of patients with hand osteoarthritis the improvement was observed in all patients regardless the difference between

active or sham group, regarding the decrease of pain and improvement of functional ability. In comparison to the control (sham) group the biomagnetotherapy of certain parameters has shown a positive effect in some parameters of AUSCAN, whereas this was not the case for the majority of other tested parameters. For making the firm conclusion about the effect of biomagnetotherapy on symptoms and sings of hand osteoarthritis a larger sample of subjects is necessary and that is why we continue the study.

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USE OF MRI TO PREDICT THE EFFICACY OF CONSTRAINT-INDUCED THERAPY IN HEMIPLEGIC CHILDREN

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Introduction. Constraint-induced movement therapy (CIMT) is a rehabilitation method to reduce impairment and improve the functional use of the affected upper limb in children affected by congenital and/or acquired hemiplegia. This therapy is based on the behavioral research conducted by Taub[1] in the 1980s. Neuroimaging techniques, in particular the functional Magnetic Resonance Imaging (fMRI), have been used to study the cortical reorganization following rehabilitation treatment and it opened new opportunities to verify the induced changes [2,3,4,5]. Resting state (RS) functional MRI (fMRI) and diffusion tensor (DT) MRI were evaluated to evaluate the short-term structural and functional brain changes after CIMT in children with hemiplegia. MRI predictors of clinical improvement after the treatment were studied.

Materials and methods. We acquired Brain dual-echo, DT MRI and RS fMRI sequences in 16 children with hemiplegia and 10 sex- and age-matched healthy controls at baseline, 10 weeks and 6 months after CIMT. QUEST and BESTA clinical scale scores were administered. From DT MRI, fractional anisotropy (FA), mean diffusivity (MD) and tensor values were measured in the lesion, in the affected and unaffected corticospinal tract (CST), and corpus callosum (CC). The sensorimotor RS network was identified using the independent component analysis and the GIFT software. Differences between groups in demographic, clinical variables and MRI variables were assessed using the Fisher exact test or the Mann Whitney U test, for categorical and continuous variables.

Results. At baseline, patients showed abnormal DT MRI metrics in the symptomatic lesion, the affected CST and the CC. Reduced functional connectivity (FC) at rest was found in cerebellum bilaterally, right precentral gyrus, and right secondary sensorimotor cortex (SII). After 10 weeks, an improvement at QUEST and BESTA was observed, and it remained stable 6 months after the end of CIMT. The MRI predictors of clinical improvement at week 10 were baseline average lesion fractional anisotropy (r^2=0.50) and right SII FC (r^2=0.10); and at month 6 they were baseline CC axial diffusivity (r^2=0.44) and right SII FC (r^2=0.58).

Conclusions. DT MRI and RS fMRI seem to be promising and objective markers in prediction of clinical outcomes following CIMT in children affected by hemiplegia.

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PROTOCOLLO SPERIMENTALE DI AUTO LINFODRENAGGIO NEL LINFEDEMA DELL'ARTO SUPERIORE IN PAZIENTI ONCOLOGICHE CON ESITI DI SVUOTAMENTO DEL CAVO ASCELLARE. RCT CON CIECO DEL VALUTATORE.

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Introduction. In seguito ad intervento di mastectomia e quadrantectomia con dissezione ascellare per carcinoma mammario, si manifesta un linfedema dell'arto superiore omolaterale nel 20-25% dei casi; tale percentuale arriva al 35% quando si associa a radioterapia. Al linfedema consegue un peggioramento della qualità della vita a fronte di una importante riduzione dell'abilità funzionale. La comparsa non è prevedibile, raramente risolvibile (può considerarsi permanente), si può manifestare precocemente o a distanza di anni dall'intervento. La causa non è sempre identificabile ed è conseguente all'intervento nonostante non si manifesti in tutte le pazienti operate. Il peggioramento rapido del linfedema può esser conseguente anche alla ripresa di malattia. Accanto alle tecniche classiche di linfodrenaggio, in letteratura sono presenti lavori di educazione sanitaria e formazione in autogestione del linfodrenaggio manuale domiciliare ossia di programmi di "auto-linfodrenaggio". Tale programma consiste nell'esecuzione in autonomia da parte della paziente di un insieme di esercizi, sfioramenti, bendaggi e massaggi appresi durante un periodo di formazione con un fisioterapista. Questa tecnica non sostituisce i cicli di linfodrenaggio necessari a ridurre il linfedema ma ne permetterebbe il mantenimento ed avrebbe un ruolo attivo nella prevenzione e nel controllo del linfedema.

Materials and methods. Questo studio ha lo scopo di valutare l'efficacia del trattamento di auto-linfodrenaggio sulla qualità della vita percepita e sull'entità del linfedema. Il protocollo prevede 10 incontri formativi atti ad insegnare alle pazienti il trattamento autonomo e quotidiano del linfedema. Tale formazione è guidata da fisioterapisti ed al termine è prevista la prosecuzione in autonomia da parte della paziente e la compilazione di un diario dell'attività svolta. Alle pazienti si consegna una brochure educazionale ed un dvd con gli esercizi proposti. Outcome primario: valutazione centimetrica dell'avambraccio con linfedema. Outcome secondari: volume della mano, punteggi di scale sulla qualità della vita delle pazienti, complicanze ed aggravamento della sintomatogia. Lo Studio è prospettico, randomizzato e controllato, con cieco del valutatore. La randomizzazione è a blocchi (AB). Criteri di inclusione: tumore al seno almeno da un anno, mastectomia/quadrantectomia e rimozione di almeno 2/3 linfonodi ascellari, chemioterapia/radioterapia concluse, linfedema dell'arto superiore, linfodrenaggio tradizionale concluso da non più di 6 mesi. Sono criteri di esclusione la neoplasia non risolta e le infezioni in atto. Le valutazioni volumetriche e centimetriche si effettuano all'inizio del lavoro dei gruppi di auto-linfodrenaggio, ad uno, due e sei mesi dalla fine del percorso di formazione. All'invio di questo abstract sono state arruolate 20 pazienti.

Results. L' analisi dei dati verterà sull'omogeneità dei gruppi all'entrata, la compliance, il confronto sulla percentuale di soggetti che raggiungono l'obiettivo di non peggioramento del linfedema e della qualità della vita.

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VALUTAZIONE DI SCREENING DELL' OSTEOPOROSI IN UNA POPOLAZIONE DI PAZIENTI RICOVERATI IN RIABILITAZIONE INTENSIVA

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Introduction. In considerazione della rilevanza dell'Osteoporosi (Op) in termini di disabilità, mortalità e costi sociali, il cui impatto è destinato ad aumentare dato l'invecchiamento progressivo della popolazione nei paesi industrializzati, l'OMS la considera una delle problematiche più urgenti da affrontare, preceduta solo dalle patologie cardiovascolari. Nonostante le linee guida internazionali consiglino di trattare l'OP con l'associazione di Calcio, vit D e farmaci antiosteoporotici in grado di ridurre significativamente il rischio di fratture (fino al 50%) [1], la percentuale di pazienti trattati è bassa [2]. In quest' ottica è stata istituito nel nostro Ospedale un protocollo di studio con l'obiettivo di individuare precocemente e trattare in maniera multidisciplinare i pazienti ad elevato rischio di frattura da Op.

Materials and methods. Obiettivo dello studio era di individuare e contenere il rischio di frattura da osteoporosi nei pazienti dell'UO di Medicina Riabilitativa dell' INRCA di Ancona. Criteri di inclusione: tutti i pazienti degenti da gennaio a giugno 2012; condizioni mediche stabili. Criteri di esclusione: comorbilità con patologie o disabilità gravi che non permettessero l'esecuzione dell'esame US falangi. I soggetti erano sottoposti a valutazione comprensiva di:1) rilevazione clinico-anamnestica dei fattori del rischio fratturativo tramite anamnesi guidata per identificazione di forme di Op senile e rilevazione clinica dei fattori di rischio per fratture da Op, 2) esame densitometrico di screening mediante Ultrasuonografia delle falangi, 3) valutazione fisiatrica dello stato clinico-funzionale del paziente. Per i soggetti ad aumentato rischio di frattura venivano quindi applicati programmi di prevenzione/trattamento farmacologici e non, unitamente ad un programma riabilitativo comprensivo di interventi di riduzione del rischio di caduta. Misure di outcome: La valutazione strumentale eseguita mediante US falangi con rilevazione del livello densitometrico osseo mediante T-score e Z-Score e della classe di rischio di fratture a 10 anni.

Results. Sono stati inclusi 17 soggetti, età media 74 (±12) anni. La valutazione densitometrica e del rischio di frattura a 10 anni indicano un' elevata incidenza di osteoporosi nella popolazione in studio; in particolare, il 35% della popolazione mostrava una classe di rischio elevata (il 43% se riferito ai soggetti di sesso femminile), il 30% medio alta (il 36% se riferito ai soggetti di sesso femminile), il 6% media, il 12% medio bassa. I pazienti con classe di rischio da medio-bassa ad elevata, pari all'83% dei soggetti, sono stati avviati al programma riabilitativo. Al 35% dei pazienti è stata prescritta una terapia farmacologica specifica.

Conclusions. A conferma dei dati di letteratura, nessuno dei pazienti della popolazione in studio era mai stato sottoposto ad un qualche tipo di trattamento antiosteoporotico. La sperimentazione ha confermato la rapidità nell' esecuzione, la maneggevolezza e l' economicità della valutazione densitometrica mediante US falangi in pazienti ricoverati. L'ipotesi che il rischio di frattura da Op nel paziente geriatrico sia sottostimata suggerirebbe di eseguire, nei pazienti ad aumentata probabilità di osteoporosi, la valutazione US falangi come supporto strumentale, anche al fine di definire il criterio di rimborsabilità dei farmaci. Questo protocollo può supportare la gestione clinica di Op con individuazione e trattamento precoce di pazienti a rischio di fratture osteoporotiche. Inoltre, come suggerito dalla letteratura, la prescrizione intra-ospedaliera della tp antiOp a pazienti fratturati ha il vantaggio di incoraggiare il medico di medicina generale a proseguire il trattamento dopo la dimissione [3].

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SIGNIFICANCE OF LASER THERAPY AND LASER ACUPUNTURE IN GONARTHROSIS TREATMENT

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Introduction. Gonarthrosis is chronical, degenerative progressive disease. Treatment consists of medical therapy (NSAIL, analgesics) combined with physical therapy. Laser therapy and laser acupuncture are safe, painless procedures performed in short time aimed at relieving pain and increasing amplitude of joint movement.

The purpose of the study is to compare therapy with laser aplication on painful areas of the affected ancles with laser application on acupunctural points on pain relief and ankle flexion amplitude in patients with gonarthrosis.

Materials and methods. 36 patinets (26 women and 10 man) aged 64 to 76 (mean age 70 years) are included and prospectively followed during gonarthrosis the treatment at Institute of Rheumatology,Belgrade. Diagnosis was made on ACR criteria lasted from 4 -20 years (average12 yrs.) Pain was measured by VAS scale (Visual analog scale, 1-100 mm) before and after therapy. Ankle movement was measured with ankle arthrometer in degrees before and after completition of therapy. Patients were randomly asigned in two groups: First group with 20 patients, 14 women and 6 man, aged 66 -72 years and second group with 16 patients (12 woman and 4 men) aged 64 to 76 years. Both groups were comparable in age, gender distribution and gonarthrosis duration. Laser used in this study was Mediclaser 637 Electronic design, valve length of 780 Nm, and power of 70-mW.First group of patients was treated with Laser beam applied on painful areas with 70 mW, frequency of 2500 Hz in 60 seconds and energy absorption of 2, 1 J / cm^2 3 times a week, in 10 consecutive doses. Patients in second group were treated with Laser applied on acupunctural points i.e. VF41,VU40,VF34,H 8,G34,G35,PE31,PE32, with frequency of 70Hz, power of 40mW, 0,6 J/cm^2 energy absorption in 30 seconds, 3 times a week with 10 consecutive applications. Evaluation of treatment in both groups are performed before and after the end of treatment and statistically analyzed in Windows SPSS 16 program.

Results. 1. Analyzing the VAS scale data we found in group I significant decrease in pain before and after therapy (74,5 to 29,0) with 45,5 points. In group II, VAS score declined from 78,13 to 19,38, with 58,7 points improvement. It estimated high statistical significance in both groups, Wilcoxon test, p<0,001. 2. In measuring ankle movement amplitude, mean flexion angle before therapy for the first group was 82,5° and 120,5° after treatment with 38,0° improvement. In a second group the amplitude was 80,0° before therapy and 123,13° after treatment with 53,0° improvement. High statistical significance was achieved also in improvement of ankle flexion amplitude in both groups (Wilcoxon test, p<0,001). 3. Significantly better pain relief and increased knee flexion was detected in group II - Laser acupuncture application (Mann –Whitney p<0,05).

Conclusions. Analysis clearly shows positive impact of Laser therapy in pain relief, and ankle movement amplitude, with better results of laser applications on acupunctural points during treatment.

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UPPER LIMB ROBOT-ASSISTED REHABILITATION IN HEMIPLEGIC CHILDREN

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Introduction. In the last decade several rehabilitation strategies have been used to increase functional recovery in children, to improve their autonomy and quality of life. Great progresses have been achieved due to a multidisciplinary clinical and rehabilitative approach towards children's problems, developing new materials and making of orthosis, administration of medicines for spasticity treatment and functional surgery. New high technological devices are available for rehabilitative evaluations, training and for use in substitution of abilities lost and no more amendable. Some previous studies have shown the effectiveness of robot-assisted therapy in acute and chronic phase of recovery on upper limb impairments in after stroke treatment of adult patients. Patients who received robotic therapy had significant gains in motor coordination and muscle strength of the paretic upper limb. Our intent is to verify, through a clinical and robotic evaluation, if the robot therapy of hemiplegic children secondary to Cerebral Palsy can lead to recovery of upper limb impairment.

Materials and methods. The design is an uncontrolled pilot study with pre-post treatment outcome comparison. Participants: 20 children, ages 5 to 15 years old, suffering from congenital upper limb motor impairment. Patients were engaged in a robotic therapy program with InMotion2 performed 18 (1-h) sessions, at a frequency of three times a week. The robot-assisted upper limb therapy consisted of goal-directed planar reaching tasks over a period of 6 weeks. Because this is an end-effector based robot, no modifications were required to allow its use by small children except to modify the chair size and the hand-holder to fit smaller hands. MIT-Manus is a planar two degrees-of-freedom highly backdrivable (*i.e.* low inertia and friction). During therapy, subjects were seated with the trunk strapped by a 5-point seatbelt to limit forward trunk compensation, and their paretic arm was placed in a handholder attached to the robot end-effector. Modified Ashworth Scale (MAS), Passive Range of Motion (ROM) of shoulder, elbow and wrist, Reaching Performance Scale (RPS), Melbourne Scale (MS), Fugl-Meyer Assessment (FMA) Scale and robotic evaluation were administered to the children at the beginning and at the end of therapy.

Results. Robot-assisted training produced statistically significant improvements from admission to discharge in the FMA, MS and MAS scores. In addition, significant improvement of robot based metrics was observed (quantified by the movement performance indexes Jerk Metric and Average Speed). Robot assisted training led to spasticity decreases in chronic cases, as shown by the reduction of MAS. It led to improved trunk-upper extremity postural attitude as demonstrated by improved RPS, and it was well accepted by parents and children as observed in the Parent's Questionnaire. The video-game approach increases the treatment motivation in children and it seems to be able to activate neuroplasticity essential for recovery. Moreover, robot-assisted training delivers a highly reproducible motor learning experience, quantitatively monitors and adapts itself to the child's progress, and ensures consistency in planning a therapy program.

Conclusions. Our findings indicate that short-term, goal-directed robotic therapy can significantly improve motor abilities of the exercised limb segments in children with an injury of central neural system and that the time course of motor recovery can be influenced by repetitive and intensive exercise training without a modification of muscle tone having a negative impact on the performance. Therefore, robot therapy can play a key role within the rehabilitation techniques for the recovery of post-lesion residual capabilities in children suffering from hemiplegia. Integration of RMT with regular PT treatment may further enhance its effectiveness.

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MULTI-FACETED BENEFITS OF REHABILITATION IN ADULTS AFFECTED BY SEVERE HAEMOPHILIA: A CASE REPORT

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Introduction. The most typical manifestation of haemophilia is intra-articular bleeding (haemarthrosis). In adult patients with severe haemophilia (PWH) a history of recurrent bleeding leads to a condition of chronic haemophilic arthropathy, characterized by synovitis as well as by the destruction of articular cartilage and subchondral bone. Arthropathy is a complication causing severe pain, deformity, loss of motion and functional disability. It is strongly recommended that PWH engage in a regular physical activity and perform a specific exercise regimen. This should be conceived by a haemophilia multidisciplinary team including an appropriately trained physiotherapist. Such an approach proves to have positive effects on the prevention of articular and muscular bleeding as well as on the control of musculoskeletal complications. Moreover, it improves cardiovascular function, reduces the risk of obesity and several metabolic diseases, and contains the incidence of falls, osteoporosis and osteoporotic fractures. In sum, a regular physical activity can substantially improve the quality of life of PWH.

Materials and methods. The present survey will focus on the case of a 46-year-old man affected by severe haemophilia A. The patient was HCV-positive and followed a personalized prophylaxis. A careful biomechanical evaluation pointed out that the most affected joints were ankles (tending to ankylosis), elbows and knees. Consequently, an appropriate physiotherapic treatment was performed 3 times a week, 2 hours a day for 6 months. It included passive mobilization of joints, strength training, electrical stimulation of muscle trophism, PNF (Proprioceptive Neuromuscular Facilitation) techniques, balance and flexibility activities. Assessment employed the Visual Analogic Scale (VAS) for pain evaluation and the Haemophilia Joint Health Score (HJHS) for musculoskeletal status, while the levels of functional independence in daily life, as well as in transfers and mobility, have been evaluated on the basis of the Functional Independence Score for Haemophilia (FISH). The patient's data were recorded before the exercise programme's beginning (T0), with follow-up at 3 months (T1) and 6 months (T2).

Results. VAS (ref. score 0-10) decreased from 7 at T10 to 5 at T1 (T1 vs. T0: $P<0.05$) and 2 at T2 (T2 vs. T1: $P<0.005$). HJHS was 35.6 at T0 (ref. score 5-50), 21.4 at T1 and 11.1 at T2. In general, the most satisfactory results regarded ankles. FISH (ref. score 13-28) was 14.2 at T0, 19.3 at T1 and 24.5 at T2.

Conclusions. The case considered here provided consistent evidence for fruitfulness of rehabilitation in adults with severe haemophilia A. Even if adult haemophilic patients frequently show relevant complications affecting the musculoskeletal system, their general condition can be remarkably bettered through an appropriate physiotherapic approach. Such an approach is able to reduce chronic pain and disability as well as to cut down on the use of anti-inflammatory drugs. In more general terms, a significant improvement of life quality and a higher degree of social participation can be reasonably expected to arise as results of similar treatments.

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GRAVIDANZA E MIELOLESIONE: IL RUOLO DELLA TERAPIA OCCUPAZIONALE

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Introduzione. In letteratura pochi studi affrontano il tema della gravidanza, del travaglio e del parto nelle donne mielolese Un numero ancora minore porta l'attenzione sulle difficoltà pratiche legate a questa condizione, preferendo analizzare più lo stato emotivo della gestante (1), che le reali difficoltà di ogni giorno, come ad esempio la gestione dei trasferimenti, o della vescica neurologica (2). Spesso quindi queste donne, anche se soddisfatte delle cure mediche, riferiscono di non ricevere dagli operatori sanitari informazioni sufficienti sulla sessualità durante la mielolesione, sentendo il bisogno di affidarsi alla letteratura esistente, a consulenze specialistiche ed al sostegno dei pari. Obiettivo del nostro studio è esaminare le difficoltà vissute dalle donne con lesioni del midollo spinale in gravidanza e nel post-partum, sottolineando l'importanza di appropriate cure mediche prima, durante e dopo il parto.

Materiali e metodi. Abbiamo considerato 11 donne mielolese di origine traumatica o non traumatica (4 tetraplegiche, 6 paraplegiche, 1 paraparetica) con una gravidanza post-lesione, reclutate da diverse Unità Spinali e diverse associazioni nazionali. Ad esse è' stato somministrato via e-mail un ampio questionario riguardante i problemi della vita quotidiana durante la gravidanza (condizioni cliniche, postura, trasferimenti, utilizzo di carrozzina, igiene personale, abbigliamento, gestione della casa): una donna su 11 non ha risposto. Inoltre, 4 donne su 11 sono state intervistate circa le difficoltà del post-partum (trasferimenti, maternità, adattamento dell'ambiente domestico e uso di ausili).

Risultati. Il 55% delle donne non aveva mai considerato come la disabilità potesse influenzare l'esperienza della gestazione prima di rimanere incinta. 17 gravidanze si sono concluse con successo. Per il 73% del campione i primi due trimestri non hanno rappresentato un problema: il 100% ha indicato l'ultimo come il più difficile a causa dell'aumento del peso corporeo. I problemi maggiori sono stati: trasferimenti, uso della carrozzina ed attività quotidiane. Uno dei problemi più comuni è stato il sollevamento della carrozzina e degli arti inferiori per l'aumento di volume dell'addome. Al settimo mese di gravidanza, il 45% riferisce difficoltà nei trasferimenti carrozzina - letto e letto-carrozzina. Un aumento di tale percentuale (55%) si è verificato nei trasferimenti carrozzina- wc e viceversa e carrozzina - bagno e viceversa; oltre l'80% delle donne ha indicato il trasferimento carrozzina-doccia come il più critico. Il 55% delle donne aveva difficoltà nella vestizione della parte inferiore del corpo. I problemi erano minori se l'attività veniva svolta rimanendo sedute sul letto.

Conclusioni. Con un appropriato piano di cure e follow-up le donne con lesione spinale non presentano particolari problemi di ordine ginecologico in gravidanza ed hanno bambini sani con complicazioni minime. Questo studio conferma la convinzione che i medici, unitamente al team riabilitativo, hanno un ruolo importante nel facilitare la riconquista della sessualità e della funzione riproduttiva nelle donne mielolese. All'interno di un programma riabilitativo, che permetta alla donna con lesione spinale di esaudire il proprio desiderio di maternità, il terapista occupazionale dovrebbe sviluppare con abilità e fantasia un programma che possa consentire loro di prendersi adeguatamente cura di se stesse e del proprio neonato, individuando le strategie e gli ausili più opportuni per questa delicata fase di vita.

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READING AND WRITING SKILLS IN CROSSED APHASIA: A SINGLE CASE STUDY

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Introduction. Crossed aphasia (CA), firstly reported by Bramwell (1899), is an acquired language impairment in which a right-hemisphere lesion leads to aphasia in a right-handed person. This peculiar pattern of atypical cerebral dominance has been comprehensively described only in few cases and its prevalence is estimated to be in the range of 0.39-3% of total cases of aphasia (Bhatnagar *et al.*, 2011). Although classically only non-fluent aphasia has been described in CA, nowadays, with over 200 cases cited in the literature, all the main aphasia syndromes (expressive, receptive, conduction, transcortical, anomic, and global) have been reported. From a neuroanatomical point of view, lesions associated with CA can be either cortical or subcortical (thalamic, caudate nucleus, portion of the internal capsule and periventricular white matter). Even if the main features of oral language have been extensively studied, less is known with respect to both the reading and writing abilities associated with CA. In this paper, we describe a case of CA in a brain-damaged patient (E.C.) native speaker of Italian, a shallow orthography language. The

patient suffered from a middle-cerebral-artery ischemic stroke, following dissection of the internal carotid artery. We extensively tested oral language and visuo-spatial functions, along with reading and writing skills.

Materials and methods. E.C. was presented with the following tasks: i) the Italian version of the Aachen Aphasia Test (AAT); ii) naming; iii) repetition of words and nonwords; iv) oral lexical decision; v) reading aloud of words and nonwords; vi) reading aloud of words with unpredictable stress position; vii) written lexical decision; viii) semantic categorization; ix) writing. Also the attentional and visuo-spatial functions were tested by means of the following tasks: x) lines bisection; xi) Albert's barrage test.

Results. Language examination using the Italian version of the AAT demonstrated the existence of a nonfluent aphasia characterized by the production of short sentences, severe anomic word-finding difficulties and a number of phonemic errors. In a naming task, E.C. correctly named 58/80 pictures, committing 2 visual errors, 4 phonological errors and 11 semantic errors. In a repetition task, he correctly repeated 13/15 natural nouns, 14/15 objects, 13/15 function words, 14/15 abstract nouns, 5/15 nonwords and in an oral lexical decision task, he performed 133/144. In a task of reading aloud words and nonwords, he correctly read 8/15 concrete nouns, 4/15 concrete objects, 1/15 function words, 1/15 abstract nouns and 0/15 nonwords, thus showing effects of concreteness, grammatical class and lexicality. In a task of reading aloud of words with unpredictable stress position, he correctly read 18/40 words, with no stress errors. In a writing task, he correctly spelled 6/80 regular words with complete one-sound-to-one-letter correspondence, 5/15 regular words with syllabic conversion rules, 4/55 words with unpredictable transcription, 0/8 loan words, 4/25 nonwords. The analysis of attentional and spatial functions revealed severe unilateral neglect.

Conclusions. In the present work we have tested, by means of several behavioural task, patient E.C., who suffered from crossed aphasia after right cerebrovascular disease. We've interpreted the results of the neuropsychological assessment of the language functions (oral and written) in the context of the Information-Processing Model of reading, repetition and writing (e.g., Patterson, 1986). The lexicality effect in the repetition task reveals a damage to the acoustic-to-phonologic conversion rules, whereas the route from the phonological input lexicon to the phonemic buffer is intact. The reading tasks revealed the presence of phonological dyslexia (i.e., damage to the orthographic-to-phonological conversion route), whereas the severe damage in writing both words and nonwords can be accounted for assuming a damage to the phonological-to-conversion abilities. In brief, we assert that the residual reading and writing skills in patient E.C. can be explained hypothesizing damage to all the three subword-level conversion rules described in the model.

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QUALITÀ DI VITA IN PAZIENTI SOTTOPOSTI A RIABILITAZIONE POSTOPERATORIA DOPO INTERVENTO DI RIDUZIONE E SINTESI CON CHIODO GAMMA3 PER FRATTURA DI FEMORE: ANALISI A DISTANZA DI 12 MESI.

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Introduction. Le fratture di femore rappresentano un problema sanitario importante nei paesi industrializzati. Si è stimato che i cambiamenti demografici dei prossimi anni comporteranno un incremento del numero di fratture di femore nel mondo dai 1,66 milioni del 1990 ai 6,26 milioni del 2050 (1), con relativo aumento dei costi legati ai ricoveri ospedalieri di chirurgia e riabilitazione e alla gestione socio-sanitaria della disabilità residua (2-3). Il nostro studio prospettico si propone di indagare sulla qualità di vita nella sottopopolazione dei pazienti con frattura di femore trattata mediante riduzione e sintesi con chiodo gamma3 e rieducazione post-operatoria precoce a distanza di 12 mesi dall'evento.

Materials and methods. Un campione consecutivo non selezionato di 63 soggetti (6 maschi e 57 femmine - età media 80,6 anni) è stato reclutato dalla popolazione di pazienti affetti da postumi di frattura di femore sottoposti a intervento di riduzione e sintesi mediante chiodo gamma3, che ha afferito al reparto di Riabilitazione Ortopedica dell' I.C.O.T. di Latina tra Gennaio 2010 e Giugno 2011. I 63 pazienti arruolati sono stati trattati dal 3°giorno postoperatorio secondo un idoneo protocollo rieducativo della durata media di 25 ± 5 gg. L'outcome riabilitativo qualità di vita è stato stimato mediante somministrazione della scala di valutazione validata in italiano SF-12 (4-5) all'ingresso in reparto di Riabilitazione (mediante recall con riferimento al tempo prelesionale e con riferimento al tempo presente), e a distanza di 12 mesi dalla dimissione, mediante intervista telefonica. Secondariamente è stato valutato l'indice di deambulazione.

Results. I punteggi medi ottenuti a 12 mesi dall'evento traumatico indicano un soddisfacente recupero dei valori prelesionali relativamente ai due indici sintetici PCS (Physical Component Summary) e MCS (Mental Component Summary MCS) della scala SF-12. I valori di PCS si sono ridotti in media del 44,7 % in seguito all'evento lesionale; e sono poi migliorati in media del 63,3% in seguito al recupero funzionale a 12 mesi (tornando a valori uguali o maggiori ai valori prelesionali nel 36,5% dei pazienti). I valori di MCS si sono ridotti in media del 32,2% in seguito all'evento lesionale; e sono poi migliorati in media del 45,6% in seguito al recupero funzionale (tornando a valori uguali o maggiori ai valori prelesionali nel 41,3% dei pazienti). Alla dimissione dal reparto di riabilitazione il 100% dei pazienti era tornato a deambulare con ausili. Di questi il 31,7% aveva anche necessità di assistenza (ID 1-2); il 46% aveva necessità di supervisione (ID 3-4). Al follow-up a 12 mesi, il 17,5% dei pazienti era ritornato funzionalmente indipendente nella deambulazione (ID 7), mentre il 38,1% risultava indipendente nella deambulazione pur necessitando ancora di ausili in ambiente esterno e/o interno (ID 5-6). Il 14,3% necessitava ancora di supervisione (con o senza ausilio) (ID 3-4). Il 17,5% ugualmente necessitava ancora di assistenza per la deambulazione (ID 1-2). I pazienti irraggiungibili al follow up a 12 mesi sono stati il 12,7% (8/63). Tre tra questi erano deceduti nel corso dell'anno successivo al ricovero.

Conclusions. L'influenza dell'evento fratturativo su percezione della salute fisica e mentale dell'individuo valutata mediante scala SF-12 sembra determinare una caduta importante nel primo mese dopo il trauma, ma a distanza di 12 mesi è possibile rilevare un soddisfacente recupero dei valori di PCS ed un recupero pressoché totale dei valori di MCS rispetto ai valori originari prelesionali nella maggior parte dei pazienti. Lo studio sembra confermare l'evidenza clinica che l'opzione terapeutica intervento integrato chirurgico-riabilitativo precoce è associato con un significativo impatto sulla qualità di vita (6-7). Tali dati restano da implementare con un campione di numerosità maggiore al fine di offrire un quadro più statisticamente significativo del recupero funzionale e della qualità di vita nel paziente con postumi di frattura di femore e di indirizzare gli interventi di salute pubblica in maniera più efficiente.

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LONGTERM RESULTS IN THE TREATMENT OF FROSEN SHOULDER - THE ROLE OF PHYSICAL THERAPY

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Introduction. Frozen shoulder or adhesive capsulitis mostly affects people between the ages of 40 and 60, women more often than men. It is a result of fibroid degeneration of capsule and ligaments and therefore in painfull limited range of motion.

Materials and methods. We retrospectivly evaluated 28 patients with frozen shoulder. First group (17 patients) had drug (NSAID) and physical therapy (ultrasound, electric stimulation, stretching and range of motion exercises) and the second group (11 patients) had only drug therapy (including a cortison injection). We used the Constant -Murley Shoulder Outcome Score. Exclusion criteria were diabetes mellitus and previous surgical procedures.

Results. The Constant score consists of 4 parts. In the first group we recorded the increases in category „range of motion" from 12 to 36 points and in the category „pain" from 3 to 14. In the second group the increase in the category „range of motion" was from 14 to 25 points and in the category „pain" from 3 to 12 points. The patients from second group had shown significantly worse results regarding range of motion and pain and also the management of this patients was significantly longer (Mann-Whitney-Test, significance level of 0,05).

Conclusions. State of the art therapy of frosen shoulder means an aggressive combination of anti - inflammatory medication and physical therapy (physiotherapy). Physical therapy can take months for recovery, depending on the severity of the scarring of the tissues around the shoulder.

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ORTHOSIS IN AGE-RELATED HYPERKYPHOSIS - A CASE REPORT

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Introduction. Age-related postural hyperkyphosis is an exaggerated anterior curvature of the thoracic spine and is defined as a kyphosis angle greater than 40°. The prevalence in older adults varies from 20 to 40%. The etiology is not firmly established, it may develop from different processes: vertebral fractures, muscle weakness, degenerative disc disease, ligament degeneration or other. This disease is most prominent in women with multiple thoracic anterior wedge fractures. However, two thirds of those who are hyperkyphotic don't have vertebral fractures. [1.] With regard to the consequences of this condition, hyperkyphosis is a significant risk factor for future vertebral and extremity fractures, independent of low BMD or fracture history.[2] And because thoracic accentuated kyphosis adversely affects normal standing posture, it leads to impaired balance and an increased risk for falls.[3] Hyperkyphosis also restricts pulmonary capacity,[4] which can ultimately increases risk of mortality.[4] Additionally, women with this condition report more physical difficulty, more adaptations to their lives, and greater generalized fears than women without it. [1.] Recognition and treatment of hyperkyphosis could contribute to reduced risk of falls, fractures, and functional limitations, but there is a lack of effective medical interventions. Many patients are treated with osteoporosis antiresorptive or bone-building medications because they have low bone density or spine fractures. While osteoporosis treatment helps to prevent incident spine fractures, no medications have been shown to improve hyperkyphosis.[1] Vertebroplasty and kyphoplasty are surgical procedures that have been shown to reduce kyphosis angle, but in selected patient population's only.[1] Physical therapy should be a first-line approach, particularly because many of the causes of the disease are of musculoskeletal origin. Exercise based interventions and spinal orthosis are conservative rehabilitation management techniques that have shown promising health outcomes for affected patients.[3.] Prevention strategies for hyperkyphosis require testing to determine whether appropriately timed interventions might prevent age-related hyperkyphosis and reduce the associated cascade of fractures and functional impairments.

Case report. A 69 year old female patient came to our office complaining of hyperkyphotic posture with some years of evolution. She didn't have any relevant past medical history besides an humeral fracture 13 years ago. Her medication was an osteoporosis bone-building, calcium and vitamin D. Recently she had noted a worsening posture and functionality, because could no longer make a sufficient cervical extension to maintain her eyes looking forward. Along with hyperkyphosis she presented thoracic hipoexpansibility, reduced vertebral amplitudes and a normal neurological exam. Aiming to correct her posture and improve her functional performance she was prescribed a thoracolumbar orthosis with occipital and mental supports.

Conclusions. The rehabilitation for age-related hyperkyphosis is a growing area of interest among researchers and clinicians. Apart from being a cosmetic deformity, older persons who suffer from hyperkyphosis are at increased risk for a variety of adverse health outcomes that include poor physical function, pulmonary compromise, falls, fractures, and even earlier mortality. As kyphosis angle increases, physical performance and quality of life often declines, making early intervention for hyperkyphosis a priority. Screening for hyperkyphosis could be easily implemented in the clinical setting. The evidence to date suggests that relatively simple, available, and inexpensive conservative interventions may have a beneficial effect. Like in this case report, simple conservative interventions can improve patient's functionality. Further research is needed to develop optimal strategies to treat this disease and prevent its serious associated complications.

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REVISIONE E INCIDENZA DELL'AXILLARY WEB SYNDROME IN ESITI DI CANCRO MAMMARIO: NOSTRA ESPERIENZA

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Introduction. L' Axillary Web Syndrome (AWS) è una condizione autolimitantesi che può presentarsi in donne operate di cancro mammario. È riconducibile alla presenza di un cordone fibroso al cavo ascellare che può estendersi lungo l'arto superiore a livello della superficie flessoria fino alla fossa antecubitale. Talvolta può estendersi fino al I dito della mano omolaterale. Causa spesso dolore e limitazione funzionale. I movimenti principalmente interessati sono l'abduzione della spalla, l'estensione del gomito e i movimenti di flesso-estensione del polso. Scopo primario del nostro studio è stato evidenziare l'incidenza di AWS in pazienti con esiti di carcinoma mammario afferenti c/o l'Ambulatorio di Riabilitazione Oncologica dell'Azienda Ospedaliera-Universitaria di Parma dal gennaio 2011 ad aprile 2012.

Materials and methods. La ricerca è stata effettuata utilizzando il database dell'ambulatorio riabilitativo oncologico,a cui accedono a un mese dall'intervento di dissezione ascellare per neoplasia mammaria. I criteri diagnostici utilizzati per la diagnosi di AWS sono i seguenti: presenza di cordoni palpabili a livello di cavo ascellare e arto superiore; articolarità e limitazione funzionale di spalla, gomito e polso omolaterali; dolore arto superiore.

Results. Sono state incluse nello studio 50 pazienti donne di età media 58.80 anni; 37 pazienti sottoposte a quadrantectomia, 13 a mastectomia (incidenza di QUART 74% vs mastectomia). I criteri diagnostici sono stati rispettati in 22 pazienti: 1 paziente sottoposta a mastectomia, le rimanenti 21 a quadrantectomia. In 13 pazienti (59% delle pazienti) si è riscontrato dolore/senso di tensione associato alla presenza di una "corda" fibrosa estesa al gomito, associati a limitazione di ROM al gomito in estensione e di spalla in elevazione/abduzione. Una sola paziente ha riferito dolore all'avambraccio fino alla mano. Quattro pazienti che avevano AWS erano in trattamento adiuvante con CT.

Conclusions. Nel nostro studio l'incidenza cumulativa è risultata del 44% in accordo con dati degli studi precedenti dove l'incidenza variava dal 6% al 72%. L'AWS si è riscontrata per lo più in donne sottoposte a quadrantectomia in associazione a dissezione linfonodale ascellare, in quanto causa di stasi, infiammazione e fibrosi reattiva. Nella nostra osservazione quattro delle pazienti con AWS erano in trattamento RT e CT in accordo con dati di studi precedenti.

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LA PRESA IN CARICO RIABILITATIVA DELLA PERSONA CON LESIONE MIDOLLARE IN UNITÀ SPINALE UNIPOLARE: DALLA FASE ACUTA ALLA DOMICILIAZIONE

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Introduction. Obiettivo finale di una corretta presa in carico riabilitativa della persona con mielolesione è promuovere il maggior grado di autonomia possibile in modo tale da consentire un adeguato reinserimento nel precedente ambiente di vita [1]. In questo lavoro presenteremo i primi risultati riguardanti i ricoveri presso la nostra Unità Spinale Unipolare per sottolinea-

re l'importanza della preparazione del percorso di riconsegna del paziente al proprio domicilio.

Materials and methods. Il TEAM presente nella nostra U.S.U. è costituito da medici fisiatri, anestesisti, urologi, neurologi, infermieri, fisioterapisti, operatori socio sanitari, terapisti occupazionali, psicologa. Il paziente ricoverato viene accolto dal medico ed infermiere di turno. Il primo giorno successivo all'ingresso viene eseguita la visita di TEAM con compilazione delle scale di valutazione ASIA /FIM/SCIM e la definizione dei primi interventi ed obiettivi per la stesura del progetto riabilitativo [2]. Ad una settimana viene eseguita la riunione di programma e di famiglia (compilazione schede specifiche). A cadenza mensile viene aggiornato il progetto-programma riabilitativo, sulla base della verifica degli obiettivi prefissati e raggiunti. Durante il ricovero è previsto un percorso di addestramento del paziente o del famigliare/ caregiver alla gestione della cura personale, trasferimenti, utilizzo di ausili. Vengono effettuate delle prove di domiciliazione e, in fase pre-dimissione, un periodo di prova in appartamento domotizzato presente all'interno della U.S.U. per verificare le eventuali difficoltà nell'assistenza da parte del caregiver.

Results. Dal 19.09.2011 (data di inaugurazione della U.S.U.) sono stati ricoverati 32 pazienti con lesione midollare: 9 donne, 23 uomini, età media [3] 51,9 anni. Dei trentadue pazienti: 13 provenivano da reparti per acuti [2] (rianimazione/ neurochirurgia), 6 da altre strutture riabilitative della Regione o da altri reparti per acuti (per complicanze secondarie al danno midollare), 3 da Unità Spinali extra Regione (Imola), 10 dal domicilio. Alla valutazione iniziale effettuata con scala ASIA: 9 pazienti presentavano ASIA A, 11 ASIA B, 9 ASIA C, 3 ASIA D. Tra i 20 pazienti dimessi 3 con lesione incompleta hanno presentato miglioramento all'ASIA Impairment Scale di un grado, 1 paziente di due gradi. Alla dimissione 17 pazienti sono rientrati al proprio domicilio, 2 sono stati trasferiti in strutture residenziali, 1 paziente ad altra U.O. per acuti.

Conclusions. Il breve periodo intercorso dall'apertura della nostra Unità Spinale rende i pochi dati raccolti non statisticamente significativi. Tuttavia già dai primi risultati si evidenzia come una corretta presa in carico riabilitativa ed il coinvolgimento del paziente o famigliare/ caregiver, nella gestione delle attività della vita quotidiana con specifiche finalità di addestramento, ha permesso nella maggior parte dei casi (17 pazienti /20) il rientro al proprio domicilio.

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IMPROVEMENT OF MOTOR PERFORMANCE OF UPPER LIMB BY ACTION OBSERVATION THERAPY IN STROKE PATIENTS

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Introduction. Recent study demonstrated that mirror neuron system is activated both when we perform an action and when we observe a similar action being performed by other. Action observation may play a role in imitation learning and motor control relearning. The purpose of this study was to investigate whether Japanese version of action observation therapy (AOT) was effective for the treatment of the paretic upper limb on stroke patients.

Materials and methods. Twenty stroke patients (12 male, 8 female, mean age 66.3±10.8) entered a randomized crossover clinical trial and randomly assigned to the before AOT and after AOT groups. All participants received a conventional rehabilitation program delivered by two therapists 1 to 2 hours a day. AOT were administered to each group in addition to the daily conventional rehabilitation program. The before AOT group underwent AOT in the first 2 weeks (5 session per week), followed by another week with a conventional rehabilitation alone (5 session per week). The after AOT group underwent the same training in reverse order. We made the video scenes of an activity of daily living consisted of 58 scenes to use for the AOT. In the AOT phase, the patients watched video clips showing specific movements before the physical training. After having observed the video sequences for 3 min, the patients were asked to perform the observed action with their paretic upper limb using the same objects as those shown in the video. All patients underwent identical rehabilitation program, 5 sessions a week for 4 weeks. All patients were evaluated at baseline, 2 weeks and 4 weeks with Fugl-Meyer assessment scale, Action Research Arm Test (ARAT) and Motor Activity Log (MAL).

Results. All participants completed the study with no adverse events. In the AOT phase, there were obvious improvements in the all of outcome. Especially, there were significant improvement in the ARAT and MAL in the AOT group. No significant changes were observed in the control group.

Conclusions. Our results suggest that action observation has a positive additional effect on recovery of upper limb function after stroke. Further studies on the AOT may result in an innovative rehabilitative approach for upper limb function in stroke patients. Our rehabilitation program was the combination of the recruitment of motor areas by means of action observation with actual execution of the observed actions. This approach has a strong physiological basis in the discovery of the mirror neuron system. It is well known that action observation recruits areas within the mirror neuron system as a function of motor experience and competence of the observed actions.

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THE EFFECT OF THE SIMPLE AEROBIC CYCLE ERGOMETER TRAINING IN STROKE PATIENTS

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Introduction. In spite of the challenges, engaging in exercise programs after stroke may positively influence stroke-related outcomes, including voluntary movements and strength of the lower extremity, walking and standing up ability. The aim of this study was to evaluate the feasibility of adding simple aerobic cycle ergometer training to conventional rehabilitation after stroke and to determine effects on functional ability, endurance and activity of daily living (ADL).

Materials and methods. Forty-seven acute stroke patients (27 male, 20 female, mean age 65.2±11.4) entered a randomized clinical trial and randomly assigned to the intervention and control groups. Intervention groups received the simple aerobic cycle ergometer training (15-20 minutes, 3 days a week, for 4 weeks) in addition to the usual physical therapy. Control groups received the conventional therapy alone. All patients were evaluated at baseline, at 2 weeks and 4 weeks with 6 minutes drive distance by using the aerobic cycle ergometer, Fugl-Meyer assessment scale (lower extremity; FM-L/E), Functional Independence Measure motor score (FIM-m), 30-second chair-stand test (CS-30), and knee extension strength of paretic lower extremity. In the subgroup analysis, all patients were classified in the severe disability and mild disability. All outcome measures were analyzed by using the two-way repeated measures ANOVA.

Results. There were main effect ($P < 0.0001$) and interaction ($p = 0.0003$) at 6 minutes drive distance in the intervention group. In subgroup analysis, the mild disability group showed a significant on 6 minutes drive distance and FM. Furthermore, there were significant improvements at knee extension strength and FIM-m in the severe disability group.

Conclusions. The simple aerobic cycle ergometer training can be safely implemented without deleterious effects on stroke rehabilitation. A trend toward greater improvement in functional ability, endurance and ADL suggests that such training may have a beneficial effect and should be considered for inclusion in rehabilitation programs.

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VALUTAZIONE STRUMENTALE CON GAIT ANALYSIS E STABILOMETRIA IN PAZIENTI AFFETTI DA IDROCEFALO NORMOTESO:CASISTICA CLINICA E CONSIDERAZIONI RIABILITATIVE

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Introduzione. L'idrocefalo normoteso (NPH) è una forma d'idrocefalo cronico caratterizzato da disturbi della marcia, cognitivi e sfinterici. La terapia Neurochirurgica si avvale del Tap Test (TT), sottrazione di 40cc di liquor per simulare l'effetto della derivazione ventricolo peritoneale (DVP). Prima e dopo il TT il paziente è sottoposto al Test della marcia (tempo di percorrenza di 50 m) un miglioramento ha un valore predittivo positivo della risposta alla DVP. L'accuratezza del TT è però limitata dalla carenza di parametri quantitativi nella valutazione della deambulazione. L'obiettivo del lavoro è stato studiare lo schema del passo, le strategie motorie e il disequilibrio dei pazienti, prima e dopo TT, con Gait Analysis e Stabilometria, per individuare parametri quantitativi specifici, per supportare la diagnosi, i criteri di selezione chirurgica e la riabilitazione neuromotoria.

Materiali e metodi. Lo studio sperimentale è stato condotto su 21 pazienti (61-80 anni; 53% donne, 47% uomini) con diagnosi d'idrocefalo proba-

bile (linee guida internazionali) valutati prima e dopo TT. Il 19% ha avuto indicazione alla DVP ed è stato valutato con un follow-up a 6 mesi. La Gait Analysis ha permesso di documentare in modo quantitativo, non invasivo e ripetibile i parametri spazio-temporali del ciclo del passo, con l'impiego di sensori basografici goniometrici e EMG. I dati e i tracciati della Gait Analysis sono stati analizzati con un software dedicato, l'elaborazione statistica è stata condotta con il software SPSS 17™.

Risultati. La basografia prima del TT ha registrato parametri quantitativi dei disturbi della marcia: riduzione della cadenza del passo (cyc/min) (69% dei pazienti), aumento della durata della fase del passo in doppio supporto (94% dei pazienti) con aumento della fase di appoggio totale (88% dei pazienti), specifici indici di disequilibrio. I parametri quantitativi specifici di un miglioramento dopo TT sono stati: l'aumento della cadenza (p=0,01) e la riduzione della durata del doppio supporto (p=0,05). Nella goniometria è stato registrato un miglioramento della flessione di ginocchio (p=0,05) e della sua simmetria bilaterale (p=0,03), segni di migliore equilibrio. Nell'E.M.G, prima del TT, è stata registrata una co-attivazione del tibiale anteriore e del gastrocnemio, strategia d'instabilità posturale, e un aumento del numero di attivazioni con alterazione del timing del retto e del bicipite femorale. La Stabilometria ha registrato un miglioramento dell'equilibrio dopo TT (p=0,01). Dall'analisi statistica multivariata l'associazione dei parametri basografici, goniometrici e stabilometrici è risultata significativa (p=0,02). Nei pazienti valutati nel follow-up dopo la DVP è migliorata la velocità, i passi secondo lo schema corretto e il tempo in doppio supporto.

Conclusioni. La Gait Analysis e la Stabilometria, registrando dati quantitativi e ripetibili, offrono una maggiore sensibilità diagnostica**.** Mediante la Gait Analysis e la Stabilometria sono stati individuati parametri quantitativi dei disturbi della marcia e specifici del miglioramento della deambulazione e dell'equilibrio dopo TT. L'associazione della basografia, goniometria e stabilometria potrebbe essere proposta nella valutazione dopo TT. I parametri individuati possono indirizzare a una riabilitazione neuromotoria individualizzata e, se confermati con ulteriori studi, potrebbero contribuire alla diagnosi differenziale, ai criteri d'indicazione chirurgica e al follow-up.

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INTERVENTO DI TAPING NEUROMUSCOLARE IN BAMBINI CON PARALISI CEREBRALE INFANTILE IN CORSO DI RIABILITAZIONE MOTORIA.

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Introduction. Nelle ultime decadi l'uso del Taping Neuromuscolare (TNM) è stato indicato in atleti per incrementare forza muscolare e migliorare stabilità articolare, e in riabilitazione per migliorare range di movimento, disallineamento, circolazione linfatica e ridurre il dolore. Pochi gli studi in riabilitazione pediatrica: in fase acuta in esiti motori da encefalopatie, tumori cerebrali, traumi cranici, lesioni midollari; in corso di riabilitazione motoria in bambini con Paralisi Cerebrali Infantili (PCI). Presentiamo la nostra esperienza su 4 bambini con PCI, in trattamento neuropsicomotorio da più di 2 anni, cui è stato applicato il TNM, con l'obiettivo di valutare l'utilità di un'ortesi aggiuntiva in presenza di sintomatologia dolorosa ed edematosa e di alterazioni posturali.

Materials and methods. Inizio dello studio a settembre 2011, fine a giugno 2012. Popolazione: 4 bambini, 2 maschi e 2 femmine. Età ad inizio trattamento: 8 (caso# 4), 13 (#1 e 3) e 14 anni (#2). Diagnosi di PCI con tetraparesi ed inoltre: atteggiamento in extrarotazione-abduzione spalla dx e flessione gomito dx (#1); dolore ed edema ginocchio dx da frattura diafisi distale femorale (#2); dolore ed edema in gonartrosi bilaterale (#3); deviazione in varo-equino-supinazione dei piedi e retrazione achillei (#4). Applicato TNM, in corso di neuropsicomotricità, con tecnica decompressiva, da parte di un nostro Fisioterapista formato in taping neuromuscolare, 1 applicazione a settimana per 4 giorni per un totale di: #1, 40; #2, 3; #3, 8; #4, 16. Taglio dei nastri e sede di applicazione: (#1) nastro a Y largo 2,5cm sul bicipite dx, nastro a I largo 2cm sul trapezio e deltoide bilateralmente; (#2) a Y sul ginocchio dx; (#3) doppio ventaglio a 5 sulla regione anteriore ginocchia; (#4) a Y sui gastrocnemi e tibiale posteriore bilateralmente. Tutti tranne uno (#3) sono stati valutati almeno una volta con Gross Motor Function Measure (GMFM) prima dell'applicazione del TNM e tutti anche dopo; di tutti si ha materiale fotografico.

Results. Il nostro studio ha registrato tre sospensioni con ipotesi di ripresa (#1 e 4 in autunno; #3 secondo necessità clinica) e un drop-out (#2). I casi 1 e 4 hanno riportato un miglioramento dell'allineamento posturale nelle rispettive sedi di applicazione, con riduzione dell'extrarotazione-abduzione spalla e flessione gomito di dx (#1) e con riduzione della deviazione in varo-equino-supinazione dei piedi (#4). Il caso 3 ha riportato una riduzione sia dell'edema che della gonalgia bilaterale. Nel caso 2, nonostante un'iniziale riduzione dell'edema del ginocchio dx, si è avuto un drop-out per scarsa collaborazione della bambina durante l'applicazione.

Conclusions. Il TNM è una tecnica semplice, non invasiva, non farmacologica, economica, che può essere inserita nei programmi riabilitativi senza interromperli e può potenziare la funzionalità motoria in pazienti con multidisabilità. Nonostante i pochi dati presenti in letteratura in riabilitazione pediatrica, la nostra équipe multidisciplinare ha indicato l'uso del TNM in bambini con patologie multisistemiche. I nostri primi risultati sembrano promettenti e permettono di continuare a sviluppare la metodologia usata con il fine di indicare il TNM come tecnica aggiuntiva all'interno del percorso riabilitativo individuale nei nostri pazienti con multidisabilità.

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THE USE OF AN INERTIAL SENSOR TO MEASURE LOWER LIMB SPASTICITY IN VEGETATIVE STATE PATIENTS.

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Introduction. Spasticity is a common impairment in patients in a vegetative state and it leads to pain and severe reduction of joint range of motion. The assessment of spasticity in vegetative state patients is a main task since the early phases of the pathological condition in order to plan a suitable rehabilitation strategy. The "pendulum test" introduced by Wartenberg is a simple method useful for spasticity evaluation. Inertial sensors are recently introduced devices that can be easily applied for movement analysis purposes. The goal of the present study was to verify the applicability of inertial sensors for measuring spasticity and evaluate its test–retest reliability during the implementation of the Wartenberg pendulum test.

Materials and methods. Six healthy subjects and six patients in vegetative state were enrolled in this study. Subjects were comfortably positioned supine on a padded examination table with the trunk placed at approximately 40° from the horizontal plane and knees poised on the edge of the table so that the legs from the knees down were hanging freely. The examiner grasped the patient's foot and extended the leg under examination to the maximal extension position, then suddenly released and allowed the leg to oscillate freely under the action of gravity until it stopped. For each subject spasticity was evaluated in both lower limbs. Three measurement trials were performed for each leg. Test-retest reliability of measurement was assessed by performing two testing sessions on consecutive days. Modified Ashworth Scale was performed prior the pendulum test. Leg movements during the pendulum test were recorded using a commercial inertial sensor (MTx, Xsens Technologies, Enschede). Inertial data were acquired by a notebook computer at a sample rate of 100 Hz. Pendulum kinematics was analyzed by means of the resting angle, first angle of reversal, area under the curve, velocity to first reversal and time to first reversal. Repeated-measures ANOVA was performed to assess systematic errors. The Bonferroni correction for multiple variables was applied to adjust the level of significance. Subsequently test–retest reliability of the five parameters was computed in terms of the Intraclass Correlation Coefficients (ICC; relative reliability) and the Standard Error of Measurement (SEM; absolute reliability). The results obtained by the pendulum test were compared with the Ashworth scale values using the Spearman's rank correlation coefficients (rs).

Results. Repeated-measures ANOVA results revealed no significant systematic errors for all parameters. All parameters considered for the Test-Retest reliability for the spasticity evaluations showed high and significant ($p< 0.001$) ICC values and low SEM. The ICCs ranged from 0.77 to 0.89. No consistent correlation was found between the pendulum test results and the modified Ashworth scale. This result is in agreement with the findings of Nordmark and Anderson.

Conclusions. This study shows that an inertial system can be used to characterize leg kinematics during the pendulum test and provide quantita-

tive evaluation of spasticity of the quadriceps femoris muscles. The high ICC values obtained should indicate a good reliability. Inertial sensors can offer a reliable measure of spasticity combined with an easy and economic method suitable for extended clinical application.

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GRUPPI DI NEUROPSICOMOTRICITÀ DELL'ETÀ EVOLUTIVA IN CORSO DI RIABILITAZIONE INDIVIDUALE: UN'ESPERIENZA DI INTERVENTO INTEGRATO PRESSO LA U.I.L.D.M. SEZIONE LAZIALE.

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Introduction. Presentiamo uno studio sull'integrazione dell'intervento riabilitativo individuale e di gruppo, in bambini di età inferiore ai 10 anni e con diagnosi multisistemiche, seguiti presso il nostro Centro riabilitativo da almeno 2 anni. In letteratura sono riportati studi sulla terapia di gruppo in età infantile e adolescenziale per disturbi neuropsicologici ma pochi sulla terapia di gruppo per bambini con disabilità multisistemiche -motorie, cognitive, linguistico-comunicative- ed in corso di riabilitazione individuale. Obiettivo del nostro studio è l'integrazione della terapia neuropsicomotoria di gruppo e individuale (non interrotta) per bambini con multidisabilità, con il fine di poter sviluppare competenze relazionali, iniziativa e scambio comunicativo, comportamenti sociali, abilità motorio-prassiche e di linguaggio espressivo.

Materials and methods. Popolazione: 10 bambini, 6 maschi e 4 femmine; età dai 6 ai 9 anni; 4 con Disturbo Generalizzato dello Sviluppo (DGS), 4 con Ritardo Mentale (RM), 2 con Paralisi Cerebrale Infantile (PCI). Composti due gruppi per età e per obiettivi: gruppo A, 2 bambini con PCI, 2 con RM, 1 con DGS; gruppo B, 3 con DGS e 2 con RM. Conduttori, da ottobre 2011 a giugno 2012, due Neuropsicomotriciste dell'Età Evolutiva. Effettuati 25 incontri settimanali di 60', videoregistrati in 15 occasioni per l'osservazione dei comportamenti e delle relazioni, e per la specifica programmazione del lavoro. Strumenti di lavoro: agenda visiva; task-analysis; simboli grafici di comunicazione non verbale; materiale prassico e per drammatizzazioni; percorsi psicomotori; strumenti musicali ed informatici.

Results. Nel gruppo A: iniziativa e partecipazione alle attività, consapevolezza di essere "in gruppo", ridotta mediazione dell'adulto nell'interazione, percezione e "gestione" delle proprie emozioni, autonomizzazione nella socializzazione, comparsa del linguaggio verbale in 1 bambino, linguaggio con maggiore intenzionalità comunicativa, acquisizione sequenzialità motorio-prassica, miglioramenti di comportamenti "problema" in 2 bambini. Nel gruppo B: riduzione dei rapporti privilegiati nelle interazioni, maggiori "aperture relazionali", partecipazione al gioco di gruppo, comprensione delle emozioni e del "linguaggio corporeo" dell'altro, "ascolto dell'altro", iniziativa comunicativa verbale, miglioramento organizzazione motoria, linguaggio verbale più funzionale, miglioramento dei comportamenti "problema" in 1 bambino e delle difficoltà di adattamento in 2.

Conclusions. Il gruppo è un "piccolo-mondo" di relazioni e reciproci confronti, impraticabile per chi ha difficoltà relazionali, comportamentali, linguistico-comunicative e motorie. I pazienti del nostro studio hanno diagnosi multisistemiche, seguono interventi individuali sperimentando così relazioni privilegiate con il proprio Terapista. Incontrano difficoltà di inserimento sociale nel gioco di gruppo, di rispetto dei tempi di attesa e dei turni, di relazione e di comunicazione fra pari, di percezione ed espressione delle emozioni. La proposta di integrare l'intervento riabilitativo individuale, necessario e duraturo, con quello di gruppo, offre un'ulteriore possibilità di sperimentare le relazioni sociali, percepire e poter modificare i comportamenti sociali, sviluppando le proprie risorse comunicative verbali e non verbali.

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PARLARE SENZA PAROLE. LA COMUNICAZIONE NON VERBALE IN PERSONE CON MULTIDISABILITÀ, NEI PROPRI CONTESTI DI VITA.

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Introduction. Le persone con gravi disabilità comunicative hanno bisogni comunicativi complessi ma hanno anche il fondamentale diritto di poter influenzare le condizioni della loro vita attraverso la comunicazione. In casi di disabilità cognitiva, motoria, sensoriale, la Persona ha difficoltà a relazionarsi con l'altro, ad interagire con il contesto di vita, ad agire per lo sviluppo sociale. Un approccio di comunicazione non verbale come la Comunicazione Aumentativa Alternativa (C.A.A.) può favorire la possibilità di esprimere bisogni comunicativi complessi in Persone con disabilità di gradi diversi. Obiettivo del nostro studio è descrivere l'uso della C.A.A. nei contesti di vita di Persone con multidisabilità e complessi bisogni comunicativi, sviluppando una sua integrazione con un progetto riabilitativo e soprattutto coinvolgendo gli ambienti di vita dei pazienti.

Materials and methods. Popolazione: 15 pazienti, 10 bambini (età minima 3 anni) e 5 adulti (età massima 68 anni). Diagnosi: 7 con Paralisi Cerebrale Infantile; 3 con Sindromi Genetiche; 1 con Malformazione Cerebrale congenita; 1 con Disturbo Generalizzato dello Sviluppo con associato ritardo mentale; 3 con Ritardo Psicomotorio e 1 con sospetto di sindrome genetica. Linguaggio verbale assente o limitato. Scolarizzazione in corso per 11 pazienti (scuola materna, elementare, media e superiore); 1 adulto frequenta un centro educativo; 3 adulti vivono in casa. Studio iniziato a novembre 2009 e terminato a maggio 2012. Valutazioni effettuate da nostri Operatori formati in C.A.A.: raccolta dati con una scheda da noi elaborata e con videoriprese, su: come comunica il paziente e dove può comunicare i propri bisogni, quali ambienti frequenta, opportunità comunicative, barriere a comunicare, partners comunicativi, simboli ipotizzabili per l'uso (grafici o foto).

Results. Uso della C.A.A. nei contesti di vita possibile in 13/15 casi: in 1 caso in tutti i contesti significativi (famiglia, riabilitazione, scuola), in 5 solo in riabilitazione e in 7 anche in famiglia. In 2 casi l'approccio di C.A.A. non è stato sviluppato. Cambiamento della modalità comunicativa della famiglia in 3 casi. Strumenti comunicativi sviluppati: tabelle comunicative con simboli grafici e/o foto, per scelte in 8 casi, espressione emozioni e sentimenti in 4, narrare eventi personali in 5.

Conclusions. L'ambiente di vita sembra essere l'ambito da sviluppare in futuro per ottenere risultati generalizzabili, favorendo la conoscenza di approcci come la C.A.A., così come riportato da precedenti esperienze. I nostri migliori risultati si sono avuti in situazioni in cui la condivisione del progetto ha interessato il paziente e tutti i suoi contesti comunicativi significativi, mentre il fallimento è stato per mancanza di collaborazione della famiglia o per assenza di Operatori formati in C.A.A. Osservare direttamente l'interazione del paziente ha permesso alla famiglia di "pensare" a una qualche forma di riproduzione dell'interazione nel loro ambiente. E permettere il confronto con i partners comunicativi su come favorire l'interazione, o come sviluppare un contesto di vita significativo, ha favorito l'approccio e l'uso della C.A.A. ed il miglioramento della partecipazione sociale. Infine, sviluppare l'uso degli ausili comunicativi ha permesso ai pazienti di partecipare con maggiore frequenza alle opportunità comunicative nei contesti di vita.

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IL LAVORO DELL'OPERATORE SOCIALE IN UNITÀ RISVEGLIO

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Introduction. Il presente contributo mira a descrivere il ruolo dell'operatore sociale all'interno dell'equipe dell'Unità Risveglio della Fondazione Mauge-

ri di Pavia, al fine di delineare una modalità operativa che concretizzi un approccio multidisciplinare per pazienti che si trovano in coma, stato vegetativo e stato di minima coscienza. In letteratura si concorda, infatti, oggi sulla necessità di considerare la riabilitazione come un processo di pianificazione, realizzazione e raccordo di interventi multipli, secondo due principali assi: gli interventi riabilitativi sanitari e quelli sociali (Silvestri *et al.*, 2008). Tale premessa appare di fondamentale importanza in una Unità Risveglio, in cui appare necessario non solo un intervento sanitario, sia clinico che riabilitativo, ma anche una attenzione particolare alla esigenza di strutturare un percorso che permetta di assicurare la giusta qualità della vita per questi pazienti: individuazione della corretta struttura, uscita dal reparto e inserimento in una nuova struttura, ritorno al domicilio, re-inserimento scolastico-lavorativo. In letteratura, infatti, è dimostrato che il burden assistenziale del caregiver sembra aumentare nei momenti di transizione, per esempio al momento di uscita dal reparto e di ingresso in altra struttura o ritorno al domicilio. (Turner, Fleming, Parry, Vromans, Cornwell, Gordon, Owsnworth, 2010). Il lavoro dell'operatore sociale diventa perciò fondamentale nel garantire la piena realizzazione dei diritti della famiglia e del paziente: facilitazione dei contatti con i servizi del territorio, creazione di una rete di supporto sociale esterna alla Fondazione, inserimento in strutture, supporto ai familiari nell'espletamento delle pratiche (Folgheraiter, 2001).

Materials and methods. In Unità Risveglio lavora un'equipe di professionisti con competenze differenti, in collaborazione continua dal ricovero del paziente sino alle dimissioni, nell'ottica di favorire un approccio interdisciplinare al problema. L'equipe è composta da: Medici; Infermieri; Fisioterapisti e terapisti specializzati; Operatore sociale; Psicologo. L'operatore sociale lavora sia con l'equipe che con i familiari, inserendosi all'interno del progetto riabilitativo del paziente. Il lavoro si svolge nei seguenti step:

– Equipe settimanale con medici, caposala e psicologo:

Valutazione dei bisogni e delle esigenze del paziente e dei familiari: formulazione delle prime ipotesi di indagine e intervento sociale alla luce della condizione clinica del paziente (diagnosi e prognosi formulata dai medici) e della valutazione psicologica del burden e delle esigenze dei familiari (formulata dallo psicologo del reparto).

Aggiornamento sul lavoro sociale intrapreso: l'operatore sociale diventa il tramite tra famiglia e medici rispetto all'avanzamento del lavoro sociale che il caregiver sta svolgendo (svolgimento degli adempimenti burocratici, individuazione delle strutture).

– Colloquio individuale all'inizio della degenza con il caregiver: servizio informativo e valutazione dei bisogni.

– Colloqui periodici durante la degenza: servizio di assistenza (assistenza compilazione moduli, contatti con servizi del territorio, contatti con le strutture).

Results. Nel periodo marzo 2011-gennaio 2012 sono stati seguiti 23 pazienti per la presa in carico ospedaliera e il successivo inserimento in struttura o al domicilio. I familiari sono stati aiutati in particolare nel momento di transizione, quindi di uscita dalla struttura. I dati sono i seguenti:

– 1 soggetto rientrato al domicilio;
– 5 struttura residenziale di lungo degenza.
– 6 altra struttura di neuro-riabilitazione.
– 4 Altra struttura riabilitativa per stati vegetatati.
– 7 decessi.

Conclusions. Il lavoro dell'operatore sociale, all'interno dell'equipe riabilitativa, permette, pertanto di realizzare uno dei principali obiettivi della riabilitazione, oggi, quello cioè della continuità assistenziale e di cura. In particolar modo, permette di creare percorsi che non si esauriscono esclusivamente all'interno della struttura riabilitativa, ma che si aprono alla rete assistenziale territoriale, favorendo una integrazione del malato nel tessuto sociale, anche dopo la degenza nel proprio servizio.

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MODULAR TIGHT-LEG-FOOT ORTHOSIS VERSUS LOWER LIMB ORTHOSIS COMBINED SYSTEM IN A POST-STROKE PATIENT'S GAIT ANALYSIS: A CASE REPORT

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Introduction. Walking recovery is one of the main targets of the rehabilitative treatment of stroke patients and orthoses are used to correct residual motor impairments [1]. There are many kinds of orthoses, generally classified into static and dynamic [2]; our study aims to evaluate a prototype of leg tutor (modular thigh-leg-foot) on a post-stroke hemiparetic subject which combines the characteristics of a static and dynamic orthosis. It is flexible, allowing to separately use the single modules that compose it. Particularly, our study compares the results assessed on a patient who undergoes to gait analysis and clinical scales evaluation both walking with a modular thigh-leg-foot orthosis and wearing a combined system of commercial orthoses (knee tutor and Codivilla spring) [3].

Materials and methods. Comparative evaluation of the two orthoses was performed by a stereo-photogrammetric system (BTS Smart D), based on 8 infrared cameras with reflective markers placed on appropriate anatomical marks of the lower limb and a software reconstruction of the markers 3D-motion, which allows a quantitative description of the kinematic performance of the step. The enrolled subject was affected by right hemiparesis as a consequence of a left-frontal-temporal-parietal stroke. Time distance from ischemic lesion was 3 months. Furthermore, the patient was administered the following clinical scales: Mini-Mental State Examination, Fugl-Meyer Lower Extremity Assessment, Modified Ashworth Scale, Barthel Index. They were detected anthropometric measurements, hip-knee-ankle passive/active ranges of motion and the patient compliance with the use of a survey administration. Before the assessment, the subject underwent a brief training session to promote the compliance with the use of both orthoses. During the assessment 10 trials were performed: 5 using the prototype modular tutor and 5 using the combined system of commercial tutors.

Results. The results showed that the use of the modular tutor improved mean speed (0.26 vs 0.17 mt/sec), cadence (53.64 vs 37.68 steps/min) and stride length of the affected limb (0.77 vs 0.65 mt), overall improving motor performance. Moreover, temporal parameters analysis outlined the following results: reduction of the stance phase duration during single support in both sides (65% vs 71% of the gait cycle on the affected side and 76.5% vs 84.6% on the unaffected side, respectively); reduction of the stance phase duration during double support (21.2% vs 25.9% of the gait cycle on the affected side and 20.2% vs 30% on the unaffected side, respectively); increase of the swing phase duration (35% vs 29% of the gait cycle on the affected side and 23.5% vs 15.4% on the unaffected side, respectively).

Conclusions. The modular thigh-leg-foot orthosis increases mean speed, cadence and affected limb's stride length in our case. On the contrary it doesn't improve affected limb's temporal parameters (stance phase, swing phase and double support phase); these findings could be explained by the modular tutor's heaviness perceived. The use of this type of thigh-leg-foot orthosis as an alternative to the commercial ones should be better investigated by means of a larger sample size and the addiction of a control group.

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LA VALUTAZIONE DEL BURDEN ASSISTENZIALE IN UNITÀ RISVEGLIO

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Introduction. L'insorgenza di una cerebrolesione acquisita che esita in una condizione di coma, stato vegetativo o minima coscienza determina forti ricadute, in termini di carico assistenziale, sul caregiver coinvolto nell'assistenza. In letteratura (Chiambretto, 2010) si descrive una situazione di stress, depressione e ansia, a cui si aggiungono peggioramento della qualità della vita e tendenza all'isolamento sociale e alla perdita di interessi propri. Il benessere psicologico è compromesso in misura maggiore in relazione alla gravità della cerebrolesione e in relazione alla scarsa ricezione di supporto sociale. Il burden sembra, inoltre, aumentare nei momenti di transizione, per esempio al momento di uscita dal reparto e di ingresso in altra struttura o ritorno al domicilio. (Turner, Fleming, Parry, Vromans, Cornwell, Gordon, Owsnworth, 2010). L'introduzione del familiare in un percorso di accompagnamento psicologico sembra essere fattori

protettivi che permettono una riduzione del *burden* assistenziale. Obiettivo della ricerca è, pertanto, valutare il burden assistenziale dei caregiver dei pazienti ricoverati presso l'Unità Risveglio della Fondazione Maugeri di Pavia, al fine di sperimentare l'efficacia di un percorso di supporto multidisciplinare che sia in grado di affiancare i familiari durante la degenza del paziente, riducendo il carico percepito.

Materials and methods. Durante la degenza del congiunto, il familiare è inserito in un percorso di sostegno, a più livelli: colloqui di supporto con lo psicologo dell'unità, Assistenza sociale con l'operatore sociale; colloqui periodici di aggiornamento con equipe (medici, psicologo, operatore sociale, caposala e fisioterapista); Il carico assistenziale viene valutato, attraverso la somministrazione di questionari, condotta dallo psicologo, in due tempi: ingresso e uscita dal reparto. Gli strumenti utilizzati sono:

- Anxiety and Depression Scale, per valutare le ricadute emotive: sintomi ansiosi e depressivi,
- Caregiver Need Assessment, per la valutazione dei bisogni che il caregiver sente rispetto al suo percorso assistenziale: bisogno di supporto emotivo e psicologico e bisogno informativo.
- Family Strain Questionairre, per valutare il sovraccarico emotivo del caregiver (solo in uscita dal reparto).
- Prolonged Grief Disorder, per diagnosticare l'eventuale presenza di un disturbo da sofferenza prolungata (solo in uscita dal reparto).

La ricerca ha coinvolto 30 caregiver nel periodo febbraio 2011-febbraio 2012.

Results. Sono ora disponibili i dati relativi alla prima valutazione del burden assistenziale del caregiver, quella cioè all'ingresso in reparto del proprio congiunto. Dalle prime analisi emerge che tutti i caregiver, all'ingresso in reparto, presentano sintomi ansiosi, anche a livelli particolarmente elevati (circa l'80% dei caregiver si trova in fascia medio-alta d'ansia). Si rileva, invece, presenza di flessione dell'umore, ma in modo meno consistente rispetto ai sintomi ansiosi: quasi la metà dei caregiver, infatti, non sembra presentare sintomi depressivi. Rispetto alla valutazione dei bisogni, si evidenzia in modo massiccio il desiderio di ricevere, in primo luogo, supporto informativo.

Conclusions. L'intero campione sembra presentare un consistente livello di distress psicologico, caratterizzato principalmente da un elevato livello d'ansia. Dal punto di vista dei bisogni percepiti, i caregiver sembrano, in ingresso in reparto, riconoscere una maggior necessità di ricevere informazioni e un costante aggiornamento. Appare, quindi, necessario, durante la degenza del congiunto in reparto, inserire il caregiver in un percorso di supporto multidisciplinare e a più livelli. Tale percorso deve tenere necessariamente in considerazione il desiderio del familiare di poter ricevere un costante aggiornamento informativo e un supporto emotivo rispetto all'evento.

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TRATTAMENTO DELLA LOMBALGIA DA PATOLOGIA MECCANICA DEL RACHIDE MEDIANTE L'UTILIZZO DI UN POSIZIONATORE ANTALGICO LOMBARE: DATI PRELIMINARI

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Introduction. La lombalgia è una delle più diffuse patologie muscoloscheletriche che, nei paesi industrializzati, colpisce fino all' 80% dei soggetti almeno una volta nella vita. In questo studio abbiamo voluto verificare la possibilità di ampliare gli schemi terapeutici utilizzati nei pazienti con lombalgia da patologia meccanica del rachide lombare con l' inserimento di uno strumentario di sospensione lombare passiva (modello Myback®_ Phisio) che, partendo dalla posizione supina su lettino fisioterapico con ginocchia flesse in appoggio su due fasce anatomiche, mediante l'azione di un telecomando, consente di sollevare passivamente il bacino favorendo la riduzione dei sovraccarichi vertebrali.

Materials and methods. Sono stati reclutati 30 pazienti affetti da lombalgia da patologia meccanica del rachide lombare suddivisi in due gruppi randomizzati. Il trattamento mediante sospensione lombare è stato inserito in un protocollo fisioterapico globale, comprendente 6 sedute di cinesiterapia e 6 sedute di crenocinesiterapia, trisettimanali, per un periodo di 2 settimane. Alla fine di ogni seduta i pazienti del gruppo A sono stati sottoposti a trattamento mediante lo strumento di sospensione lombare passiva, i pazienti del gruppo B hanno assunto la posizione supina (posizione psoas) con bacino sospeso e gambe flesse in appoggio su apposito cuscino. I pazienti sono stati valutati mediante scala VAS, Oswestry Low Back Pain Disability Questionaire, test di Matthias: prima del trattamento, a termine del protocollo e ad un follow-up di 60 giorni.

Results. I risultati ottenuti con Scala VAS hanno mostrato una riduzione della sintomatologia dolorosa a fine trattamento in entrambi i gruppi. A 60 giorni nel gruppo B si è registrato un peggioramento della sintomatologia dolorosa (da 4,4 a 6,4), nel gruppo A il valore medio VAS si è mantenuto pressoché costante (da 4 a 4,45). I risultati ottenuti con scala Oswestry hanno mostrato, in entrambi i gruppi, un miglioramento della percentuale di disabilità (gruppo B da 74,5% nel pre-trattamento a 37% nel post-trattamento, gruppo A da 76,5% a 35%). A due mesi, nel gruppo B si è assistito ad un aumento del valore medio del punteggio di disabilità (57,5%), nel gruppo A si è confermata la stessa classe di disabilità del post-trattamento (38%). I dati riferiti al test di Matthias nel post-trattamento hanno rilevato un miglioramento della flessione anteriore del rachide in entrambi i gruppi. Nel gruppo B, il recupero medio è stato di 6,1 cm, nel gruppo A di 10,55 cm. A due mesi nel gruppo B si è rilevato una perdita della flessione anteriore di 2,55 cm rispetto al post-trattamento, nel gruppo A di 0,8 cm.

Conclusions. Il posizionatore antalgico lombare, inserito in un percorso riabilitativo specifico e personalizzato, si è dimostrato avere un ruolo sensibile nel mantenimento dei risultati a distanza, in termini di sintomatologia dolorosa e percentuale di disabilità, nel trattamento della patologia meccanica del rachide lombare.

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COMPARATIVE EVALUATION OF ANTERIOR AND POSTERIOR AFOS THROUGH GAIT ANALYSIS IN CHRONIC STROKE PATIENTS

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Introduction. Walking recovery is one of the main targets of the rehabilitative treatment of stroke patients and orthoses are used to correct residual motor impairments. There are many kinds of orthoses, generally classified into static and dynamic: the first ones are used to stabilize articular joints; dynamic orthoses, instead, promote limb propulsion during walking in order to compensate motor impairments. Orthoses prescription is based on clinical evaluation and assessment of patient compliance [1]. The aim of the study is to define the most appropriate AFOs for stroke patients.

Materials and methods. We compare the two most common models of AFOs, the posterior and anterior ones. We enroll 7 chronic stroke patients who meet the following inclusion criteria: at least 3 months after the acute event; able to walk without assistance (with or without support) assessed by Lower Extremity Fugl-Meyer Assessment, Modified Ashworth Scale, Timed Up and Go Test; cognitive function sufficient to understand and follow the instructions provided by the therapist (Mini-Mental Status Score ≥ 22 or interview for aphasic subjects). We study the main differences between the two orthoses by gait analysis associated with a stereo-photogrammetric system (BTS Smart D); each patient is evaluated with the anterior and posterior AFO, and without any orthosis.

Results. The 7 subjects who meet our selection criteria include 5 men and 2 women (median age of 71 ± 6.5 years), 5 affected by right hemiparesis and 2 by left hemiparesis. The median time distance from the acute event is 24 ± 108.5 months. We analyze, as regards both affected and unaffected limb, temporal (percentual stance duration, percentual swing duration, percentual double-support duration, cadence) and spatial (stride length, step length, mean velocity, width) gait parameters; furthermore, we evaluate gait symmetry by means of step-length asymmetry ratio and stance-duration asymmetry ratio. We note a significant improvement of velocity using the anterior AFO, as compared with walking without orthosis ($p=0.03$), an increasing trend by use of the posterior AFO, although not enough significant ($p=0.069$). No significant differences are found between walking with anterior and posterior AFO in terms of velocity. In our sample we don't find any difference for what concerns the remaining parameters.

Conclusions. According to recent literature, hemiplegic patients normally show an increased duration of swing phase and a corresponding stance shortness of the affected side [2], a reduction of gait velocity and an evident gait asymmetry [3]. Our preliminary findings confirm the observation that AFOs improve chronic stroke patients' gait velocity, the anterior AFO seems to be better than the posterior one. Neverthless, we don't find any significant improvement of the others evaluated parameters by the use of AFOs. This finding could be explained by the small sample size, thus needing an increase of study subjects' number.

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EFFECTS OF ELASTIC TAPING IN KNEE REPLACEMENT REHABILITATION.

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Introduction. Knee replacement is the most frequent and most successful part of orthopedic surgery; refinement of surgical techniques and improvement of rehabilitation programs have allowed better functional results. Rehabilitation's targets are: post-surgical edema reduction, pain control, recovery of ROM and muscle strenght, ADLs gain. Several studies show the efficacy of elastic taping in musculo-skeletal disorders [1], especially for edema reduction, pain management, inhibition and facilitation of motor activity. Elastic taping is a thin, cotton, porous fabric with acrylic adhesive, whose effect consists of lifting the skin and increasing the spaces between skin and muscle, hence reducing the localized pressure and helping to promote circulation and lymphatic drainage [2]. As a result, it reduces pain, swelling and muscle spasm.

Materials and methods. The aim of this pilot study is to evaluate the effects of the use of taping associated to physical therapy after total knee replacement. For this purpose, patients are divided into two groups: group A includes patients (n=10) undergoing standard rehabilitation program plus elastic taping; group B includes patients (n=10) undergoing standard rehabilitation program without the application of elastic taping. The outcome measures are: pain reduction, assessed by visual analogical scale (VAS) score, at rest (rVAS) and during movement (mVAS); ROM improvement, evaluated by goniometric measurements; strength recovery, evaluated by Medical Research Council (MRC) Scale for Muscle Strength; edema decrease, measured by a standardized calculation system (four measurements at predetermined points). Outcome measures are assessed at admission to the ward of Physical Medicine and Rehabilitation (T0) and 20 days after surgery (T1).

Results. Data show that rVAS and mVAS scores, compared with the baseline levels, decrease significantly in group A (rVAS $p<0.05$, mVAS $p<0.01$), whereas no significance is obtained in group B (rVAS $p=0.15$, mVAS $p=0.20$). Active and passive ROM increase significantly in both groups ($p<0.01$). However, there is no significant difference in ROM improvements and strength recovery comparing group A and group B ($p=0.12$). For what concerns strength recovery, no significant difference is found in both groups. Edema reduction is significant in both groups (group A $p<0.01$, group B <0.01) but a comparison between the two groups shows no significant differences ($p=0.12$).

Conclusions. The study findings suggest the efficacy of taping application in early post-operative rehabilitation protocols as a valid tool to reduce joint pain in the short time period. Furthermore, the results outline a positive trend in group A edema reduction by application of elastic taping, if compared with group B, although not significant, suggesting that a larger sample size could be requested.

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QUALITY OF LIFE IN OLDER PATIENTS WITH FEMORAL FRACTURE UNDERGOING REHABILITATION TREATMENT

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Introduction. Inpatient rehabilitation is important for elderly patients with femoral fractures in order to recover their previous functional condition. Whereas there are literature data on quality of life (QoL) after femoral fractures, principally prospective studies, only few studies have evaluated the QoL and its relationship with the functional improvement and clinical status in these patients.

Materials and methods. Hundred and twenty-nine out of 815 patients (37 males and 92 females; mean age 75.15±11.7) operated for femoral fracture and consecutively admitted in our Rehabilitation Centre from January 2009 to December 2011 were investigated. Patients were assessed by SF-36 questionnaire within the first week from the admission. Clinical, demographic data and activity of daily life (ADL) and motor function at the admittance and discharge were evaluated by means of ad hoc scales (e.g. Barthel Index, -BI, Functional Independence Measure -FIM, Deambulation Index -DI). The aim of our study was to evaluate clinical, demographic and functional characteristics of patients and SF-36 items scores and to correlate these data with functional outcome of patients in order to identify possible factor predicting the clinical recovery. One-way ANOVA test was used to compare mean differences mean differences between normal population and patients and among clinical characteristics. Pearson's test was used to correlate the SF-36 items' scores with the other scales scores. Multiple regression analysis was used to evaluate if the SF-36 items predicted the functional recovery at the discharge.

Results. We found that: i) patients scored lower on almost all SF-36 items than general Italian population; ii) females scored lower than males in social activity and mental summary items; iii) patients with urinary incontinence showed lower values in physical pain, general health, vitality, mental health and summary mental items; iv) significant correlations between Physical and Mental Summary Items of the SF-36 scale scores and Barthel Index, FIM and DI scores assessed at the discharge were found; v) Barthel Index at admittance with age and summary mental item of SF-36 predict the improvement of Barthel Index.

Conclusions. The adverse impact of femoral fracture on quality of life and functionality needs to be recognized by health personnel working in the rehabilitation field so that adequate health resources can be devoted to preventing and treating this debilitating condition. Particularly, the Mental Summary Item of the SF-36, age and Barthel Index at admittance seem to be a predictor for the improvement in functional outcome indicating that how the patient feel his health status is important for the functional recovery. Thus, whereas age and BI are not modifiable parameters, it should be important, in a Rehabilitation Centre, to act with regard to mental and psychological status of patients even with an adequate pharmacological therapy.

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TDCS AND MIRROR NEURONS: A COMPARISON OF TREATMENTS FOR UPPER LIMB MOTOR IMPAIRMENT IN PATIENTS WITH STROKE.

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Introduction. Mirror neurons are motor-visual neurons that fires both when the subject acts and observes an action performed by another. These neurons have been found in humans in the premotor cortex, the supplementary motor area, the primary somatosensory cortex and the inferior parietal cortex. They are involved in the comprehension and understanding of the actions and in the learning by imitation. Despite the actual mechanism of action is not yet defined, their involvement is considered as an important step in the motor re-learning process. For stroke there is a evidence that Mirror Therapy as an additional intervention improving recovery of arm function. This therapy is suited to create a visual illusion whereby movement of to the intact limb may be perceived as affecting the paretic limb. Cortical brain stimulation is a novel technology that may show promise for improving motor recovery when combined with intense motor relearning. The use of transcranial electrical stimulation (tDCS) should facilitate neural reorganization during neuroplasticity processes. We compare in our study the use of tDCS and mirror box therapy.

Materials and methods. We plan to enroll 15 patients (18-80 years old) with an upper limb paralysis after stroke of the dominant hemisphere. Exclusion criteria are:

- clinical seizure or EEG finding for epileptic abnormalities.
- presence of intracranial devices or skull fracture.
- pharmacological changes in the administration of psychotropic drugs during the treatment.
- global aphasia.
- psychiatric disorders.

The evaluation tests will be :

- Clinical assessment for motor impairment and outcome assessment with neurological scales (NIHSS, FIM (motor subscores), Barthel Index (BI), Fuglmeyer (FM).

– Neurophysiological assessment with an EEG spectral analysis.

Patients are randomly divided in three groups. They are subsequently enrolled when admitted in hospital ward. First enrolled patient will undergo path 1 (standardized physical rehabilitation treatment - PT - for 30 min in the morning and 30 min in the afternoon); the second patient enrolled will perform path 2 (standardized PT for 30 min in the morning and box mirror therapy in the afternoon for 30 minutes); third enrolled patient will perform path 3 (standardized PT for 30 min in the morning and box mirror therapy in the afternoon plus tDCS for 30 minutes). All patients will perform 5 sessions a week for three weeks. tDCS stimulation is a direct current delivered through 2 saline-soaked surface gel sponge electrodes (20 cm^2 active area). Stimulation consisted of 30 minutes of 1.5 mA direct current with the anode placed over ipsi-lesional motor cortex area and the cathode over an extracephalic area (deltoid muscle). Assessment are performed in three different times: before treatment, at the end and after one month from the end of treatment.

Results. We enrolled three patients, one in each group. Results are not yet comparable. The patient who performed path 2 showed stable scores at all evaluations. Patient in group 1 improved in BI scoring while scores of the FM remained stable. The scores of patient in group 3 improved (FM from 15 to 17/22, while the BI changed from 17 to 19/20).

Conclusions. It is necessary to collect an adequate number of assessments to evaluate changes in the upper limb motor impairment in stroke patients in order to compare the rehabilitation treatment with standard exercises, box mirror therapy and tDCS. First observations suggest that the stimulation of mirror neuron may promote the improvement of stroke impairments.

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WHICH EFFECTS ON SPASTICITY AFTER FES GAIT TRAINING IN SPINAL CORD INJURY PERSONS?

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Introduction. Evidences of Literature about the benefits of FES gait in Spinal Cord Injury persons (SCI) are actually assisting in FES gait gaining clinical acceptance. We know that FES gait can enhance muscle strength and cardio-respiratory fitness in SCI. However, only few studies analyzed the effects of FES gait on spasticity in SCI individuals. The aims of the study was assess spasticity with instrumental data in SCI persons after a single session of functional electrical stimulation of the quadriceps muscle (timing 30 minutes) and after a complete FES gait training (three months, three sessions for weeks).

Materials and methods. We studied six males with complete thoracic level SCI, AIS A. The average age was 33,2±4,7 years. All the subjects were in a chronic phase with a time from injury from 5 to 19 years. The subjects were tested with the Ashworth scale, the score was for all between 1 and 3. Isokinetic dynamometer was used to test isometric contraction strength of quadriceps muscle under electrical stimulation. To test muscle stiffness we used a Continuous Passive Movement at two different speed 10 degrees for seconds and 120 degrees for seconds. The value of stiffness was expressed as peak torque (Newton x meter). We registered peak torque during a passive movements of flexion-extension of the knee at a speed of 10°/s and 120°/s. We analyzed the mean value of at least four repetition for each speed. The test was completed at the beginning and the end of a single FES gait session and at the beginning and at the end of a FES gait training protocol (timing three months). From a clinical point of view we tested the subjects with the Ashworth scale and we evaluated at the beginning and at the end of the training the mean circumference and the anterior skinfold of the thigh of the subjects, to calculate quadriceps muscle area.

Results. The clinical evaluation (Ashworth scale and thigh skinfold) didn't show significant variations after a single session FES gait and even after the complete program. The dynamometric data didn't reveal a significant variations in the peak torque at the. continuous passive movement (stiffness) after the single sessions and after FES gait training protocol, but we verified a general trend to decrease peak torque especially after the complete protocol. We analized the mean of peak torque of the inferior limbs and we verified that during continuos passive movement the peak torque of the quadriceps decreased from 9,12 ± 1,8 Nm to 7,6 ± 1,9 Nm.

Conclusions. We believe that the effects of a functional electrical stimulation gait training are extremely important as they contribute to ensure a best performance of SCI persons. Further research is required to generalize our results to the widespread population of SCI individuals, in particular we need further evidence of the benefits of FES gait to prevent spasticity complications and pain.

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IL PROGETTO DI PRESA IN CARICO RIABILITATIVA DELL'ISTITUTO TUMORI DELLA ROMAGNA (IRCCS)

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Negli ultimi anni la sempre maggiore precocità della diagnosi e l'efficacia dei percorsi terapeutici in Oncologia hanno reso possibile un progressivo aumento delle percentuali di sopravvivenza e un conseguente aumento delle aspettative di vita nelle persone con patologia oncologica, di pari passo anche la Riabilitazione ha dovuto rinnovare la presa in carico di queste persone e delle loro disabilità valutando diversamente l'approccio terapeutico e dando maggiore spazio ad una presa in carico olistica rispetto al semplice trattamento delle patologie d'organo, quindi passando da un ottica puramente prestazionale ad una gestione maggiormente mirata alla partecipazione della persona alle sue aspirazioni di vita.. La mission della Riabilitazione è,infatti, in ogni settore di intervento il garantire una migliore qualità di vita attraverso il recupero migliore possibile dello stato fisico, psicologico e sociale anche in base alle indicazioni dell'ICF. La tensione al migliore out-come possibile è l'obiettivo finale della Riabilitazione. La Presa in carico riabilitativa in Oncologia è quindi un momento importante nella vita di una persona con disabilità secondarie a patologia oncologica, essa infatti integra il trattamento specifico oncologico cercando di mantenere la qualità della vita piu' alta e per il maggior tempo possibile. Considerata la complessità della malattia oncologica, la riabilitazione diventa una disciplina non complementare, ma di assoluta importanza primaria anche perché agisce mettendo la persona al centro del suo operare con un team adeguato dove ciascun professionista viene chiamato a dare il meglio di sé e del suo sapere in base ai bisogni della persona, all'appropriatezza dell'approccio ed alle esigenze del sistema. Il progetto / programma riabilitativo deve essere elaborato tenendo presente la ricerca nazionale ed internazionale nonché le linee guida esistenti ma avendo anche attenzione al territorio in cui si viene ad agire. La Riabilitazione in oncologia puo' quindi essere attuata in diversi momenti del percorso di presa in carico della persona affetta da problematiche oncologiche:

– al momento della diagnosi e laddove si inizia a definire il percorso.
– nell'ambito della gestione intraospedaliera nella fase acuta e post acuta.
– durante la chemioterapia e la radioterapia.
– dopo chemio terapia e radioterapia o interventi chirurgici ovvero nella fase ambulatoriale.
– al domicilio della persona disabile se necessario.
– nella fase di cronicizzazione degli esiti.

Il percorso ideale sarebbe quello in cui si intercetta il prima possibile il bisogno riabilitativo, occorrerà quindi porre in atto tutte le collaborazioni coi vari sistemi che si interfacciano coi percorsi oncologici siano essi di prevenzione, di diagnosi o di cura, ma anche pensare ad azioni specifiche che rendano minimali le possibilità di non intercettare il bisogno. Fatto questo l'indicazione specifica di riabilitazione vedrà il suo essere in vari momenti della vita della persona che si prende in carico, ma sempre con l'intento, direi "qualsiasi sia la situazione generale, ma piu' verisimilmente "in base " alla situazione generale, di migliorarne la partecipazione alla vita sociale o comunque alle sue aspirazioni e possibilità di vita.

Conclusions. Gli autori si propongono di esporre le line di presa in carico riabilitativa delle persone affetta da disabilità da malattia oncologica presso l'Istituto tumori della Romagna.

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L'ESPERIENZA ORGANIZZATIVA DEL SERVIZIO AUSILI PER L'AUTONOMIA DELL'AUSL DI FORLI

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I termini presidi (protesi ed ortesi) e ausili sono ormai largamente diffusi nel mondo della riabilitazione per indicare strumenti o attrezzature utilizzate in funzione compensativa o sostitutiva nelle attività della vita quotidiana in presenza di menomazioni o disabilità. Le protesi ed ortesi sono finalizzate al re-

cupero di una funzione, gli ausili allo svolgimento di specifiche attività di vita quotidiana. Entrambi, in ottica ICF,vanno a definire le possibilità che il team della riabilitazione ha per migliorare la partecipazione della persona disabile ad una vita qualitativamente soddisfacente. Il mondo della riabilitazione ha vissuto in questi anni un' intensa evoluzione pervasa da ricchi fermenti di crescita scientifica e culturale. L'approfondimento della ricerca medica, lo sviluppo e l'arricchimento delle tecniche riabilitative, il perfezionamento tecnologico degli apparecchi protesici e la diffusione sul mercato di ausili che consentono la possibilità di maggiore autonomia per la persona disabile, sono il segno concreto dell'evolversi di una nuova cultura, che punta con tutti gli strumenti a sua disposizione all'inserimento della persona disabil nella società. In questa ottica è andata maturando la consapevolezza dell'importanza degli ausili tecnici nel vasto e complesso processo di riabilitazione e integrazione sociale. L'ausilio va considerato, quindi, uno "strumento" fondamentale per permettere il giusto equilibrio tra le aspirazioni del singolo e la possibilità di realizzarle. In altre parole l'ausilio come strumento di autonomia personale nella propria abitazione, nella cura personale, nella mobilità, nella comunicazione, nell'inserimento nel lavoro, nella partecipazione alla vita scolastica, nelle relazioni sociali, nelle attività sportive e di tempo libero. Il "percorso ausili" non è parallelo o alternativo a quello riabilitativo, sociale, scolastico, lavorativo ma integrato e integrante nel progetto di vita di ogni persona. Recentemente si è assistito in ambito internazionale ad un'ulteriore evoluzione del concetto di ausilio verso una visione più sociale rispetto alla visione sanitaria. Si tende a considerare inscindibile il binomio ausili/accessibilità, entrambi gli aspetti concorrono in modo complementare al miglioramento dell'autonomia e della qualità della vita delle persone disabili e in generale della popolazione anziana. L'accessibilità è l'adattamento dell'ambiente alla persona, gli ausili rappresentano l'adattamento della persona all'ambiente. Ausili e tecnologie per l'accessibilità sono quelle tecnologie atte a compensare limitazioni funzionali, facilitare l'autonomia e mettere le persone anziane e le persone disabili in grado di esprimere le proprie potenzialità. L'Asl di Forli dal 1993 ha attuato un processo di presa in carico delle persone disabili o comunque di chi ha problematiche motorie tali da richiedere una valutazione per l'eventuale fornitura di ausili. Il Servizio Ausili interamente gestito dalla U.O di Medicina Riabilitativa opera in integrazione col Centro di Adattamento dell'Ambiente Domestico, (C.A.A.D.), che viene gestito in collaborazione col Comune di Forli.

Conclusions. Gli autori descrivono il percorso del servizio ausili dell'Asl di Forli, interamente gestito dalla U.O. di Riabilitazione dal momento della valutazione, alla prescrizione alla autorizzazione ed al collaudo nonche la verifica dei risultati attesi. Un servizio pensato e costruito per dare una risposta efficace ed efficiente che vede la partecipazione di vari professionisti della riabilitazione e collaborazione con altri servizi ed istituzioni. Il budget annuo è di circa 1 milione di euro e vengono effettuati valutazione prescrizioni e controlli su circa 3000 persone disabili.

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EXERCISE TREATMENT IN PATIENTS WITH LOW BACK PAIN RESULTING FROM A PROLAPSED DISC

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Low back pain is among the most common musculoskeletal diseases with a very high life-time prevalence. Lumbar disc pathologies may be the cause of low back pain nearly in half of the patients. Among physical and rehabilitation medicine interventions, exercise may play an important role for the treatment of this disabling heath condition with considerable unfavorable psychosocial consequences in addition to physical problems. Patients with low back pain may benefit from exercise not only for relief of pain but also for improvement of function, disability, and depression as well as work outcomes. Therefore, exercise therapy emerges as a consistent first-line recommendation in clinical guidelines for acute, subacute, and chronic low back pain management. While evidence supports the use of McKenzie exercises in acute low back pain with or without radiculopathy (1), moderate evidence favors lumbar stabilization/ motor control exercises in subacute and chronic discogenic low back pain with associated radiculopathy (2). Furthermore, evidence from systematic reviews suggests small but significant reductions in pain and disability for all types of exercise- flexibility, stretching, endurance, coordination, strengthening, motor control, McKenzie, aerobic, aquatic, pilates and yoga exercises - when compared with no treatment or minimal care in combined groups of patients with chronic low back pain with or without disc herniation with increasing effect sizes in parallel with the number of exercise sessions (3). A crucial point for the success of exercise treatment for lumbar disc herniation is the selection of the suitable exercise for a specific patient. Subgrouping of patients using a reliable low back pain classification system may be beneficial for improving success rates.

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PROGETTO PER LA RIORGANIZZAZIONE DELLA U.S.O. DI RIABILITAZIONE IN AREA CRITICA NEL NUOVO POLO CHIRURGICO DELL'A.O.U.I. DI VERONA

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Introduzione. L'Unità Semplice Organizzativa (U.S.O.) di Riabilitazione in Area Critica è nata nel 2008 all'interno della Struttura Complessa di Riabilitazione dell'Azienda Ospedaliera di Verona (A.O.U.I. VR), successivamente inserita nel Dipartimento Aziendale Integrato di Chirurgia e Odontoiatria. L'attività per cui è stato proposto il riconoscimento di questa U.S.O. si identifica nel settore della riabilitazione, prevalentemente cardio-respiratoria, che prende in carico pazienti nei reparti di terapia intensiva, di chirurgia generale e speciale, di medicina ad alta intensità assistenziale. Con la nascita del Nuovo Polo Chirurgico (N.P.C.) nel 2011, l'attività della USO di Riabilitazione in area critica si è dovuta rapidamente adeguare all'aumento del numero di richieste ed a nuove problematiche di crescente impegno. Il fisiatra svolgeva prevalente attività di consulenza su richiesta nella maggior parte dei reparti, solo in alcuni di essi era vigente un protocollo condiviso di trattamento secondo il quale il fisioterapista prendeva in carico il paziente; in questi ultimi casi era il terapista a contattare direttamente il fisiatra in caso di problematiche o complicanze particolari. L'organizzazione del N.P.C., però, ha portato una selezione di pazienti con situazioni più impegnative, l'adozione di tecniche chirurgiche e di rianimazione sempre all'avanguardia, la necessità di ottimizzare l'occupazione dei posti letto e l'attività delle sale operatorie, la disposizione logistica ed un accorpamento secondo un razionale più moderno, nonché l'obbligo crescente di contenimento dei costi. Alla luce di tale situazione, abbiamo ritenuto di dover procedere ad una revisione totale ed un'attenta verifica del nostro lavoro svolto, per apportare le necessarie correzioni e migliorare ulteriormente l'erogazione delle prestazioni di riabilitazione nel N.P.C.

Materiali e metodi. Abbiamo raccolto i seguenti dati numerici: richieste di consulenza pervenute in segreteria dai reparti afferenti, visite di consulenza svolte, pazienti presi in carico, tempo trascorso dalla richiesta alla visita ed all'eventuale trattamento riabilitativo, richieste dei terapisti nei reparti con "protocollo" di riabilitazione.

Risultati. Le richieste di visita pervenute in segreteria sono state tutte svolte e in tempi adeguati. Il numero di visite eseguite eccede addirittura in alcuni i reparti il numero di visite richieste, ma ciò è dovuto a richieste consegnate direttamente in reparto al fisiatra che non sono state conteggiate in segreteria. Il numero di richieste nei reparti che adottano un protocollo di riabilitazione sono pochissime rispetto alle problematiche da noi stimate: segno evidente che la presenza del fisiatra non è adeguata.

Conclusioni. È necessario procedere con una revisione dell'attività di riabilitazione della U.S.O. di area critica, alla luce delle mutate esigenze del Nuovo Polo Chirurgico. Vanno stabiliti nuovi criteri che riguardano l'attività di consulenza, lo svolgimento di meeting di discussione, ma soprattutto una maggior presenza dei medici fisiatri della U.S.O., che devono essere esentati da altre attività e dedicati per un maggior tempo alla riabilitazione cardio-respiratoria. La nova metodica operativa deve prevedere una verifica a distanza, programmata e condivisa con tutta l'equipe di riabilitazione, per valutare se i correttivi adottati rispondono effettivamente e criteri di migliori efficienza, efficacia ed apropriatezza.

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MANAGEMENT DELLA SPASTICITÀ NELLA LESIONE MIDOLLARE: REVIEW DELLA LETTERATURA E RACCOMANDAZIONI DI COMPORTAMENTO (STUDIO PRELIMINARE PER LA COMPILAZIONE DI LINEE GUIDA ITALIANE)

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Introduction. *le ragioni di interesse del problema spasticità nella mielolesione?*
– la rilevanza dello stesso nella riabilitazione della persona con SCI (c.a. 78%).
– la ricaduta pesante sulla vita delle persone affette alle quali il problema non viene risolto.
– il coinvolgimento, spesso contemporaneo, di molti professionisti per la risoluzione del problema.
– la specificita' del problema nella persona mielolesa (rispetto ad altre lesioni del primo motoneurone) che impone criteri di valutazione e di terapia specifici.

perche' linee guida italiane?
– Vi è ancora difformità nei comportamenti dei vari centri che operano nel territorio nazionale.
– La necessità di documentare il razionale e l'efficacia delle scelte diagnostiche e terapeutiche è obbligatoria sempre ma particolarmente in un quadro di risorse limitate come quello attuale (spending review).

Mancano comunque, anche a livello internazionale, linee guida specifiche sulla spasticità della persona con lesione al midollo spinale. Le linee guida più generali sul trattamento della spasticità, che includono anche aspetti della mielolesione, elaborate a livello extra nazionale, vanno comunque adattate al contesto italiano che ha peculiarità socio-culturali ed organizzative che possono modificare in maniera anche sensibile il modus operandi dei clinici.

Materials and methods. La procedura applicata è stata la seguente:
– identificazione delle tematiche, creazione di una scheda, costituzione dei gruppi di lavoro.
– identificazione delle key-words.
– ricerca sui principali "motori" di internet per key-words e per aree tematiche (istituto mario negri di milano).
– selezione degli abstract attinenti.
– acquisizione e lettura del full-test.
– Compilazione della scheda di valutazione (schede identificate con l'Istituto Mario Negri: diagnosi, terapia, review) e assegnazione di un livello di evidenza.
– Valutazione incrociata (tra due gruppi di lavoro) delle schede degli articoli.
– brain storming e conclusioni.

Results and conclusions. Le tematiche che hanno coinvolto i numerosi gruppi di lavoro, sono state le seguenti: epidemiologia, fisiopatologia della spasticità, valutazione, terapia medica orale, terapia medica con baclofene, terapia con tossina botulinica, terapia fisica, trattamento chirurgico, percorso assistenziale, compliance del paziente del care giver e aspetti psicologici, nursing. Come si evince da quanto sopra riportato, sono svariate; per ragioni di spazio editoriale i risultati e le conclusioni, connesse ad ogni singolo argomento non sono riportabili neanche in forma riassuntiva e saranno comunque l'oggetto della presentazione.

Bibliography

Sono stati presi in considerazione 5760 abstract.
Sono stati letti e valutati 270 full-text.

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CENTRE OF EXCELLENCE IN HEALTH PROMOTION AND REHABILITATION: AN INTERDISCIPLINARY CO-WORK IN BALNEOLOGY IN ESTONIA.

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Introduction. Balneotherapy is one of the oldest forms of therapies. The mud therapy has been used for almost 200 years in Estonia. Estonia is rich in ecologically pure sea and lake sediments and well-humified peat that may have been used in human therapy. Therapeutic mud contains different ions and specific bacteria (1). However, the healing effect is related to the content of bioactive compounds and mostly to the humic substances and lipids (2). Therapeutic mud affects the organism as a thermal, mechanic and chemical irritant and has an effect of biomodulation for the whole organism: the nervous and cardiovascular systems, the skin, blood composition and metabolic processes (1). Since 1960-s in Estonia there is lot of clinical trials, which are analysed the effect of mud therapy and most of them reported the positive findings. However, if we wanted to compare those trials to the results of last decade trials in that area, we found that these earlier studies have poor methodological quality: the absence of an adequate statistical analysis and the absence of most essential outcome measures (pain, self-assessed function and quality of life). Mud therapy mainly offered in medical spas and the main spa therapy course occurs over 2-3 weeks. During the last decades, length of spa therapy time in Estonia has decreased mainly due to changes in the economic situation and is now commonly 6-7 days (3). This situation sets new challenges in the mud therapy. There is a need to gather all the existing knowledge on therapeutic mud and to analyse it. It is also important to work out newest technologies in mud treatment and to investigate in the development of new therapeutic mud products and services in the closed co-work with high-level clinical physical and rehabilitation medicine (PRM) facilities.

Materials and methods. The project enforces interdisciplinary co-work in balneology, involving PRM doctors, occupational physicians, biotechnology engineers, chemists, SPA managers etc. and cooperation between the representatives of PRM clinics, research and development institutions, local authorities and businesses in the field of balneology, especially mud therapy.

Results. Centre of Excellence in Health Promotion and Rehabilitation (CC) was established in Estonia, in Haapsalu in 2012. There are 15 partners involved in the project activities: Tallinn University, University of Tartu, Haapsalu Neurological Rehabilitation Centre, Tartu University Hospital, Municipality of Haapsalu, Estonian Spa Association, etc. In the focus of therapeutic mud, the CC is a centre of research, development and information mediation as well as an organization in evaluating the condition of therapeutic mud in the world, related research and rational utilization of therapeutic mud.

Conclusions. Balneology has significant overlap with the PRM, as it uses physical factors for therapy and applies comprehensive multi-modal programmes to patients with chronic health conditions aiming at an improvement of functioning and quality of life. CC focus on two more specific areas: research on therapeutic mud, evaluation of its impact, development of know-how based entrepreneurship; evaluation of population´s mobility and physical activity, its development (prevention and rehabilitation), counselling, implementation of know-how in entrepreneurship. The CC project has been supported by the Regional competence centre development programme, European Regional Development Fund.

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PROGRAMMA DI ADDESTRAMENTO PER PAZIENTI CON LESIONE MIDOLLARE E I FAMILIARI CHE SE NE PRENDONO CURA

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Introduction. La vita dopo una lesione del midollo spinale spesso implica una perdita di indipendenza per la persona; per le normali attività della vita quotidiana l'individuo spesso necessita di assistenza. I membri della famiglia e gli amici che prendono in carico la persona amata spesso assumono ruoli diversi: supporto psicologico, insegnante, supervisore, preparatore e infermiere. L'obiettivo dello studio era investigare le quotidiane difficoltà incontrate dai caregivers che si occupano dei pazienti con lesione midollare.

Materials and methods. Lo studio ha coinvolto 7 caregivers: 5 femmine e 2 maschi. Il questionario riguardante i problemi di vita quotidiana (condizioni, posture, trasferimenti, utilizzo della carrozzina, igiene personale, abbigliamento, gestione domestica) è stato somministrato ai caregivers che hanno accettato di partecipare allo studio.

Results. I caregivers hanno sottolineato i problemi relativi ai trasferimenti, all'utilizzo della carrozzina e alle attività di vita quotidiana. Per quanto riguarda l'utilizzo della carrozzina il problema più comune riguarda i trasferimenti carrozzina-macchina e viceversa; il 70% dei caregiver di sesso femminile ha incontrato difficoltà nell'assistenza durante i passaggi carrozzina-wc e viceversa; oltre l'80 % dei caregivers ha indicato come attività più impegnativa il trasferimento carrozzina-doccia e viceversa.

Conclusions. Con un adeguato addestramento dei caregivers è possibile ottenere un appropriato follow- up a seguito di una lesione del midollo spinale. I pazienti devono essere portati a conservare la loro salute ed il loro benessere. Questo studio ha aiutato a confermare la nostra speranza che sia la vita che le attività quotidiane continuino dopo la paralisi. Gli operatori sanitari che si occupano dei pazienti con lesione midollare giocano un ruolo importante nell'educare il caregiver. L'equipe ospedaliera deve essere coinvolta e il terapista occupazionale deve utilizzare le proprie competenze e immaginazione per sviluppare un programma in funzione di questo risultato.

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EFFICACIA DELLA RIABILITAZIONE NELLE VESTIBOLOPATIE PERIFERICHE MONOLATERALI: STUDIO PILOTA.

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Introduction. La vertigine e il disequilibrio rappresentano sintomi molto comuni. Essi spesso sono espressione di una disfunzione del sistema vestibolare, le cui funzioni sono rilevare le accelerazioni di gravità, mantenere la stazione eretta, regolando il tono dei muscoli antigravitari, e stabilizzare il campo visivo durante i movimenti del capo e del tronco. La riabilitazione ha lo scopo di permettere al paziente di elaborare strategie di compenso che gli consentano di ridurre la disabilità conseguente alle disfunzioni del sistema vestibolare. L'obiettivo del nostro studio è la valutazione degli effetti del trattamento riabilitativo vestibolare con test clinici e strumentali in un gruppo omogeneo di pazienti affetti da ipofunzione vestibolare monolaterale.

Materials and methods. Sono stati reclutati 19 pazienti (11 F e 8 M) di età compresa tra i 22 e 49 anni, affetti da vestibolopatia periferica monolaterale diagnosticata con esame vestibolare. I pazienti erano tutti in fase postacuzie e tutti trattati con terapia farmacologica di base: Betaistina 8 mg due volte al giorno. I pazienti hanno effettuato la riabilitazione vestibolare secondo il protocollo di Cawthorne-Cooksey, con cadenza trisettimanale, per sei settimane. Ciascun paziente è stato sottoposto a visita fisiatrica e valutato al reclutamento (T0) ed al termine del trattamento (T1), attraverso un esame clinico e strumentale. Mediante test clinici è stata indagata la presenza di sintomatologia ansioso-depressiva (Scala di Hamilton), la valutazione dell'equilibrio e il rischio di cadute (Scale di Tinetti) e la valutazione dell'handicap conseguente a patologia dell'equilibrio (DHI). Per quanto concerne i test strumentali, ci siamo avvalsi dell'esame baropodometrico e dell'analisi del movimento tridimensionale (gait analysis).

Results. Le tre scale di valutazione somministrate mostrano un miglioramento statisticamente significativo (per $p < 0.01$) degli indici clinimetrici tra T0 e T1. Nella scala Hamilton i dati ottenuti mostrano una riduzione dello stato ansioso-depressivo dei pazienti affetti da vestibolopatia monolaterale a seguito del trattamento (t di student = 11,0838); analogamente si ha una riduzione dell'handicap percepito, in relazione alle vertigini, valutato con la scala DHI (t di student = 7,7301). Con la scala Tinetti si riscontra un miglioramento significativo dell'equilibrio nei pazienti al tempo T1 (t di student = 8,5311), confermato dall'esame baropodometrico, attraverso l'analisi degli integrali pressione/tempo in statica ad occhi aperti e chiusi, che mostra una riduzione delle oscillazioni. Alla Gait Analysis, nel posttrattamento (T1), si nota una diminuzione della larghezza del passo, che, tuttavia, non raggiunge i livelli di normalità; lunghezza, velocità e cadenza del passo migliorano rispetto al tempo 0.

Conclusions. La riabilitazione si è dimostrata efficace nel controllare i sintomi dei pazienti della nostra casistica. Si ritiene pertanto che la riabilitazione vestibolare possa essere inserita a pieno titolo nel trattamento dei pazienti con vestibolopatia, in associazione alla terapia farmacologica, in quanto la stimolazione precoce favorisce l'adattamento del sistema vestibolare alla situazione di ipofunzione monolaterale.

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PRELIMINARY STUDY ON THE EFFECT OF CANCER ON MUSCLE FUNCTION

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Introduction. Cachexia is a metabolic syndrome characterized by wasting of skeletal muscle and lacking body weight, associated with an underlying disease and chronic inflammation. Cancer cachexia affects the majority of cancer patients, leading to weakness, decreased mobility and quality of life and negatively interfering with anticancer therapies. Furthermore, no effective therapy of cachexia exists as far. One of the reasons of this failure is the lack of a deep knowledge of the basic mechanisms underlying muscle wasting in this condition. The goal of this study is to characterize muscle deficits in cancer cachexia, and to develop novel approaches to counteract cachexia.

Materials and methods. The muscular function of 9 oncologic patients (8 males, 1 females, 48.3 ± 15.3 years) was analyzed in this study, by means of: (a) the analysis of the oxidative metabolism, it was indirectly evaluated by means of dosage of blood lactate levels before and after a submaximal incremental exercise on a treadmill; (b) the susceptibility to myofibral damage, it was evaluated through the dosage of phosphocreatine-kinasi (CPK) serum level before and after a cycloergometer exercise test; (c) the analysis of endurance, by means of an isokinetic dynamometer, expressed as the decay of the strength exerted, expressed as a percentage of maximum voluntary contraction during an isometric contraction sustained for 60 seconds. Results were then analyzed and compared with those related to a sample of healthy subjects who performed the same tests. Z-test was used for the comparison of distributions between patients and healthy subjects.

Results. Enrolled patients were affected by solid tumors of different severity located in different sites. During the study patients underwent chemotherapic treatments. Four patients enrolled for analysis of the oxidative metabolism completed the proposed exercise whereas five patients did not complete it: three of them reached the heart rate threshold, the remaining two for exhaustion. The values of the concentration of lactate for pathological subjects were significantly ($p<0.01$) higher than that of the control group. Resting CPK levels were in the normal range before and after the treatment, only a cancer subject showed a peak value corresponding higher then 80% of the resting value, 6 hours after the exercise. The analysis of muscle endurance did not show differences between patients and control group.

Conclusions. This preliminary study was focused on the analysis of the oxidative metabolism, after that no significant differences were observed in the susceptibility to myofibral damage and strength endurance analyses. Obtained results revealed that, although patients showed similar characteristics regarding oxidative metabolism deficiency, they featured differently with respect to the endurance of the exercise. This behavior allowed to separate patients in two groups related to two different age range. Concerning oxidative mechanisms, results allowed to conclude that, although young subjects with cancer showed normal endurance to the proposed exercise, they where characterized by an alteration of oxidative muscle metabolism (expressed from increased lactate production) when compared to healthy subjects. Moreover, in older cancer patients, damage of oxidative muscle metabolism is combined with a functional age-related impairment that is the exercise endurance.

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PRELIMINARY VALIDATION OF A NEW QUESTIONNAIRE TO ASSESS USER SATISFACTION WITH ORTHOTIC DEVICES

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Introduction. Orthotic devices (OD) are often included in the rehabilitation programmes of patients with neurological and orthopaedic diseases. During the last decades concern on developing of technological and materials innovations of OD has increased. Conversely, there was a lack of development of patient-related reported outcome measure for the evaluation of satisfaction instruments to assess consumer satisfaction with orthoses. In addition, the increasing health care cost requires clinicians to demonstrate the benefits associated with the provision of the OD, so valid outcome measurement tools are required to reliably demonstrate the effectiveness of orthotics practice, in particular in neurological and musculoskeletal disorders.[1] The outcome of interventions has been demonstrated to be dependent on patients' treatment compliance, and the level of discomfort during therapy is one of the factors determining patient compliance. The patient input is recognized as one essential aspect of evaluating care. Few of the current methods of evaluating treatment of neurological and orthopaedic patients wearing OD have quantified their self-reported status. To take decisions on rehabilitation programs and assess the changes caused by the therapeutic interventions, and to establish the patient satisfaction with orthoses, outcome

measures in orthotic field are needed.[2,3] The Client Satisfaction with Device (CSD) module of the Orthotics and Prosthetics Users' Survey (OPUS)[2] is one of the most used instrument for the assessment of the user satisfaction with orthoses.[1] Recently, an improved version of the CSD has been proposed, but it demonstrated suboptimal psychometric properties. The aim of this study is to assess the some preliminary psychometric characteristics of a new questionnaire, named VOQ (Veruno Orthosis Questionnaire), developed to assess the patient satisfaction with OD.

Materials and methods. One hundred-ten inpatients and outpatients (females 47, males 63; mean age + SD: 58 years +17; age range: 19-85 years), with neurological or orthopaedic disability were assessed. The participants were recruited from the Fondazione Maugeri, Scientific Institute in Veruno (NO - Italy) and from the Orthopaedic Traumatologic Center (CTO) in Turin (Italy). All patients were asked to fill three surveys: the VOQ, the CSD (modified version), and a 0-10 Numerical Rating Scale (NRS) assessing the global user satisfaction with device. The VOQ is a new self-administrated 12-item questionnaire rated on 3-level Likert scales ("Not at all","Somewhat", "Very much"). Higher score represents higher satisfaction. The data were to used to assess VOQ's dimensionality and concurrent validity with the other two surveys.

Results. Factorial analysis showed that VOQ has two domains, respectively related to structural and functional characteristics. The item about the orthosis aesthetic did not correlated to others. VOQ showed a good correlation with NRS (r=0.60), and a moderate correlation with CSD (r =0.52). Conversely, a low correlation was found between CSD and NRS (r =0.33). For all correlations p<0.01.

Conclusions. VOQ is a promising questionnaire for the evaluation of orthotics care by quantifying the satisfaction of the users with regard to OD. It showed adequate concurrent validity with both CSD and NRS (better than those between NRS and CSD). Further studies are needed for examining in detail the psychometrical characteristics of VOQ, and building a final version of the questionnaire, able to optimize coverage and technical quality in assessing user's satisfaction with OD.

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VALUTAZIONE DELL'EFFICACIA DEL TRATTAMENTO RIABILITATIVO NELLA SPONDILITE ANCHILOSANTE TRAMITE STEREOFOTOGRAMMETRIA

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Introduction. La spondilite anchilosante (SA) è una spondiloartropatia infiammatoria che colpisce lo scheletro assiale determinando a livello della colonna vertebrale la perdita della lordosi lombare (LL), l'accentuazione della cifosi dorsale (CD) e all'inversione della lordosi cervicale. Il trattamento riabilitativo specifico è fondamentale per il mantenimento della mobilità del rachide, la prevenzione delle rigidità articolari e il controllo del dolore [1]. La valutazione si avvale dell'esame radiografico, gold standard per lo studio della CD e LL misurate con il metodo di Cobb ma invasivo, e delle scale di valutazione, che esprimono un dato soggettivo [2]. Lo scopo dello studio è valutare l'efficacia di un trattamento riabilitativo utilizzando misurazioni standard e un metodo di analisi del movimento marker-based che si propone di valutare quantitativamente e oggettivamente le curve e l'articolarità della colonna vertebrale dei pazienti affetti da SA.

Materials and methods. 12 soggetti con SA (età media: 42±13anni, BMI: 24±3Kg/m^2), sono stati valutati, prima e al termine di un trattamento riabilitativo di gruppo (12 sedute, 2 volte/settimana, 1 ora a seduta), attraverso un protocollo che, tramite il posizionamento di 7 marker in corrispondenza del processo spinoso delle vertebre C7, T3, T6, T9, T12, L3 e S1, consente di ricostruire la posizione di quelle mancanti, di calcolare gli angoli Cobb di CD, LL e tra ciascuna coppia vertebrale da C7 a S1 in ortostatismo, la distanza fra C7 e S1 alla massima flessione anteriore, l'angolo e lunghezza dell'arco di curvatura di C7 sia in flessione antero-posteriore (AP) che medio-laterale (ML) e gli angoli di flessione, estensione, inclinazione destra e sinistra. I dati stereofotogrammetrici sono stati rilevati da un sistema a sei telecamere (BTS, 120Hz). Inoltre sono state misurate: l'espansione toracica, le capacità funzionali (Bath Ankylosing Spondylitis Functional Index), la compromissione delle attività (Bath Ankylosing Spondylitis Disease Activity Index), l'attività di malattia (Bath Ankylosing Spondylitis Metrology Index), il livello di disabilità (Health Assessment Questionnaire), il dolore e la rigidità a livello del rachide in regione cervicale, toracica e lombare (Visual Analogic Scale) e la fatica (Fatigue Severity Scale) [3]. Sia i dati clinici che strumentali sono stati confrontati con il t-test di Student.

Results. Tutti i pazienti hanno completato il trattamento riabilitativo. Non sono state trovate differenze statisticamente significative tra i dati pre e post trattamento, tuttavia l'analisi degli angoli Cobb tra vertebre adiacenti ha evidenziato un miglioramento della postura e ed una riduzione della rigidità del rachide in flesso-estensione a livello del tratto toracico e al passaggio dorso-lombare (p=0.02), associato all'aumento dell'espansione toracica in media di 2 cm dopo il trattamento riabilitativo. L'angolo e l'arco di curvatura di C7 a livello ML sono incrementati dopo il trattamento riabilitativo in media rispettivamente di 2° e di 2 cm. Alle scale di valutazione si è riscontrato un incremento delle capacità funzionali (punteggio medio ridotto di 4), una riduzione della compromissione nelle attività (punteggio medio ridotto di 6), una riduzione del dolore in corrispondenza del rachide cervicale (punteggio medio ridotto di 7) e toracico (punteggio medio ridotto di 6) quest'ultimo associato ad una riduzione anche della rigidità (punteggio medio ridotto di 10) al termine del ciclo di sedute.

Conclusions. Il trattamento riabilitativo si è mostrato efficace nel ridurre la rigidità e nel migliorare l'articolarità del rachide e l'espansione toracica. Il metodo proposto, non invasivo e di rapida esecuzione, consente di ottenere misure in statica e dinamica del rachide sul piano sagittale e frontale e di quantificare le variazioni dei vari segmenti della colonna vertebrale. Questo metodo potrebbe essere utilizzato nel monitoraggio, nella pianificazione terapeutica e nella valutazione della sua efficacia in pazienti affetti da spondilo artropatie croniche.

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CANCER REHABILITATION ALGORITHM IN LIMPHOEDEMA IN CERVICAL CANCER

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In late postoperative period one of the complications in cervical cancer is lymphoedema of the lower limbs. One of the main factors is lymphatic dissection while other risk factors are varicose veins, obesity, deformities, that increase the risk of this syndrome. The purpose of this study is to establish a cancer rehabilitation algorithm, which includes:

- *Medicaments:* venotonic and heparin containing unguents.
- *Physiotherapy program:* individual recovery, improvement of the trophic, the motor function and the volume of movements of joints, soft tissuetechniques – PIR, suspensitherapy, mechanoterapy including simulators – stationary bike and treadmill.
- *Cryotherapy:* ice blocks and compression.
- *Manual lymph drainage;*
- *Compression therapy divice with 24 cameras;*
- *Compression bandages;*

Material and methods: Followed were ten ambulatory patients with cervical cancer and lymph node dissection for two weeks. They were divided into two groups - a control group of five patients and a test group of five patients.

- *Control group* - medicaments, physiotherapy program and lymphatic drainage.
- *Test group* - medicaments, physiotherapy program, cryotherapy before and after lymph drainage and compression bandages.

The following parameters were examined centimeters of the lower limbs, measuring angles of hips, knee joints, ankle joints, metatarsus joints, tarsal joints and phalanges joints.

Results. The test group showed better results compared to the control group, the first as well as the second week.

Discussion. Full implementation of the cancer rehabilitation algorithm has a positive impact on improving and retention of the effect of treatment.

Conclusion. Applied cancer rehabilitation in outpatient setting has difinitive effect.

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STUDIO COMPARATIVO TRA MANIPOLAZIONE FASCIALE METODO STECCO E LASERTERAPIA NEL TRATTAMENTO CONSERVATIVO DELLA SINDROME DEL TUNNEL CARPALE

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Il tunnel carpale è un canale osteo fibroso delimitato dalle ossa carpali e dal retinacolo dei flessori. Vi scorrono all'interno i tendini dei muscoli flessori delle dita e del pollice ed il nervo mediano. Il legamento trasverso del carpo che consiste in un ispessimento proprio della fascia antibrachiale delimita il tetto del tunnel. Studi scientifici suggeriscono un ruolo importante della fascia muscolare profonda nell' eziopatogenesi delle disfunzioni mioscheletriche. Molti autori suggeriscono che un trauma unico e/o microtraumi ripetuti possano alterare le caratteristiche istologiche, fisiologiche e biomeccaniche del tessuto connettivo. Diverse terapie manuali e fisiche possono riportare la fascia al suo stato fisiologico. Tra le terapie manuali la tecnica di manipolazione fasciale metodo Stecco si propone di riportare ad un normale scorrimento le fibre collagene ed elastiche della sostanza fondamentale con una manipolazione che frizioni la fascia profonda. Le frizioni vengono applicate in specifici punti corporei detti centri di coordinazione (cc), centri di fusione (cf), lungo seguenze miofasciali, spirali e diagonali. La terapia conservativa nel trattamento del tunnel carpale può prevedere anche l'utilizzo della laserterapia che si avvale di un raggio laser che, penetrando nei tessuti, svolge un' azione antiflogistica, antiedemigena, antalgica e biostimolante. Sono stati introdotti nello studio pazienti 50 pazienti con diagnosi clinica e strumentale (esame elettromiografico arti superiori non antecedente a sei mesi dall' inizio del trattamento) di sindrome del tunnel carpale. Sono stati esclusi dallo studio pazienti neoplastici, con coagulopatie e terapie anticoagulanti orali in atto. I pazienti afferenti alla nostra struttura sono stati randomizzati in due gruppi: 25 pazienti trattati con manipolazione fasciale (gruppo 1) e 25 con laserterapia (gruppo 2). I due gruppi sono risultati omogenei per età, per sesso e gravità iniziale della patologia e sono stati valutati con scala di autovalutazione *Boston protocol* che prevede domande che indagano la severità dei sintomi e lo stato funzionale al momento della sua somministrazione e con scala visuoanalogica (VAS) della spalla omolaterale. Le scale sono state somministrate al tempo T0 (prima del trattamento), al tempo T1 (10 giorni dopo l' ultimo trattamento) e al tempo T2 (3 mesi dopo l'ultimo trattamento). I pazienti del gruppo 1 sono stati sottoposti a 2-5 sedute a cadenza settimanale. I pazienti del gruppo 2 sono stati sottoposti a 5 sedute a cadenza giornaliera. Il laser da noi utilizzato è un diodo infrarosso (level laser M300) lunghezza d'onda di 780,800 nm e una potenza tra 1000 e 3000 mw CW. Sia il gruppo 1 che il gruppo 2 hanno avuto tra T0 e T1 una riduzione statisicamente significativa della scala Boston (entrambi gli item) e della scala VAS spalla omolaterale. Il miglioramento tra T0 e T1 nel gruppo trattato con manipolazione fasciale risulta maggiore in maniera statisticamente significativa (p<0,001) rispetto al gruppo trattato con laserterapia. Il follow-up a T2 è ancora in corso. L'analisi statistica è stata eseguita con test t-student. Secondo la nostra esperienza la manipolazione fasciale risulta una valida alternativa ai trattamenti conservativi attualmente in uso per la sindrome del tunnel carpale con ottimi risultati sulla sintomatologia locale, la funzionalità e i sintomi associati.

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FATTORI CHE INFLUENZANO LA DURATA DEL RICOVERO E GLI OUTCOME RIABILITATIVI IN UN REPARTO DI RIABILITAZIONE INTENSIVA

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Introduzione. All'U.O. di Medicina Fisica e Riabilitazione S. Orsola-Malpighi afferiscono pazienti con diverse patologie. All'ingresso in reparto il team riabilitativo stila il progetto riabilitativo e stima i tempi di degenza. A volte la stima si rivela imprecisa e i pazienti restano ricoverati più a lungo del previsto.

Scopo. Valutare quali sono i fattori che influenzano la durata del ricovero in ambiente riabilitativo e il raggiungimento degli obiettivi pianificati nel progetto riabilitativo.

Materiali e metodi. Dei 502 pazienti entrati in reparto nel 2011, sono state analizzate 411 cartelle (ricovero concluso entro febbraio 2012, cartella informatizzata disponibile). I pazienti sono stati divisi per:

- diagnosi d'ingresso (124 ictus ischemico, 18 ictus emorragico, 51 altro neurologico, 137 ortopedici, 20 amputati, 42 sindrome d'allettamento, 42 altro).
- età (147<=70 e 264 >70).
- complicati (302) e non complicati (109).
- sesso (190 M e 221 F).

Per ciascun gruppo è stata valutata la durata del ricovero e la sua variazione rispetto al progetto riabilitativo iniziale e il miglioramento dell'autonomia nelle ADL mediante Barthel Index Modificato.

Risultati. La differenza tra l'allungamento del tempo di degenza tra i pazienti complicati (45,7% rispetto al previsto) e non complicati (16,8%) è risultata statisticamente significativa (p=0,00023). Non abbiamo trovato una differenza significativa nell'incidenza di complicanze tra maschi e femmine (p=0,418) e in base all'età (p=0,34). L'età, il sesso e il gruppo diagnostico invece non influenzano significativamente la durata del ricovero. Per quanto riguarda il miglioramento nelle ADL, nella totalità dei pazienti abbiamo visto un aumento medio di 29,79 punti. Tra i gruppi diagnostici, chi aumenta la BIM in modo significativo rispetto alla media sono gli ortopedici (36,38, p=0,0001). Tra maschi (29,8) e femmine (29,7) la differenza non è statisticamente significativa, così come tra i pazienti con età < o > a 70 anni. I pazienti complicati hanno un miglioramento della BIM significativamente maggiore dei non complicati (p=0.024).

Conclusioni. In un reparto di riabilitazione intensiva si registra una elevata incidenza di complicanze internistiche (74%) e proprio queste sono il principale fattore che aumenta i tempi di degenza, che d'altra parte non sono influenzati dalle altre variabili analizzate. Le complicanze però non sembrano avere lo stesso impatto sul raggiungimento degli outcome riabilitativi, valutato con l'aumento della BIM durante il ricovero, probabilmente perché l'aumento del tempo di degenza si traduce in un maggior impiego di risorse umane e economiche per garantire cure riabilitative adeguate anche ai pazienti più gravi. Il principale fattore che influenza l'aumento della BIM sembra essere la diagnosi d'ingresso, anche se bisogna considerare che il grande aumento registrato negli ortopedici può derivare dal fatto che la BIM d'ingresso di questi pazienti è più bassa degli altri a causa della restrizione del carico sull'arto operato che li rende maggiormente dipendenti.

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APHASIA AFTER ACUTE STROKE: INCIDENCE, CHARACTERISTICS AND THERAPY.

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Introduction. Aphasia is defined as a language disorder following a lesion on the brain areas controlling its production and comprehension. Stroke is the most frequent cause provoking aphasia. About 21% and 38% of acute strokes present aphasia. Studies on the incidence of aphasia in Spain, its clinical and demographic characteristics and the facility or absence of it to the Phoniatry and Speech Therapy Units access have not been found. The aim of this paper is to know the incidence of aphasia in patients admitted to Complexo Hospitalario Universitario de A Coruña (CHUAC) with a stroke; to describe the clinical and demographic characteristics of patients suffering a stroke with aphasia and to analyze the treatment received.

Materials and methods. Retrospective observational study at the CHUAC using as data source the minimum set of discharge data, discharge summaries and clinical histories. Inclusive criteria: Patients diagnosed with a stroke and admitted to CHUAC in 2007. Age over 17. Exclusion criteria: brain pathology with no vascular etiology. Statistical analysis: A descriptive analysis of all the variables collected was performed. Student's-t test and the test by Mann-Whitney were applied in order to study the quantitative variables. Fisher's exact test was used to analyze the association with qualitative variables. The statistical analysis was performed using the SPPS 18.0 package for Windows, observing significant values of p <0,05.

Results. In 2007, 974 patients were admitted to CHUAC with a stroke diagnosed criteria, a random sample of 213 patients was drawn from them, being the estimation of confidence interval 95%.Fifty-one of 213 patients were diagnosed with aphasia at admission, being thus its incidence 23,9%. The most common type of aphasia at admission was motor aphasia (45,7%), followed by mixed aphasia. Only 23,5% of aphasic patients who survived were submitted to the Unit of Phoniatry: Most of them (50%) were derived by the Rehabilitation Service; 33% by the Neurology Service and 17% by the Internal Medicine Service. At the phoniatric examination through the Boston test, 42% presented Broca`s aphasia, 25% transcortical motor aphasia, and 17% anomic aphasia. Wemicke`s aphasia was found in 8% of cases, same as global aphasia. Almost all of these patients (92%) received speech therapy, which was extended during 5 months average (SD 2,7). Favorable evolution was shown in 75% of them. We compared aphasic with no aphasic patients: There were no statistically significant differences in age or sex in both groups As for the risk and comorbidity factors associated, statistically significant association was found between the previous history of atrial fibrillation and the result of aphasia after an acute stroke (p=0,043).

Conclusions. The incidence of aphasia found in our population is comparable to the one found in other countries, but the rate of referral to the Unit of Pho-

niatry is lower than other reports. Statistical association does exist between the previous history of atrial fibrillation and the existence of aphasia after suffering a stroke episode. The incidence of aphasia in Spain and its characteristics must be known to plan the language Rehabilitation Services. According to previous reports, a language assessment and therapy should be considered for all aphasic patients in the acute phase of stroke.

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SINERGY OF ACTION BETWEEN REHABILITATION PROTOCOL AND ANTI-TNF ALPHA VERSUS BIOLOGICAL THERAPY

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Introduction. The Ankylosing Spondylitis (A.S.) is a chronic inflammatory disease with systemic features and concerns mostly the rachis and the sacrum-iliac joints. In most cases it is progressive and causes impairment with serious outcomes for social and economical aspects. It mostly happens in males (3:1) with a 10 – 20 times higher frequency in next of kins related to general people; this pathology generally affects the teenagers or young adults (20-40 year-old subjects). The causes are still unknown, but the countercheck of the histo-compatibility of the antigene HLA B27 assesses a genetic relationship in 90% of the cases; some international studies show that the association with environmental factors would give an alternative immune response with pro inflammatory cytokines production that lets the disease set off. The initial symptom is usually inflammatory pain of the lumbar rachis spreading out from the gluteus to the knee (choked sciatica) along with possible morning rigidity and reduced spine mobility and thorax expansion. The diagnosis is essentially clinical though we have to apply the 2009 ASAS classifying criteria requiring the presence of sacrum-ileitis assessed by X-ray or RMN associated with at least one of these pathologies: inflammatory lumbago, arthritis, enthesitis, dactylitis, uveitis, psoriasis, Crohn's disease/colitis ulcerosa, Fans response, familiarity and HLA B27. Our target was to assess the efficacy of a rehabilitative protocol and a therapy with anti-TNFα, versus biologically treated patients.

Materials and methods. 24 patients were checked at the U.O.C. di "Riabilitazione", A.O.U.P. P. Giaccone of Palermo, from May 2011 to April 2012 (6 female – 18 male) between 35-60 years old, 50.6 years old average, affected by SA diagnosed according to the European criteria. The subjects had been divided randomly in two groups, an experimental one (A) and an assessment one (B), 12 elements each. The first group was treated with collective functional rehabilitation along with biological drugs twice a week by 20 times. The assessment group was treated with anti-TNFα therapy. The clinical assessment was made upon the basal examination (T0), and after 5 weeks (T1) and at the end of the treatment after 2 months. Moreover, the patients had been checked after 6 months (T3) by VAS and the questionnaires BASFI, BASDAI, BASMI and HAQ-S.

Results. Analysing the data we assessed that the pain had been reduced and we also noticed an improvement of the rachis mobility, the latter maintained to the follow-up after 6 months. Furthermore the collective rehabilitative treatment showed a good participation in the execution of the therapeutic exercise, a better realisation and acceptance of the disease. We just modified the treatment and stopped the rehabilitative treatment for 2 patients because of the missing control of the pain.

Conclusions. AS is a chronic and progressive pathology that notably cripples the patient's psycho-physical status, with a remarkable compromising of the relational life. Practising regularly the therapeutic exercise along with the anti-TNF-α, allowed a quick pain reduction, a long maintenance of the rachis functional elasticity and a correct posture, giving a better social and professional life quality.

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VALUTAZIONE RETROSPETTIVA DI UN PROTOCOLLO DI DECANULAZIONE IN UNITÀ RIABILITATIVA PER GCA

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Introduzione. La gestione della cannula tracheostomica rappresenta uno delle priorità da affrontare nelle UGC. Non esistono al momento protocolli condivisi relativi al processo di decannulazione più sicuro ed affidabile nel contenere il rischio di fallimento della procedura stessa. Dalla terza C.C. sulle GCA emerge l'esigenza di approfondire i criteri di decannulazione per massimizzare il recupero e diminuire i rischi connessi a questa procedura. Obiettivo dello studio è analizzare i tempi delle principali tappe del protocollo di decannulazione del nostro centro per evidenziare i passaggi chiave della procedura e di far emergere le criticità.

Materiali e metodi. Da marzo 2008 all'interno del Centro si è creato un gruppo di lavoro interprofessionale per la gestione riabilitativa della cannula tracheostomica, che ha definito una procedura operativa per la decannulazione, l'applicazione di tale protocollo ha consentito la creazione di un data base. In questo studio sono stati valutati retrospettivamente i dati dei pazienti portatori di cannula tracheostomica ricoverati presso la struttura da marzo 2008 a febbraio 2011, fra i dati raccolti: età, eziologia della GCA, tipo di cannula, LCF e DRS all'ingresso, alla decannulazione e alla dimissione. In particolare sono stati calcolati gli intervalli di tempo fra le principali tappe del processo di decannulazione: data dell'evento acuto, data della tracheostomia, data della scuffiatura parziale, della scuffiatura totale, della sostituzione della cannula, della chiusura con tappo parziale e della chiusura con tappo per 24 ore, ed infine data della decannulazione.

Risultati. Sono stati arruolati 216 pt (130 M e 86 F) con età media di 53,8 anni; 193 pazienti avevano cannula cuffiata ed hanno seguito l'intero protocollo di decannulazione. Eziologia: il 38% TCE, il 35% emorragia, 16% danno anossico, 8 % ischemico, Lo stato di coscienza all'ingresso era nel 48% SV e nel 25% SMC. Sono giunti a decannulazione il 54% dei pazienti arruolati in 77 giorni (media) dall'ingresso, di cui 46% TCE, 37,5% emorragia, 7,7% esiti di anossia e 5,8% esiti di ictus ischemico. Fra i pazienti decannullati il 41% presentava un basso livello di coscienza e il 47% veniva alimentato per via enterale alla dimissione. Rispetto ai tempi del protocollo di decannulazione i pazienti con cannula vengono ricoverati in media a 59 gg dall'evento acuto, la procedura di scuffiatura parziale, dapprima a carico della logopedista, viene consegnata agli infermieri in media a 20 giorni dall'ingresso. Dopo una media di 10 giorni di scuffiatura per tempi crescenti la cannula viene mantenuta scuffiata per 24 ore; si passa alla chiusura 24h/24 a 33 giorni (media) dalla scuffiatura totale. Fra la chiusura totale e la decannulazione passano in media 31 giorni con grande variabilità rispetto al grado di disfagia.

Conclusioni. Dall'analisi retrospettiva dei dati raccolti presso la nostra UGC emerge che: circa la metà dei paziente affetti da esiti di GCA viene decannulato nonostante basso livello di coscienza e fra i pazienti decannulati la metà non ha la ripresa della alimentazione per OS. Nei pazienti anossici e ischemici più difficilmente si arriva a una decannulazione. In media occorrono 77 giorni per la gestione del processo di decannulazione di cui circa un mese è volto a valutare e rendere maggiormente sicura l'alimentazione per OS. È necessario quindi analizzare ulteriormente la procedura di decannulazione rispetto a eziologia, grado di disfagia e livello di coscienza al fine di evidenziare gli elementi clinici che maggiormente possono influenzare la procedura e quindi essere elementi prognostici rispetto alla possibilità di decannulazione.

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LA REALTÀ VIRTUALE NELLA RIABILITAZIONE POST STROKE: CASE REPORT

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Introduction. La realtà virtuale è un approccio terapeutico innovativo nel campo della riabilitazione post-ictus. Si tratta di uno strumento utile nel caso di deficit funzionali di grado lieve, a causa della ridotta disponibilità di strumenti terapeutici che garantiscano stimolazioni sufficientemente complesse per un affinamento del recupero funzionale (1). Inoltre, l'intensiva stimolazione

favorita dall'ambiente virtuale potrebbe comportare un globale miglioramento a livello cognitivo in termini di funzioni attentive ed esecutive (2); infine, gli aspetti ludici della terapia potrebbero indurre miglioramenti a livello del tono dell'umore e della qualità di vita. Il presente studio descrive il caso di un paziente di 76 anni con diagnosi di emiparesi destra in ictus cerebrale ischemico in sede talamo-capsulare sinistra. Dal punto vista neuropsicologico il paziente presentava lievi deficit a carico delle funzioni esecutive deputate all'inibizione di processi cognitivi automatici e riduzioni in compiti di attenzione selettiva e divisa.

Materials and methods. Il paziente è stato sottoposto ad un programma riabilitativo integrato che comprendeva sedute quotidiane di riabilitazione tradizionale accompagnate da una seduta di trattamento con X-Box kinect (3). I giochi utilizzati erano caratterizzati da stimoli target e distrattori in ambienti virtuali percettivamente complessi e da una rapida successione dei contesti virtuali di gioco. Al paziente era richiesta la coordinazione dei movimenti per eseguire spostamenti sul piano orizzontale (antero-posteriori, latero-laterali) e sul piano verticale (flesso-estensioni di tronco e arti). Il paziente è stato sottoposto in ingresso e in uscita a valutazione fisiatrica (FIM), una valutazione funzionale motoria (Arat e Fuegl Meyer), una valutazione neuropsicologica (MMSE, test per le funzioni esecutive ed attentive e test mnesici ed esecutivi verbali di controllo) e psicologica (SF-36, BDI, STAI). Inoltre al paziente è stato somministrato un questionario di gradimento rispetto allo strumento utilizzato e sul carico di impegno richiesto.

Results. I punteggi finali delle scale utilizzate hanno registrato un aumento significativo delle abilità funzionali e motorie. Alla valutazione neuropsicologica si è evidenziato un significativo miglioramento in compiti di attenzione selettiva e divisa e a livello esecutivo nel tempo necessario all'inibizione di comportamenti automatici. Il giudizio del paziente al questionario di gradimento è stato positivo nel suo complesso.

Conclusions. Il programma riabilitativo standard integrato alla realtà virtuale ha determinato significativi miglioramenti a livello neuromotorio, funzionale e neuropsicologico in termini di funzioni esecutive ed attentive. Il caso singolo riportato suggerisce che i programmi di riabilitazione standard che integrano attività virtuali, oltre ad essere ben tollerati, potrebbero facilitare un maggior recupero delle attività motorie più complesse.

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DISTRIBUTION OF RISK FACTORS AND GENDER IN PATIENTS THAT ARE REFERRED TO A REHABILITATION FACILITY IN SUBACUTE PHASE OF STROKE FROM SERBIA

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Introduction. There are numerous risk factors that are associated with the stroke etiopatogenesis. Among them different factors correlate to the different degree on both onset of the stroke, rehabilitation process and finally on the treatment outcome. Therefore the aim of our study was to evaluate distribution of risk factors and gender in patients that are referred to a rehabilitation facility in subacute phase of stroke from Serbia.

Material and methods: We have included 120 patients that suffered stroke and were referred to rehabilitation facility in subacute phase over 6 months of follow-up. The risk factors that were evaluated included: hypertension, hyperlipidemia and diabetes mellitus type II (DM-II). We have additionally evaluated distribution of risk factors frequencies: group without any risk factor, group with I, II and III risk factors. The evaluated population was divided due to the gender on: male and female gender.

Results. There were 70 male and 50 female patients. The most frequent risk factor was hypertension both in males (94.3%) and females (88.0%). Distribution of hyperlipidemia in males was 62.9% and females 52.0%, while DM-II was presented with lowest frequency both in males (31.4%) and females (34.0%). There were 8.6% of males and 8.0% of females without any of evaluated risk factors, there were 35.7% males and 22.0% females with I risk factor, 37.1% males and 50.0% females with II risk factors and 18.6% males and 20.0% females with III risk factors. We found non significant distribution in frequencies of evaluated risk factors between genders ($p>0.05$).

Conclusions. We have shown that females who suffered stroke had more risk factors than males, while non of these risk factors has significant difference in the proportion between genders. Further, the most frequent risk factor is shown to be hypertension.

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REHABILITATION OF CHILDREN WITH HEMIPARESIS: A FEASIBILITY STUDY ON THE USE OF VIRTUAL REALITY

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Introduction. Virtual Reality (VR) is an artificial environment, built by specific computer software and presented to the user through appropriate sensory stimulation, making subjects to accept it as a real environment with which they can interact. It has been used as an emerging rehabilitative approach; at present, there is some evidence of efficacy in post-stroke adult patients. Most recently, some studies have addressed the use of VR in children with neuromotor disorders.

Materials and methods. We recruited 6 children with congenital hemiparesis, aged between 4 and 16 years and with an IQ in the normal range. The VR system used was VRRS (Khymeia, Padova, Italy). This is a non-immersive kind of VR, where subject's movements are detected by specific magnetic sensors worn by himself. Three-dimensional scenarios have been created to specifically elicit reaching and tracking movements of the paretic arm. Both at the beginning and at the end of the proposed treatment, children underwent an evaluation including administration of the Melbourne Assessment of Unilateral Upper Limb Movement (Melbourne), of the Gross Motor Function Measure Scale (GMFM) and of the Ashworth scale, and measuring of arm's ROM. Moreover, the Pediatric Evaluation of Disability Inventory (PEDI) was compiled following parental interview. To end with, an ad hoc satisfaction questionnaire was administered to each child at the end of treatment. Ten 45-minutes sessions were administered to each child, once per week, as part of his current rehabilitative treatment (i.e. without increasing the number of treatments per week).

Results. No child refused nor abandoned the proposed treatment before the end of the session, nor complained about excessive fatigue or pain. The Melbourne score increased in all patients; in 5 of them the increase was significant according to criteria given in the manual of the scale. Moreover in 4 subjects there was an increase of shoulder ROM and in 2 subjects a 1 point increase in the Ashworth scale. No significant changes were observed in the GMFM or in the PEDI scores.

Conclusions. This study showed good compliance with respect to the proposed treatment. A high degree of involvement and motivation towards proposed tasks was evidenced and children gave a positive judgement regarding this rehabilitative method. Overall there was an improvement in the use of the paretic arm, as shown by the increased scores in the Melbourne; in some patients, there was also a reduction of muscular hypertonus and an increase of shoulder mobility (ROM). Thus, given the small number of sessions, the use of VR seems really promising, compared to traditional rehabilitation methods; future controlled studies on larger samples are needed to confirm our hypothesis.

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LOCALIZZAZIONE DI LESIONE NELL'ICTUS CEREBRALE ED OUTCOME MOTORIO: STUDIO PROSPETTICO SU MAPPE LESIONALI DI 14 PAZIENTI TRAMITE ANALISI "VOXEL-BASED".

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Introduction. Scopo del presente studio è di verificare la presenza di indici radiologici rilevabili durante la fase acuta di ictus (intesi come individuazione delle strutture anatomiche coinvolte dalla lesione cerebrale) in grado di predire in modo statisticamente significativo l'outcome motorio e funzionale a livello del lato affetto.

Materials and methods. Sono stati esaminati in modo prospettico 14 soggetti colpiti per la prima volta da ictus ischemico con lesione cerebrale unilaterale. Di ogni paziente è stata raccolta l'immagine RMN dell'encefalo eseguita entro 5 giorni dall'ictus, documentante la lesione cerebrale. A distanza di 6 mesi dall'insorgenza della malattia i soggetti arruolati sono stati sottoposti ad una seconda valutazione clinica in cui sono utilizzati le seguenti scale per la misurazione dell'outcome motorio: Motricity Index [1] e Fugl-Meyer Assessment [2]. Attraverso l'impiego dei software MRIcro ed MRIcroN [3, 4] sono state eseguite l'analisi "voxel-based" delle lesioni cerebrali e la correlazione tra regione lesionata e outcome motorio ponendo, come indice di impairment motorio di grado severo/moderato un punteggio al Motricity Index per l'arto superiore ed inferiore di 64/100 [1] e alla scala di Fugl Meyer di 84/100 [2]. L'analisi statistica dei dati è stata condotta mediante l'impiego della procedura VLSM (Voxel-based Lesion Symptom Mapping) che fa parte del programma NPM (Non-Parametric Mapping) disponibile all'interno del software MRIcroN [3, 4]. Al fine di ottimizzare i dati raccolti si è stabilito di considerare l'outcome motorio in termini dicotomici (buono/scarso) con cut-off corrispondente ad un grado disabilità marcata/moderata. Mediante l'impiego del Test quasi-esatto di Liebermeister per l'analisi di variabili binomiali è stata valutata la correlazione statistica tra l'area cerebrale lesionata e la comparsa a distanza del sintomo clinico, prendendo in esame solamente i "voxel" danneggiati in almeno il 20% dei soggetti esaminati [3, 4]. Il livello di significatività statistica è stato posto per valori di p-value < 0.05 e corretto mediante l'impiego del fattore FDR (False Discovery Rate) per le comparazioni multiple. La localizzazione anatomica delle aree cerebrali è avvenuta utilizzando un Template anatomo-topografico denominato aal (Automated Anatomical Labeling) [3, 4]. La localizzazione anatomica delle strutture sottocorticali, è stata eseguita mediante un Template anatomo-topografico per la sostanza bianca denominato JHU (John Hopkins University) [3, 4].

Results. È importante rilevare come, pur avendo analizzato distintamente i dati riguardanti il punteggio al Motricity Index per l'arto superiore e inferiore, nonché il punteggio al Fugl-Meyer Assessment, si sia potuta riscontrare una discreta ricorrenza delle aree cerebrali danneggiate associate ad uno scarso recupero della funzione motoria a distanza di sei mesi dall'evento acuto. Tra queste è possibile citare: la sostanza bianca sottocorticale (in particolare capsula interna e corona radiata), i nuclei della base (putamen, caudato e pallido), l'insula, il talamo, il giro precentrale, l'opercolo rolandico, l'opercolo frontale inferiore e le circonvoluzioni temporali.

Conclusions. Il presente studio supporta l'ipotesi che lesioni ictali coinvolgenti la capsula interna, i nuclei della base, il talamo ed il lobo dell'insula abbiano una stretta correlazione con uno scarso outcome motorio a distanza di sei mesi dall'evento acuto.

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CRIQ (COGNITIVE RESERVE INDEX QUESTIONNAIRE) E RIABILITAZIONE NEUROPSICOLOGICA

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Introduction. Esistono ormai numerose evidenze empiriche a favore dell'esistenza della Riserva Cognitiva (CR) come costrutto di resilienza in grado di rendere conto della variabilità interindividuale nella manifestazione clinica di patologie che implicano una compromissione cognitiva. Una delle più grandi sfide degli ultimi anni è stata però la ricerca dei più corretti mediatori e indicatori della stessa, ai fini della creazione di strumenti di misura adeguati per includere la valutazione della CR in ambito clinico e speculativo. In Italia, sulla base dei più conclamati risultati riportati in letteratura, è stato sviluppato il CRIq (Cognitive Reserve Index Questionnaire), questionario ad hoc creato per misurare la riserva cognitiva attraverso un punteggio definito Cognitive Reserve Index (CRI). L'ipotesi di questo studio pilota, è che individui con più alti livelli di CR misurati attraverso il CRIq mostrino una resilienza maggiore all'evento lesivo e che esprimano questa capacità in termini di maggiori benefici a seguito della riabilitazione.

Materials and methods. In questo studio abbiamo indagato le relazioni esistenti tra il CRI, misurato su 26 pazienti con cerebrolesione acquisita (trauma cranico e stroke), e gli effetti della riabilitazione neuropsicologica sia in termini di menomazione che disabilità. Ai partecipanti, con la collaborazione dei loro familiari, è stato somministrato il CRIq e calcolato il punteggio finale, sulla base del quale i soggetti sono stati suddivisi in tre gruppi:"Bassa CR", "Media CR" e "Alta CR". Successivamente, sono stati raccolti i dati relativi alle valutazioni neuropsicologiche (test standardizzati) e funzionali (scala F.A.M., Functional Assessment Measure) somministrate all'inizio e alla fine del percorso riabilitativo. Per entrambi i domini è stato calcolato il miglioramento quantitativo.

Results. La differenza tra pazienti con "Bassa CR" e "Alta CR" è risultata significativa sia per la variabile di recupero cognitivo che funzionale, relativamente al punteggio CRI totale e ai suoi sottondici. I soggetti con alta Riserva Cognitiva hanno mostrato una maggior differenza nei punteggi pre e post trattamento cognitivo sia nei test neuropsicologici che nella scala F.A.M.. Inoltre, l'indice CRI-Totale ha mostrato una correlazione significativa, al netto dell'età, con entrambe le suddette variabili (r=.59; p< 0,05). Due modelli di regressione lineare statisticamente significativi mostrano che il punteggio CRI prevede il 36% della varianza dell'outcome del campione in entrambi i domini.

Conclusions. Sia per ciò che riguarda il miglioramento di menomazione che di disabilità, i soggetti con un Cognitive Reserve Index più alto e quindi con una presumibile maggiore Riserva cognitiva sembrano beneficiare maggiormente del training neuropsicologico rispetto ad individui con un CRI più basso. Si prevede che un'ulteriore prosecuzione di questi studi con campioni più ampi possa comportare dei benefici a livello della comprensione del ruolo della Riserva Cognitiva nell'ambito della riabilitazione neuropsicologica e che contribuisca a fornire validità al test CRIq come metodologia standardizzata per la quantificazione della stessa. I dati ottenuti grazie a questo studio potranno favorire l'inclusione dello strumento nella valutazione neuropsicologica iniziale di ogni paziente, ai fini di programmare e individualizzare al meglio il percorso riabilitativo.

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IMPROVEMENT ON PHYSICAL FUNCTION IN VERY OLD PATIENTS (≥75 YEARS) AFTER A CARDIAC REHABILITATION PROGRAM

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Introduction. Access to a Cardiac Rehabilitation Program (CRP) after a cardiac event is still much reduced, and even more in the elderly patients. They are frequently not referred to CRP because of the multiple comorbidities or high rate of physical function impairment. However there are some data available for these elderly patients focusing on the benefits of cardiac rehabilitation on cardiovascular risk factors and functional capacity. The aim of this study was to determine the effects of CRP on physical function in very old patients (≥75 years).

Materials and methods. A prospective cohort study was carried including 88 patients (53 males and 35 females), with the mean age of 78,32 years (range, 75 – 88 years), who were admitted to hospital based CRP (Phase II), between January 2008 and January 2012. Only one patient didn't start supervised exercise program due to the presence of multiple comorbidities. Functional capacity was estimated in METs (metabolic equivalents) achieved in treadmill exercise test at the beginning of CRP and three months later. Weekly physical activity habits were measured by the International Physical Activity Questionnaire (IPAQ).

Results. 65.5% of the patients were admitted after an Acute Coronary Syndrome and 13,8% after an elective Percutaneous Coronary Intervention. Regarding cardiovascular risk factors, 76,1% had hypertension, 65.9% had dyslipidemia, 36,4% Diabetes mellitus type 2, 10,6% were obese and only 4,5%

currently smoked. We observed a significant improvement in functional capacity (6.32 VS 7,77; p<0,001) and IPAQ score (738,75 VS 1703,14; p<0,001) at the end of CRP. 12 patients (13,8%) abandoned the supervised exercise program.

Conclusions. Elderly patients exhibited significant improvements in functional capacity and weekly physical activity after a CRP, which support the idea that is possible to change habits and improve physical activity levels in this population. Their adherence to CRP is also exceptionally high. These data emphasize that access of elderly patients to CRP should not be categorically denied.

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DETERMINANTS OF PHYSICAL ACTIVITY HABITS 12 MONTHS AFTER A CARDIAC REHABILITATION PROGRAM

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Introduction. The therapeutic interventions included in an exercise based Cardiac Rehabilitation Program (CRP) have gained an enormous relevance in the context of cardiovascular diseases prevention. A major challenge for professionals working in cardiac rehabilitation units is to ensure the practice of physical exercise on a regular basis after the end of phase II cardiac rehabilitation program. Weakly physical activity habits can be measured by the International Physical Activity Questionnaire (IPAQ). The aim of this study was to determine which factors influence the physical activity habits 12 months after a CRP.

Materials and methods. A prospective cohort study was carried including 415 patients who completed an hospital based CRP (phase II), between January 2008 and June 2011. IPAQ score was calculated at the beginning of CRP and 3 and 12 months later. The following variables were chosen and tested as potential determinants of the physical activity habits 12 months after a CRP: age, gender, modifiable cardiovascular risk factors (hypertension, dyslipidemia, Diabetes Mellitus, smoking, body mass index, waist circumference, psychological dysfunction), METs (metabolic equivalents) achieved in treadmill exercise, and laboratorial analysis (lipid profile, glucose and HbA1c). A linear regression analysis was carried to identify the significant determinants and to find the best model adjustment.

Results. After discarding influent observations and confirming the needed premises to analyze the linear regression, the best model adjustment (adjusted R^2= 0,294; F= 33,53; p=0.001) was found with the variables age (β= -0.150; p=0.001), gender (β= -0.055; p=0.202), evolution of IPAQ score (β=0,491; p=0,001) and METs (β= 0,057; p=0,183) during phase II, and total cholesterol at the end of CRP (β= -0,073; p=0,089).

Conclusions. Determinants of physical activity habits 12 months after CRP are mostly related to age and evolution of IPAQ score during phase II. Identifying patients with low levels of physical activity is crucial in order to implement strategies to foment changes in lifestyle.

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TRATTAMENTO E RIABILITAZIONE DELLE TENDINOPATIE SOTTOPOSTE AD INOCULO PRP

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Introduction. Le tendinopatie croniche sono patologie frequenti e difficili da trattare dal punto di vista riabilitativo, spesso recidivanti. Recentemente sono stati pubblicati lavori che sostengono che il "Platelet Rich Plasma (PRP) sia in grado di stimolare il processo ripartivo. L'obiettivo dello studio è quello di correlare l'efficacia clinica ed ecografica dell'infiltrazione intra-tendinea eco-guidata di PRP con tecnica standardizzata di 3 formulazioni a distanza di 2 settimane l'una dall'altra di PRP. Il preparato è certificato dalle cellule AVIS della struttura ospedaliera CTO- M.Adelaide di Torino (contenuto sempre ottimale e documentato di piastrine, ciascun inoculo ha una concentrazione di circa 6 milioni +/-2 milioni di piastrine) e somministrazione intralesione verificata ecograficamente.

Materials and methods. Criteri di inclusioni sono tendinopatie croniche refrattarie a terapie riabilitative, fisiche, infiltrative in pazienti che svolgono sport a livello amatoriale. Sono state prese in considerazione: tendinopatie rotulee, epicondiliti, epitrocleiti, tendinopatie dell'Achille. Sono esclusi dallo studio pazienti affetti da diabete, malattie cardiovascolari, infezioni sistemiche, stati di immunodepressione. Tre iniezioni di PRP intratendinee vengono effettuate a distanza di 15 giorni con modalità eco-guidata. Tutti i pazienti sono stati studiati al pre-operatorio e ai 6 mesi da un punto di vista radiologico con US, Doppler US, US con mezzo di contrasto e RMN, e da un punto di vista fisiatrico-ortopedico mediante l'utilizzo di schede internazionalmente riconosciute (Tegner, Womac, VAS ed EQ) compilate nel pre-inoculo, ad un mese, a tre mesi e a sei mesi. Tutti i pazienti durante il periodo dell'inoculo hanno seguito l'indicazione al non sovraccarico del tendine evitando attività di vita quotidiana che comportassero eccessive sollecitazioni. Durante il mese successivo all'inoculo è indicata la mobilizzazione attiva e passiva soprattutto in acqua con frequenti esercizi di stretching. Dal terzo mese è possibile iniziare gradualmente la ripresa dell'attività sportiva. Lo studio è stato condotto su 11 pazienti, con età media pari a 43.2 anni (DS +/- 14.3). Per la valutazione statistica è stato utilizzato il T test correlato da medie e deviazione standard.

Results. Analizzando i dati tutti i punteggi hanno subito un incremento rispetto al pre-trattamento, ma non tutti i risultati sono stati statisticamente significativi. In particolare TEGNER ed EQ non hanno avuto incrementi statisticamente significativi (rispettivamente p=0.675 e p=0.502); VAS e WOMAC hanno invece subito incrementi statisticamente significativi (rispettivamente p=0.0344 e p=0.0009). Non sono state riscontrate complicazioni correlate alla procedura, 3 pazienti sono usciti dallo studio e quindi considerati come fallimenti. Per quanto concerne l'aspetto radiografico ai 6 mesi post-trattamento è stato riscontrato in particolare una riduzione dell'85% nella presenza di microcalcificazioni. Utilizzando questa tecnica abbiamo ottenuto risultati clinici buoni e radiografici molto buoni. In alcuni casi alla RMN post-trattamento è stata valutata la quasi totale remissione dell'edema e delle calcificazioni intratendinee. Attualmente stiamo procedendo con lo studio con lo scopo di implementare la casistica ed effettuare delle linee guida riabilitative per ciascuna tendinopatia. Lo specifico progetto riabilitativo adottato durante il periodo di inoculo e nei tre mesi successivi ha certamente contribuito al conseguimento di un buon risultato clinico.

Conclusioni. A nostro parere confortanti sono i miglioramenti riguardanti la VAS e, soprattutto, la WOMAC. Inoltre anche i risultati ecografici sono estremamenti incoraggianti per quanto concerne la riduzione della morfologia patologica, dell'edema e delle microcalcificazioni intratendinee, nonché della vascolarizzazione patologica. L'allargamento della casistica contribuirà ad effettuare linee guida con protocolli riabilitativi specifici per ciascun distretto trattato con inoculo PRP.

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SJÖGREN-LARSSON SYNDROME: A CASE REPORT

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Introduction. Sjögren-Larsson syndrome (SLS) is a rare autosomal recessive neurocutaneous disorder first described in 1957 by Sjögren and Larsson. [1]

SLS is characterized by: ichthyosis and pruritus; spastic diplegia or quadriplegia; mental retardation; ocular abnormalities and leukoencephalopathy. The dermatologic features are typically the earliest presenting symptoms with ichtyosis being usually evident at birth.[1] Severe pruritus is nearly universal in SLS and distinguishes it from other ichtyoses.[3] The severity of the cutaneous symptoms does not correlate with severity of the neurologic manifestations.[1] SLS is caused by deficiency of the enzyme fatty aldehyde dehydrogenase (FALDH). This disorder is estimated to be observed in 1 in every 1000 patients with mental retardation and in 1 in every 2500 pediatric dermatologic patients. [2]

Materials and methods. The authors report a case of SLS in a 5-year-old female, SS.

Results. The patient, SS, has family history of inbreeding and was born prematurely (35 weeks). Erythema and ichthyosis were present since birth and later spastic diplegia and mental retardation were detected. SS was diagnosed with SLS at 34 months of age after a genetic study that showed a mutation not described in literature at the time of diagnosis. Since then the patient has educational assistance at school and undergoes a Physical and Rehabilitation Medicine program that includes physical and speech and language therapy regularly. Dermatologic treatment with keratolytic agents and skin hydration measures have been administered since birth. SS was first evaluated by Physical and Rehabilitation Medicine during a group consult with Pediatric Orthopedics. On physical examination SS appears to understand most commands but has a limited range of vocabulary. The child presents with severe ichtyosis and pruritus. There was a noticeable bilateral spasticity (Ashworth Modified Scale: 3) on the adductors muscles of the tight, hamstrings and triceps surae; osteotendinous hyperreflexia; nonsustained clonus of the ankle and equinus gait. Muscle retraction was not present. Infiltration with botulinum toxin was proposed as part of the rehabilitation plan and accepted by the parents. Intramuscular botulinum toxin A was injected in the affected muscles and intensification of physical therapy was recommended. One and a half months after infiltration, there was an overall improvement in the patient's condition with reduction in spasticity (Ashworth Modified Scale: 2) and gait pattern improvement.

Conclusions. SLS is a rare disorder and although there is no cure, most patients survive until adulthood. [1] Therefore a broad range of interventions is usually required in order to control symptoms and improve quality of life. These patients benefit from a multidisciplinary approach in which Physical and Rehabilitation Medicine plays a key role coordinating speech and language therapy, occupational therapy, physical therapy, techniques such as botulinum toxin intramuscular infiltration and family counseling and support.

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VALIDITÀ DELL'APPROCCIO RIABILITATIVO INTEGRATO NEL TRATTAMENTO FOCALE DELLA SPASTICITÀ CON TOSSINA BOTULINICA

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Introduction. Il piede equino è molto frequente nei pazienti affetti da spasticità. Tale deformità disturba il controllo dell'equilibrio sia in statica eretta che nella marcia, influenzando negativamente la postura globale del soggetto (1). L'approccio terapeutico varia a seconda che si tratti di una contrattura fissa o dinamica. Nelle forme dinamiche viene diffusamente impiegata la tossina botulinica per ottenere una riduzione focale dell'ipertono. L'obiettivo di questo studio retrospettivo è quello di valutare il guadagno funzionale del soggetto affetto da piede equino spastico e trattato con tossina botulinica, correlandolo al trattamento fisioterapico e all'eventuale impiego di ortesi.

Materials and methods. Un campione di 20 soggetti affetti da emiplegia spastica (11 destra, 9 sinistra) con età media di 22,4 anni (range 7- 69) è stato sottoposto ad infiltrazione intramuscolare con tossina botulinica di tipo A (Dysport) per il trattamento del piede equino spastico dinamico. Il campione comprende 14 pazienti affetti da PCI, 5 da esiti di stroke e 1 di trauma cranico. Tutti sono stati sottoposti a valutazione clinico-funzionale mediante scala MAS (Modified Ashworth Scale) e misurazione goniometrica del ROM passivo della tibio-tarsica. Nell'analisi *statistica* retrospettiva è stata inoltre presa in considerazione l'eventualità di trattamenti fisioterapici mirati alla riduzione dell'ipertono del tricipite surale e l'impiego di ortesi dinamiche diurne per facilitare la deambulazione. Sono stati infiltrati il capo mediale e laterale del gastrocnemio affetto con dosaggio medio di 4,8 U/Kg. Undici dei 20 soggetti, (sottogruppo A) hanno utilizzato continuativamente un tutore dinamico gamba-piede; di questi 8 (sottogruppo B) hanno praticato almeno 2 ore settimanali di cinesiterapia.

Results. L'analisi del campione conferma, nell'intervallo dei dosaggi utilizzati, una correlazione lineare moderata ($r=0,60$; $p<0,05$) tra le unità/Kg di tossina botulinica somministrate e la riduzione dell'ipertono misurato con scala MAS, mostrando una riduzione percentuale media del 23% rispetto alla condizione pre-inoculo. Tale correlazione è risultata maggiore nel sottogruppo A ($r=0,79$; $p<0,05$) e ancora più forte nel sottogruppo B ($r=0,88$; $p<0,05$). Dall'analisi statistica emerge inoltre che nell'intero campione la riduzione dell'ipertono è spiegabile per il 36% ($r^2=0,36$) dall'incremento della dose/Kg, nel sottogruppo A per il 63% ($r^2=0,63$), e nel sottogruppo B per il 79% ($r^2=0,79$). I coefficienti di determinazione (r^2) derivati dall'analisi sono dunque indicativi di maggiori possibilità di successo terapeutico con un approccio riabilitativo intergrato. Nel 70% dell'intero campione si è registrato un miglioramento della dorsiflessione passiva della tibiotarsica a ginocchio esteso (valore medio 10°), nel sottogruppo B la percentuale di miglioramento sale all'88% (valore medio 9°). Al controllo a cinque mesi il campione ha mediamente mantenuto il 48% del guadagno della dorsiflessione ed il 78% della riduzione dell'Ashworth ottenuti dopo il trattamento eseguito.

Conclusions. Sebbene sia necessaria un'ulteriore conferma con casistiche maggiori, sembra abbastanza chiaro che il trattamento oramai consolidato della spasticità con tossina botulinica è imprescindibile da un approccio riabilitativo integrato che tenga conto non soltanto di un programma cinesiterapico specifico, ma anche dell'impiego di tutorazioni adeguate al fine di incrementare e mantenere duraturo nel tempo i risultati ottenibili dalla sola terapia infiltrativa.

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A 2-MONTH-OLD GIRL WITH BILATERAL PERISYLVIAN SYNDROME AND ARTHROGRYPOSIS MULTIPLEX

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Introduction. The term congenital bilateral perisylvian syndrome describes a structural malformation of the brain in which the underlying anomaly is polymicrogyria, a malformation of the outer layer of the cerebral cortex. Polymicrogyria may have a focal or regional distribution or involve the whole cortical mantle. There are consequently wide spectrums of clinical manifestations, which include children with severe encephalopathies and intractable epilepsy or normal individuals with selective impairment of cognitive functions in whom the mild cortical abnormality is only detected on pathological brain study. The anomaly usually occurs as a result of post-migration insult during fifth or sixth months of pregnancy.

Materials and methods. This is a 2-month-old girl, preterm, with a clinical onset of apnea, bradycardia and she was unable to swallow. Due to the situation of the patient, she was admitted in Intensive Care Unit. Due to the existence of arthrogryposis multiplex and respiratory distress she was valued for our Pediatric Rehabilitation Unit. On examination the child showed unusual facies, retrognathia, hypotonia, flexion contractures of both hands, bilateral equinovarus and delayed milestones. The patient was on anti epileptics because of the EEG showed focal activity in the form of sharp waves of temporal and rolandic region of the right cerebral hemisphere. The esophagogastroduodenal study showed swallowing incoordination and because of that she required parenteral nutrition. MRI of brain revealed a congenital abnormality in the neuronal organization of the cortical mantle. It showed bilateral sylvian polymicrogyria.

Results. The treatment includes those aspects for the rehabilitation of oropharyngoglossal dysfunction and motor deficits in addition to the antiepileptic therapy. We decide to include the patient in physiotherapy respiratory to improve handling of secretions and improve breathing capacity and she was treated with passive mobilization techniques. We decided to put plaster splints on her lower extremities with periodic changes to treat equinovarus deformity. After rehabilitation treatment her respiratory capacity improved considerably and her deformities have not progressed any more.

Conclusions. Polymicrogyria refers to abnormal appearance of the cortex with multiple abnormally small convolutions and too few sulci. It is basically an organization anomaly in which the neurons reach their final destination in the cortex but are distributed abnormally. Gross assessment of the thickness of the cortical surface is due to fusion of the adjacent miniature gyri piled upon one another (1). Essential criteria (present in 100% of the cases) for diagnosis of this syndrome are oropharyngoglossal dysfunction, moderate to severe dysarthria and bilateral perisylvian malformations on imaging. Additional criteria include delayed milestones, epilepsy, mental retardation and abnormal EEG. Other criteria for diagnosis are arthrogryposis multiplex, other limb malformations and infantile spasms (2). Prenatal diagnosis using fetal ultrasound and MRI may be particularly difficult as the regions of the brain that are involved in this malformation may not have reached the final folding

until birth. However there have been studies in which patients with bilateral polymicrogyria were identified by prenatal MR imaging and genetic analysis was performed (3).

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WHICH PROFILE CAN HELP TO PREDICT WEANING OFF PEG OR SURVIVAL IN PATIENTS SUFFERING FROM SEVERE ACQUIRED BRAIN INJURY?

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Objective. this study aims to identify factors that may help to predict outcome (weaning from enteral nutrition and/or mortality) in patients with severely damaged brain and fed by PEG (Percutaneous Endoscopic Gastrostomy) because of consequential neurological dysphagia. Swallowing disorders are responsible of many serious complications (e.g. *ab ingestis* pneumonia, dehydration, malnutrition) and may affect quality of life[1]. Weaning this patients from tube feeding to oral nutrition is one of the primary goals in rehabilitation [2] because a good final outcome in this cases is linked to restitution of oral feeding [3].

Design. A retrospective study.

Setting. Post-acute neurological rehabilitation facility at "*Pineta del Carso*" in Aurisina (Trieste, Italy).

Methods. patients who underwent PEG for neurological dysphagia consequent to severe acquired brain injury. Continuous independent variables (age, bedsores, comorbility, serum creatinine, albumin, haemoglobin, sodium and lymphocytes, DRS and LCF at admission and discharge, Onset Admission Interval, Onset Setting Interval [1]) were compared by mean of *t* test of Student between subjects who were weaned off PEG and subjects who were not and between subjects who died and subjects who survived. Afterwards all independents variables already seen were changed in categorical variables and were analysed along with others discrete variables (sex, presence of tracheotomy, control of Head or Trunk, etiology). Then by mean of Fisher Test was calculated the p-value for the association between dependent variable (weaning of PEG and/or mortality) and all the independent variables. Were considered significative p.value ≤ 0,05. Odds Ratio were also calculated (with a Confidence Interval of 95%). [1] The Onset Setting Interval is the time in day from the onset of acute event and the day of insertion of PEG.

Results. Forthy patients who suffered from severe acquired brain injury and fed by PEG was rehabilitated at our facility from 2001 trough 2011 (50 % males). Mean age was 59,37 years (± 13,19 DS). In the range of age 50-80 years was comprised the 75% of this sample. The etiology of acute event was as follows: traumatic brain injury (20%), cerebral ischemia (20%), SAH (subarachnoid hemorrage) (17,5%), cerebral hemorrage (17,5%), post anoxic encephalopathy (15%), cerebral neoplasm (10%). Subjects who died was 25% of the sample. Predictors of mortality was older age (≥ 65 years; p-value 0,001), two or more comorbility conditions (p-value 0,05), two or more bedsores (p-value 0,002), elevation of serum creatinine concentration (≥ 1,1 mg/dL; p-value 0,002), an interval between acute event and admission to post acute rehabilitation (O.A.I.) longer than 90 days (p-value 0,05) and a lack of trunk control (p-value 0,03) and/or presence of tracheotomy (p-value 0,01). None of patient suffering from SAH or neoplasm deceased. Subjects that resumed oral feeding from PEG was 17,5% of the sample. Variables associated to weaning from enteral nutrition was as follows: a value of DRS ≤ 5,5 at admission (p-value 0,01) and/or at discharge (p-value 0,000001), an LCF value ≥ 4,5 at admission (p-value 0,01) and/or discharge (p-value 0,00004); a preserved head control (p-value 0,0001) and/or trunk control (p-value 0,0003) and finally the weaning from tracheotomy (p-value 0,0001). None of patients suffering from SAH or post-anoxic encephalopathy resumed oral feeding.

Conclusions. This study enabled us to found out clinical and laboratory variables statistically linked to outcomes we investigated. Subjects younger, with preserved renal functioning, suffering from few bedsores and early transferred from acute department to intensive rehabilitation wards have more chance to survive, especially if they are also weaned from tracheotomy. A reduced disability and a better cognitive capacity along with a preserved trunk control are good predictors of weaning from PEG.

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PREVENIRE E COMBATTERE LA SEDENTARIETÀ CON L'ESERCIZIO FISICO DI GRUPPO NEI PAZIENTI CON ICTUS: RISULTATI DALLO STUDIO CLINICO CONTROLLATO NON RANDOMIZZATO EFG/2009

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Introduzione. Al termine del percorso riabilitativo individuale molti pazienti con ictus riducono drasticamente l'attività fisica a causa delle limitazioni motorie residue e della bassa offerta di servizi adatti sul territorio nazionale. La sedentarietà che ne deriva provoca decondizionamento fisico e aumento della disabilità, con conseguente ulteriore riduzione del movimento e della partecipazione sociale. L'efficacia dell'esercizio fisico nel migliorare la funzione motoria e ridurre l'isolamento sociale è stata dimostrata in diverse malattie croniche, ma è scarsa l'esperienza di utilizzo di questi interventi nei pazienti con esiti da ictus. Alcuni precedenti studi di Pang, Macko, Stuart e Benvenuti avevano già dato risultati positivi sulle performances motorie e sulla qualità di vita nei pazienti con esiti di ictus che partecipavano a programmi di attività fisica adattata, ma i trials erano stati condotti su piccoli numeri. Nel 2009 è stato avviato, presso l'Azienda Ospedaliero-Universitaria di Bologna Policlinico S. Orsola-Malpighi e l'Arcispedale S.Maria Nuova di Reggio Emilia, uno studio clinico controllato non randomizzato per valutare l'efficacia su grandi numeri di un intervento strutturato comprendente sessioni di esercizio fisico di gruppo (EFG) associate a sedute di educazione terapeutica (ET), finalizzate all'autogestione degli esiti disabilitanti della malattia.

Materiali e metodi. Lo studio prevedeva l'arruolamento di 300 pazienti a 3-18 mesi dall'evento ictus, 150 assegnati al gruppo sperimentale (16 sessioni di EFG 1 ora/ 2 volte alla settimana per 2 mesi associate a 3 sedute di ET) e 150 al gruppo di controllo. Alla baseline, 4 e 12 mesi sono stati valutati, da ricercatori indipendenti e in cieco, la funzionalità fisica e l'equilibro (6 Minutes Walking Test, Berg Scale, Physical Performance Battery-SPPB), la disabilità (Barthel index), il benessere fisico e mentale percepito (SF12) e il tono dell'umore (Geriatric Depression Scale). Inoltre, ad 1 anno di distanza dall'arruolamento è stato indagato il ricorso a visite e trattamenti riabilitativi e la frequenza di alcune complicanze (numero di cadute, fratture, ospedalizzazioni, altre complicanze mediche).

Risultati. Dopo 4 mesi nei pazienti assegnati al gruppo di intervento (N=129) si è riscontrato, rispetto alla baseline, un miglioramento statisticamente significativo nella performance nel cammino (migliorata sia la velocità sia la distanza percorsa in metri), nell'equilibrio (SPPB) e nella qualità di vita percepita (punteggio dell'SF12 P<0.002). I pazienti assegnati al gruppo di controllo (N=107) sono invece rimasti invariati per tutti gli esiti presi in considerazione. Ad un anno dall'inclusione nello studio si è inoltre riscontrato un minor ricorso, statisticamente significativo, a visite e trattamenti riabilitativi.

Conclusioni. Lo studio, ancora in corso (si prevede la conclusione a settembre 2012), ha messo in evidenza come l'esercizio fisico di gruppo, offerto a pazienti con ictus a 3-18 mesi dall'evento acuto, sia efficace nel migliorare in modo significativo il recupero della funzionalità fisica e del benessere psicofisico. L'esercizio fisico sembrerebbe inoltre ridurre il ricorso a visite e trattamenti riabilitativi. Al Congresso presenteremo i dati definitivi.

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FUNCTIONAL OUTCOME OF INPATIENT REHABILITATION IN PERSONS WITH BRAIN TUMOURS.

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Introduction. Patients with brain tumours (BTs) have major disabilities and guarded prognosis but may benefit from inpatient rehabilitation**.** The purposes of this study were to document functional outcome in a group of patients with BTs undergoing inpatient rehabilitation and to compare functional outcome with a group of patients with non-neoplastic brain lesions.

Materials and methods. Retrospective and descriptive study. Clinical records were reviewed for all patients with a diagnosis of brain tumour (BT) admitted to inpatient rehabilitation unit, from January 2003 to June 2012. We collected demographic information (gender, age on admission, length of rehabilitation stay and discharge destination); tumour characteristics; neurological symptoms on admission (paresis, cranial nerve deficits, dysphagia, bladder or bowel dysfunction, speech disorders and language dysfunction); Functional outcomes, using the Functional Independence Measure (FIM) on admission and discharge, using total, motor and cognitive categories. The FIM change (gain) was the difference between discharge and admission FIM scores. The FIM efficiency was calculated as the FIM change divided by the length of stay in days. We also selected patients with an admitting diagnosis of non-neoplastic brain lesions (stroke and traumatic brain lesion) matched for age, gender and admission functional status. Data were analyzed using the SPSS Version 17.0. P values < 0.05 were considered statistically significant.

Results. Forty-two patients admitted to the rehabilitation ward had a diagnosis of brain tumour. Seven patients were excluded from the study since they did not have discharge FIM scores, including 3 transferred to acute care and 4 who died on the ward. Therefore, 35 patients with BTs were included. Also were included 35 patients with non-neoplastic brain lesions (62.9% with stroke and 37.1% with traumatic brain injury). The mean age of patients with BTs was 59.7 (SD 11.5) years, 18 (51.4%) were women and 17 (48.6%) were man. Thirty-three patients (94.3%) were diagnosed with primary brain tumour and 20 (57.1%) had malignant tumours. Patients with BTs made significant improvements in their FIM scores from admission to discharge: the mean total FIM scores at admission and discharge were 76.77 (SD 24.40) and 92.63 (SD 25.44), respectively, for a mean total FIM change (gain) of 15.86 (SD 11.15) points (difference statistically significant, *(P*< 0.05*)*. The mean motor FIM change was 14.31 (SD 10.15) and mean cognitive FIM change was 1.54 (SD 2.48) points (differences statistically significant *P< 0.05*). The mean length of stay for the BTs group was 36.0 (SD 22.0) days, and 30 (85.7%) were discharged home. No statistically significant differences *(P*> 0.05*)* were identified for total FIM change and total FIM efficiency between the non-neoplastic brain lesions group and BTs group (20.17 vs 15.86 points and 0.97 vs 0.59 FIM points/day, respectively). Patients with non-neoplastic lesions had significantly shorter length of stay *(P*< 0.05*)* than patients with BTs (26.86 vs 36.00 days, respectively).

Conclusions. Studies to date show that patients with BTs make significant functional gains through rehabilitation and the majority are able to return home after discharge. Functional outcomes and discharge to home for patients with BTs after rehabilitation are comparable to patients with traumatic brain injury or stroke. The present study provides further evidence for the benefits of inpatient rehabilitation of patients with BTs.

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IL TREADMILL ACQUATICO NELLA RIABILITAZIONE DI SOGGETTI CARDIOPATICI

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Introduzione. L'esercizio terapeutico in acqua rappresenta una nuova modalità riabilitativa nei pazienti cardiopatici offrendo un buon recupero della funzionalità cardiaca, incrementando la pressione diastolica di riempimento e riducendo la frequenza, con miglioramento nel volume di riempimento e nella frazione di eiezione. Scopo del nostro studio è stato definire un protocollo riabilitativo basato sull'esercizio fisico in acqua in pazienti cardiopatici.

Materiali e metodi. Sono stati arruolati 10 pazienti cardiopatici sottoposti ad angioplastica o ad impianto di protesi mitralica biologica, di età media 62,5 anni, 7 uomini e 3 donne. Criteri di inclusione: classi funzionali NYHA II-III; FE≥ 45%; terapia farmacologica stabilizzata da almeno tre mesi. I criteri di esclusione: presenza di patologie respiratorie croniche, pregresso stroke, gravi patologie meccaniche della colonna. Tutti i pazienti sono stati sottoposti al baseline T0 e alla fine del trattamento T1, a valutazione fisiatrica, prova da sforzo, test isocinetico, 6MWT, ecocardiogramma bidimensionale ed ecocolordoppler cardiaco, Scala di Borg, Short Form 36. Ogni seduta aveva una durata di 45 minuti: 10 minuti di riscaldamento muscolare a secco, 30 minuti di esercizio aerobico mediante treadmill acquatico ed esercizi di rinforzo muscolare, 5 minuti di esercizi di stretching muscolare. I pazienti sono stati monitorizzati con saturimetro (valutazione SatO2, F.C.) durante il setting riabilitativo, rilevazione della P.A. all'inizio ed al termine della seduta.

Risultati. A fine trattamento si è evidenziata una netta riduzione della frequenza cardiaca durante sforzo fisico, mentre non si sono avuti risultati statisticamente significativi della variazione della pressione arteriosa. Il punteggio della Scala di Borg ha mostrato un miglioramento statisticamente significativo. Si è evidenziato inoltre un incremento del picco di forza degli arti inferiori misurato con il test isocinetico. In termini di qualità di vita s'è evidenziato un miglioramento dei parametri considerati per la valutazione con SF-36.

Conclusioni. In accordo con quanto riportato in letteratura, la riabilitazione con treadmill acquatico nei pazienti trattati con questo protocollo ha determinato una riduzione dei valori della F.C. durante l'esercizio fisico, una riduzione della percezione soggettiva della dispnea con aumento della forza muscolare e della performance fisica indispensabili per il raggiungimento di una buona qualità di vita.

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MENTALLY SIMULATED MOTOR ACTIONS IN NEUROREHABILITATION: A NEW PROTOCOL FOR PATIENTS WITH MULTIPLE SCLEROSIS

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Introduction. In recent years there have been numerous reports on the ability to imagine performing a movement without executing it (Motor Imagery; MI) and on the influence of MI on motor execution (ME) [1]. At behavioural level, the activation of common structures during MI and ME of actions is supported by the preservation of same spatiotemporal characteristics and observance of same biomechanical rules.

Materials and methods. Here we studied the effects of MI on spatiotemporal parameters evaluated by a BTS system of six infrared cameras. Seventeen normal subjects (NS) and eight patients with Multiple Sclerosis (PwMS) were recruited. They were seated in front of a table on which a sheet with two square identical targets (inter-distance 20 cm), was placed. In each trial, only one pair of four different target sizes (.5x.5, 1x1, 1.5x1.5, and 2x2 cm^2) was presented to the subjects. They held a pen with the right and were initially positioned on the target on their left. For each session five trials with the same target were performed. After the signal start, the subjects were requested to complete five real-movement cycles of pointing between the left and right targets as accurately and fast as possible. During the MI, the first four cycles were mentally performed and the fifth was really executed. To calculate the differences between MI and ME the time to complete the first four cycles was compared. To evaluate the effect of MI on the ME the fifth cycle in the two conditions was compared. The time was calculated on the trajectory of a marker placed on the pen tip and recorded by the camera.s.

Results. As expected, during ME, NS and PwMS modulated with the same trend movement duration according to the target size, increasing the speed with larger targets. However PwMS showed more lasted values than NS. Strong correlations and small absolute differences between ME and MI were found in NS, whereas in PwMS the MI values were always smaller than during ME. Further, in PwMS the fifth cycle after MI was less lasted than all the cycle in ME.

Conclusions. These results agreed with the hypothesis that MI, by recruiting the same motor neural structures involved during ME [2] can improve the same ME. This result open a new possibility in the field of neurorehabilitation in PwMS, that show mental and motor processes slower than NS and a related general decline of spatiotemporal characteristics.

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EFFECT OF COMPREHENSIVE DECONGESTIVE LYMPHATIC THERAPY FOR WOMEN AFTER BREAST CANCER SURGERY

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Introduction. Lymphedema is one of the most common and debilitating complication following breast cancer surgery, axillary lymph node resection or radiotherapy. Affected women can experience pain, swelling, arm tightness, heaviness of the arm, and recurrent skin infections. These factors lead to decreased quality of life for breast cancer survivors. A novel form of physiotherapy called Comprehensive Decongestive Therapy (CDT) combines various physiotherapeutic modalities like massage, compression bandaging and exercises. The aim of this study was undertaken to evaluate the efficacy of CDT in women affected by upper limb lymphedema.

Materials and methods. 145 patients with lymphedema were enrolled and analyzed prospectively. The patients accurred to the department of Physical Medicine and Rehabilitation of the "OORR Hospital" in Foggia from January 2010 to May 2012. The mean ± standard deviation age of the patients was 61.08 ± 6.68 years. Patients had undergone breast cancer surgery (mastectomy, quadrantectomy or tumorectomy) and had completed neoadjuvant chemo- and radiation therapy within this period. Time since cancer surgery was 2.08 ± 0.65 years. Lymphedema was measured using circumferential measurements. Upper-limb circumference was calculated using cloth measuring tape on bilateral upper-limbs at four levels, i.e., at the metacarpophalangeal joints, wrist joint, 15 cm distal to the lateral epicondyle, and 10 cm proximal to the lateral epicondyle. The calculated difference between each circumference (in centimeters) at all four levels between the affected and contralateral upper limbs was considered as outcome. The reduction of functioning of shoulder was valutated by clinical exam and by the use of Disability of the Arm, Shoulder and Hand (DASH) and Weiss Scale. Each patient was valutated before and after the therapy. QOL was measured by using the 36-Item Short Form Health Survey (SF-36) QOL questionnaire. Each patient received decongestive lymphatic therapy and specified exercises for shoulder. The duration of therapy was 10 days. The mean period of follow-up was 30 days. Paired t-tests were used for comparison of mean values of the pre- and post-therapy circumferential measurements, for shoulders functioning and for quality of life.

Results. A statistically significant reduction in affected upper-limb circumference was found at levels of measurement ($p < 0.008$), one month after the end of therapy. There is not a statistically significant improvement for shoulder functioning. However a statistically significant different was found for QOL scores in all SF-36 domains post-intervention ($p< 0,0001$).

Conclusions. The Comprehensive Decongestive Therapy (CDT), which combines various physiotherapeutic modalities like massage, compression bandaging and exercises, was found to effectively improve affected upper-limb symptoms and led to improved QOL of breast cancer patients.

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EFFETTI DEL TREADMILL ACQUATICO SUL RECUPERO DELL'EQUILIBRIO, DELLA FORZA MUSCOLARE E DEL CAMMINO NEI PAZIENTI AFFETTI DA ESITI DI STROKE.

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Introduzione. La riabilitazione di un paziente affetto da esiti di stroke deve essere orientata verso il recupero dei disturbi dell'equilibrio, dell' ipostenia dell'emilato colpito, della fatica durante il cammino e di conseguenza delle difficoltà durante lo svolgimento delle attività di vita quotidiana. Scopo del nostro studio è stato valutare gli effetti del treadmill acquatico in soggetti affetti da esiti di stroke occorso almeno sei mesi prima, in grado di deambulare autonomamente o con assistenza di un sostegno, stabili da un punto di vista internistico e con un grado di spasticità dei flessori plantigradi della articolazione tibio-tarsica<1+ secondo la scala di Ashworth.

Materiali e metodi. Dieci pazienti sono stati inseriti nel protocollo di studio (ancora in svolgimento). Per i pazienti arruolati, le misure di outcomes al baseline (t_0) e a fine trattamento (t_1) sono state la scala Berg per l'equilibrio, il 10MWT per la deambulazione, la Motor Assessment Scale, il test isocinetico dell'arto sano e dell'arto ipostenico, la scala FSS per la fatica e l'SF 36 per la qualità di vita. Sono state effettuate venti sedute a giorni alterni di 30' ciascuna: la velocità del treadmill è stata impostata considerando la più confortevole per il paziente ed il livello dell'acqua è stato portato sino al processo xifoideo dello sterno al fine di consentire un allevio del carico corporeo.

Risultati. L'analisi dei risultati, alla fine del periodo di trattamento (t_1) ha evidenziato un miglioramento di tutti i parametri relativi alle scale di valutazione impiegate.

Conclusioni. Sebbene il numero limitato di pazienti coinvolti nell'analisi, questi risultati preliminari ci consentono di considerare il treadmill acquatico un valido e sicuro strumento nella riabilitazione in fase sub-acuta e cronica del paziente affetto da stroke.

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EFFICACIA DELLA TERAPIA CON ONDE D'URTO EXTRACORPOREE FOCALIZZATE E RIABILITAZIONE CON METODICA ISOCINETICA NELL'EPICONDILITE O "GOMITO DEL TENNISTA"

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Introduzione. L'epicondilite è una tendinopatia inserzionale che colpisce il muscolo estensore del carpo ed insorge nella maggior parte dei casi per condizione di "overuse" (Tennis, uso spropositato del pc, barman) dell'articolazione del gomito. Le onde d'urto focalizzate extracorporee (ESWT) rappresentano una valida terapia fisica nel trattamento di tale patologia.

Scopo. dello studio è dimostrare l'efficacia del trattamento riabilitativo con metodica isocinetica associato a ESWT, per il recupero della limitazione funzionale e del dolore nel paziente affetto da epicondilite. Tra 35 pazienti affetti da "Epicondilite",ne sono stati reclutati 10(7M e 3 F) di età compresa tra i 25 e i 40 anni affetti da epicondilite ed epitrocleite (gomito del golfista). Criteri di esclusione sono stati: cardiopatie, pace-maker cardiaco, coagulopatie, infezioni locali, cervicobrachialgie,calcificazioni, severe aritmie.I pazienti sono stati valutati attraverso esame clinico, ecografico, a scale di valutazione,VAS,NRS,FIM,e test isocinetico a velocità angolari a 500° (10 rip.), 400° (8 rip.) e300° (5 rip.). La valutazione è stata eseguita al baseline (t0), nel post trattamento con onde d'urto (t1) ed a 60 gironi dall'inizio della terapia (t2). I pazienti sono stati suddivisi in maniera randomizzata in due gruppi: A e B. Il gruppo A(7 pazienti) è stato sottoposto soltanto ad ESWT, mentre il gruppo B (3 pazienti), è stato trattato con ESWT e successivamente con trattamento riabilitativo con metodica isocinetica. Le ESWT sono state somministrate tre volte con una cadenza di una seduta a settimana per tre settimane. Per ogni seduta sono stati somministrati 700 colpi con una densità di energia pari a 0.12 mj/mm2. Al termine del trattamento con onde d'urto, ai pazienti del gruppo B è stato proposto un protocollo riabilitativo con metodica isocinetica consistente in 12 sedute con una cadenza di tre sedute a settimane. Ciascuna seduta prevedeva un lavoro concentrico/concentrico con diverse velocità angolari (500° per 12 rip., 450° per 8 rip. e 300° per 8 rip, con pause di 5 secondi l'una dall'altra) intervallate con tre serie di lavoro isometrico (8 rip.) in deviazione radiale.

Materiali e metodi. Tra 35 pazienti affetti da "Epicondilite",ne sono stati reclutati 10(7M e 3 F) di età compresa tra i 25 e i 40 anni affetti da epicondilite ed epitrocleite (gomito del golfista). Criteri di esclusione sono stati: cardiopatie, pace-maker cardiaco, coagulopatie, infezioni locali, cerv icobrachialgie,calcificazioni, severe aritmie.I pazienti sono stati valutati attraverso esame clinico, ecografico, a scale di valutazione,VAS,NRS,FIM,e test isocinetico a velocità angolari a 500° (10 rip.), 400° (8 rip.) e300° (5 rip.). La valutazione è stata eseguita al baseline (t0), nel post trattamento con onde d'urto (t1) ed a 60 gironi dall'inizio della terapia (t2). I pazienti sono stati suddivisi in maniera randomizzata in due gruppi: A e B. Il gruppo A(7 pazienti) è stato sottoposto soltanto ad ESWT, mentre il gruppo B (3 pazienti), è stato trattato con ESWT e successivamente con trattamento riabilitativo con metodica isocinetica. Le ESWT sono state somministrate tre volte con una cadenza di una seduta a settimana per tre settimane. Per ogni seduta sono stati somministrati 700 colpi con una densità di energia pari a 0.12 mj/mm2. Al termine del trattamento con onde d'urto, ai pazienti del gruppo B è stato proposto un protocollo riabilitativo con metodica isocinetica consistente in 12 sedute con una cadenza di tre sedute a settimane. Ciascuna seduta prevedeva un lavoro concentrico/concentrico con diverse velocità angolari (500° per 12 rip., 450° per 8 rip. e 300° per 8 rip, con pause di 5 secondi l'una dall'altra) intervallate con tre serie di lavoro isometrico (8 rip.) in deviazione radiale.

Risultati. I risultati ottenuti, seppur preliminari, dimostrano che il trattamento con onde d'urto extracorporee focalizzate (ESWT) associato ad un allenamento con metodica isocinetica, determina riduzione del dolore ed il recupero funzionale dell'articolazione della spalla. Tali risultati sono supportati dalle scale di valutazione somministrate (FIM, VAS, NRS) e dai miglioramenti valutati attraverso il test isocinetico.

Conclusioni. La combinazione terapeutica tra ESWT ed esercizio isocinetico non soltanto consente di ridurre la sintomatologia dolorosa dell'epicondilite, ma determina un rinforzo muscolare dei muscoli estensori del carpo e delle dita, tale da ridurre il rischio di recidive.

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TECNOLOGIA ED INNOVAZIONE NELLA PROTESICA

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Spesso gli ausili vengono progettati sulla base di dati qualitativi e teorici. Roadrunnerfoot Engineering, azienda italiana, è partita dall'analisi degli ausili sul mercato traducendoli in dati quantitativi e utilizzando strumenti tecnologici come i sistemi optoelettronici. Tre i piedi in fibra di carbonio brevettati: prima il piede da correre Sprinter's King poi i piedi da camminare, Walking foot media performance, Roadwalking, alta performance. Riguardo al piede da correre, gli ausili presenti sul mercato, presentavano una componente negativa durante il contatto iniziale e un sovraccarico del lavoro dell'anca, allungando la fase di carico del peso e riducendo notevolmente l'energia restituita rispetto all'arto sano. Riguardo i piedi da camminare, gli ausili analizzati presentavano una dorsiflessione simile o inferiore alla normale, nessuna flessione plantare e nessuna spinta. Questo perché nel momento di toe off nessun piede protesico lavorava. Partendo da una Gait Anaslysis su soggetti normodotati e soggetti amputati si ottengono i primi dati per analizzare i limiti dei piedi in commercio e designare gli obiettivi per iniziare la progettazione del nuovo piede. I risultati vengono validati da una FEM analysis, dalla quale risulta la performance dell'ausilio, la ratio di energia accumulata e rilasciata (efficienza) e le caratteristiche curve in movimento che assume l'ausilio, una perfetta simulazione del movimento basata sulla Gait. Questa fase porta ad un prototipo che viene testato secondo le norme ISO. Successivamente vengono verificati gli obiettivi designati tramite la Gait. Per lo Sprinter's gli obiettivi erano: eliminare la forza negativa durante la fase di carico del peso del paziente, far in modo che la forza verticale e orizzontale fossero tali da consentire che la traiettoria del ginocchio protesico fosse vicina al terreno in modo da ottimizzare le energie. Obiettivi raggiunti: nessuna forza negativa, linee allineate in modo da dare stabilità, cinematica simile all'arto sano, lunghezza del passo analoga all'arto sano. Il Roadwalking è costituito da 4 lamine principali: una lamina inferiore che definisce, rispetto ad un piede umano, il calcagno e l'avampiede. La lamina inferiore inizia a lavorare all'Initial Contact: la resistenza e l'elasticità devono essere tali da consentire l'accettazione e l'assorbimento del carico con una funzione di ammortizzazione del calcagno in modo da assicurare il comfort all'utente, ma allo stesso tempo tale da garantire la stabilità. La sua funzione si esaurisce nella fase finale del toe-off, in quanto l'avampiede fornisce la spinta propulsiva finale. Una lamina posteriore che ha la funzionalità dell'apparato muscolo-tendineo soleo-tendine d'achille. Il soleo agisce in contrazione eccentrica durante il secondo rotolamento, per stabilizzare l'appoggio del piede nel piano sagittale perciò la nostra lamina posteriore inizia a caricarsi, quando arriva a contatto con il terreno nell'istante di Mid-stance e genera energia propulsiva, favorendo il passaggio dal Mid-stance alla fase finale del contatto dell' avampiede. Due lamine superiori che definiscono il collo del piede e hanno la funzionalità muscolare del tibiale anteriore. Consentono un graduale rotolamento del piede fino al contatto a terra dell'avampiede e gestiscono il passaggio dall'Initial Contact al Mid-stance. Attraverso il loro caricamento garantiscono la dorsiflessione in fase di Mid-stance e consentono la plantaflessione del piede in fase di spinta propulsiva finale. Il Walking foot mp è composto da 2 lamine e garantisce ottimo comfort con assorbimento dell'energia e rilascio graduale, adatto a chi non ha livelli elevati di mobilità.

Conclusions. Gli autori intendono proporre una nuova tecnologia per la costruzione di protesi di arto inferiore, funzionali ai bisogni e con costi calmierati per l'utilizzo in Paesi industrializzati e anche in quelli a basse risorse economiche. Protesi valide per la vita comune e per l'attività sportiva.

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PROPOSTA DI COLLABORAZIONE TRA I PAESI DELLAREA MEDITERRANEA IN AMBITO DI COOPERAZIONE INTERNAZIONALE

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Introduction. La cooperazione internazionale sta diventando sempre piu' un elemento basilare per lo sviluppo sanitario ed assistenziale dei Paesi a basse risorse economiche, soprattutto qualora ci sia una partnership efficiente da parte dei Paesi industrializzati ed una mission chiara e efficace verso i reali bisogni di popoli ed istituzioni, per fare questo occorre quindi avere una buona conoscenza della situazione del paese ricevente ed avere buona conoscenza delle potenzialità del Paese partner. Questo perché molto spesso si sttuano nei PVS iniziative poco efficaci sia per la scarsa conoscenza della realtà locale sia per la mancata programmazione da parte di chi inizia un lavoro di cooperazione senza poi portarla ad un fine efficace per carenza di risorse o di idee.

Materials and methods. le principali attività nei Paesi a basse risorse si possono essenzialmente definire in.

- Bisogni formativi ed educativ.i.
- Interventi nelle emergenze umanitarie, nei disastri naturali e nelle guerre.
- necessità di comunicazione dei bisogni.
- Appropriatezza di forniture e di uso di ausili e protesi per disabili.

La cooperazione italiana in ambito riabilitativo ha cercato di attuare in alcuni Paesi dell'area balcanica e mediterranea questi items avendo come base quella di assicurare continuità di preenza fino a lasciare gli strumenti ai professionisti locali per essere agenti dell'innovazione e del cambiamento nei loro Paesi. In quest'ottica si è operato in Albania (ausili e formazione), in Moldova,In Siria Libia e Montenegro (formazione), diverse infatti sono le esperienze di fisiatri italiani che hanno operato in questi Paesi. Alcuni fisiatri italiani poi hanno operato in cooperazione in paesi dell'area sub sahariana sia sulla formazione che sulla clinica.

Conclusioni. Proporre un gruppo di lavoro per l'Area Mediterranea che tenga presente i bisogni di cui ai punti 1-4, cercando di dare una risposta operativa agli stessi.

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LA RETE PIEMONTE PER LA PERSONA CON LESIONE MIDOLLARE

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Introduction. La presa in carico di una persona con lesione midollare richiede che le Unità Spinali, per garantire risposte adeguate ai bisogni, si raccordino con i Servizi Territoriali sin dalle fasi più precoci. Con tale finalità la rete delle Unità Spinali del Piemonte (Torino, Alessandria, Novara), di concerto con la Direzione Sanità della Regione Piemonte, ha promosso un percorso formativo rivolto a tutti i professionisti che, ai diversi livelli, si occupano delle persone con lesione midollare. La prima fase di questo percorso è stata realizzata nel Novembre 2011, con l'obiettivo di arrivare a definire delle procedure condivise tra le Unità Spinali e i Servizi Territoriali di riferimento al fine di garantire uniformità di comportamenti sull'intero territorio Regionale. Secondo un approccio di vera *governance* sanitaria, partendo dall'analisi dei bisogni delle persone con lesione midollare e delle criticità segnalate da tutti gli operatori che offrono assistenza alle persone con lesione midollare, ci si è dati come obiettivo la definizione delle modalità di lavoro e degli strumenti necessari per governare le varie fasi del processo di presa in carico, per arrivare alla stesura di un documento istituzionale Regionale.

Materials and methods. È stato richiesto alle ASL piemontesi di individuare sei professionisti per ciascuna ASL, rappresentativi dei vari ruoli coinvolti, che potessero prendere parte al percorso formativo (Direttore di Distretto, Responsabile Assistenza integrativa e Protesica, Coordinatore dei Servizi Infermieristici dell'ADI, Fisiatra territoriale, Assistente Sociale, Direttore Ente Gestore dei Servizi Socio-Assistenziali). Inoltre sono stati coinvolti alcuni Medici di Medicina Generale individuati dalla FIMMG. Ai lavori hanno partecipato come parte attiva alcuni rappresentanti delle Associazioni di utenti. I lavori hanno previsto una sessione plenaria nella quale si sono susseguite una serie di relazioni per analizzare i bisogni, le criticità, la vigente normativa nazionale e le esperienze delle altre regioni. Sono poi stati formati gruppi di lavoro costituiti sulla base dei criteri di multidisciplinarietà e dislocazione geografica, ciascuno con un argomento specifico di discussione. I temi di lavoro affrontati da ogni gruppo sono stati i seguenti:

- Il coinvolgimento del MMG;
- Il coinvolgimento dell'US nell'UVMD;
- Il coinvolgimento dell' Assistenza Integrativa e Protesica;
- Il coinvolgimento del Servizio Sociale e il coinvolgimento dell'Educativa Territoriale;
- Il coinvolgimento dei Servizi RRF territoriali;
- La gestione del follow-up programmato e a richiesta dal Territorio;
- La gestione delle emergenze sanitarie ed assistenziali.

Results. I gruppi di lavoro, partendo dall'analisi dello stato attuale (bisogni, criticità), hanno formulato proposte operative di miglioramento (con descrizione degli strumenti/attività necessarie, tempi e professionisti coinvolti), che sono poi state presentate in sessione plenaria, ordinate e riproposte alla luce delle integrazioni e degli spunti raccolti durante la discussione. La Fondazione ISTUD ha provveduto a sistematizzare tutta la documentazione prodotta e a raccoglierla in un report. In sede congressuale verranno presentate le varie proposte e la flow-chart descrittiva di tutto il processo di presa in carico, dal momento del ricovero in Unità Spinale al follow-up, per un precoce e corretto rapporto con il Territorio di riferimento.

Conclusions. A questa prima fase ne seguirà una seconda, nel mese di ottobre 2012, dal titolo: "*Dimissione della persona con lesione midollare dall'Unità Spinale. Problematiche ed integrazione con il Territorio",* che permetterà di disseminare in modo più capillare (ogni Unità Spinale per il Territorio di riferimento) le procedure condivise, oltre ad approfondimenti clinici specifici, per garantire una presa in carico più omogenea delle persone con lesione midollare. Si ritiene che la metodologia seguita, cioè la condivisione tra Ospedale e Territorio delle modalità di presa in carico, insieme con una reciproca migliore conoscenza delle criticità e delle possibilità concrete di risposte ai bisogni, sia l'unico modello in grado di garantire un reale cambiamento ed una migliore soddisfazione degli utenti.

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OUTCOMES PREDICTORS DURING CONSERVATIVE TREATMENT OF ROTATOR CUFF SYNDROME

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Objective. To identify predictors of outcome of the conservative treatment in the rotator cuff syndrome (RCS).

Patients and methods. Prospective open study (July 2007-December 2010) of patients referred for rehabilitation of a RCS and followed over 12 months. The parameters evaluated were pain and disability by a visual analogue scale, function by the Constant score and radiological measurements on a Lamy lateral shoulder view.

Results. Among 120 patients, 99 were selected (11 defaulters and 10 excluded). These were 72 women and 27 men with a mean age of 51.7 ± 11.6 years. At 3 months follow up a marked improvement in pain at rest and during activity and in disability (59%, 60% and 63%) was noted. At 12 months the improvement remained significant with a "good result" in 54.5% of cases. At 3 and 6 months, factors correlated with results were duration of disease, initial functional status, pain, disability intensity and initial spino-acromial angle (radiography). At 12 months only the initial impairment of the shoulder function and the disability are predictive of the final result.

Conclusion. Particular attention and drastic monitoring are needed in patients with early altered function and pain parameters during rehabilitation of RCS.

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QUANDO RISULTA DAVVERO NECESSARIO ESEGUIRE INDAGINI RADIOGRAFICHE NEI TRAUMI DEL RACHIDE CERVICALE? UNA REVISIONE DELLA LETTERATURA E PROSPETTIVE DI VALUTAZIONE IN PRONTO SOCCORSO

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Introduction. I quadri clinici derivanti da un trauma del rachide cervicale possono risultare eterogenei nel loro grado di gravità. Il 95% dei pazienti sottoposti a controllo radiografico in traumi distrattivi del rachide cervicale, in assenza di deficit neurologici risulta negativo per fratture, dislocazioni, lesioni midollari. In molti casi, dunque, il controllo radiografico risulta privo di utilità diagnostica e contribuisce a creare fenomeni di sovraffollamento di Pronti Soccorsi, sale radiologiche, un'ipermedicalizzazione di problemi minori con esposizione a radiazioni, oltre che un aumento dei costi per il SSN. Attraverso una revisione della letteratura il nostro obiettivo è quello di valutare quali siano le indicazioni all'esecuzione di Rx del rachide cervicale dopo un evento traumatico, in assenza di linee guida validate sul tema.

Materials and methods. È stata svolta una ricerca tramite il motore di ricerca Pubmed. *Limiti*: ultimo 10 anni, umani.

Results. Precedenti valutazioni distinguono le lesioni del rachide cervicale in clinicamente importanti (frattura, dislocazione, instabilità legamentosa) o clinicamente non importanti che non richiedono trattamento o follow up specialistico (l' avulsione isolata di un osteofita; la frattura isolata di un processo traverso che non coinvolge una faccetta articolare o la frattura isolata di un processo spinoso che non coinvolge una lamina; la frattura da compressione semplice che coinvolge meno del 25% dello spessore del corpo vertebrale). Al fine di ridurre il numero di radiografie del rachide cervicale dopo traumi lievi, alcuni studi canadesi hanno proposto l'applicazione di una scala valutativa che selezioni i pazienti in modo tale da escludere quelli che con buona probabilita' non hanno riportato lesioni e pertanto possono anche non essere sottoposti all'indagine radiografica. Le 2 scale valutative piu' studiate sono la NEXUS e la Canadian C-spine Rule. La prima è stata validata con la pubblicazione di uno studio che comprende piu' di 34.000 pazienti. I 5 criteri di bassa probabilita' di lesione su cui si basa sono: l'assenza di dolorabilita' sulla linea mediana posteriore, l'assenza di deficit neurologici focali, normale livello di coscienza, assenza di segni di intossicazione ne' di lesioni "distrattive". La sua sensibilita' è del 99%, mentre la specificita' è del 12.9 %. La seconda scala valutativa identifica in quali pazienti è necessaria l'esecuzione dell'Rx in base a: eta' del paziente, al tipo di impatto e alla presenza o meno di parestesie agli arti superiori. Si valuta

inoltre la possibilita' di ruotare il collo a destra e sinistra per piu' di 45°. La Canadian C-spine Rule ha una sensibilita' del 100% e una specificita' del 42.5%.

Conclusions. Una migliore selezione dei controlli radiografici necessari potrebbe rendere l'approccio medico ai traumi lievi del rachide cervicale standardizzato, evitando di sovraccaricare le sale radiologiche e di incorrere in una sottovalutazione di lesioni clinicamente importanti. Senza l'ipermedicalizzazione di patologie minori e la medicalizzazione di aspettative esclusivamente risarcitorie, i tempi d'attesa come anche l'esposizione non giustificata a radiazioni si ridurrebbero con beneficio per i pazienti e vantaggi economici per il SSN. Sulla base dei risultati ottenuti da studi preliminari le società scientifiche specialistiche potrebbero valutare la possibilità di effettuare, in casi opportunamente selezionati, un percorso riabilitativo anche senza l'esecuzione del controllo radiografico del rachide cervicale.

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EPIDEMIOLOGICAL PROFILE OF AMPUTEE IN REHABILITATION: A REPORT OF 86 CASES

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Introduction. Limb amputation is reported to be a major public health problem that is associated with profound economic, social and psychological effects on the patient and his family especially in developing countries where the prosthetic services are poor. The objective of our study is to determine the epidemiologic characteristics of amputations in the outpatient rehabilitation. A retrospective study was conducted at the Physical and Rehabilitation Department. 86 outpatients referred after limb amputation of a member during 7 years (January 2006 - June 2012).

Results. From the 86 cases, 71 were male and 15 were female. Their ages ranged between 19–82 years (mean 59 years). Diabetes was present in 81.3% of the cases, high blood pressure in 17.5%, peripheral arteriopathy in 4.5%, myocardial infarction in 5.5%, stroke in 5.5% and dyslipidemia in 11.5%. Lower limbs were involved in 95 % of cases and upper limbs in 3 % of cases giving a lower limb to upper limb ratio of 27. Only 2 patients had an amputation of the both lower and upper limb. Below transtibial amputation was the most common procedure performed in 80 %. The most common indication for limb amputation was diabetic foot complications in 80 %, followed by trauma in 14 %, peripheral arterial disease in 3,5% and tumor in 2,5 % . The average number of sessions was 13. The prescription of prosthesis was made in 68.5% of the cases. Local complications were muscular atrophy of the stump in 44 % of cases and skin complications in 41%. A phantom limb pain was observed in 50 % of cases.

Conclusions. Complications of diabetic foot ulcers and trauma resulting from road traffic crashes were the most common indications for limb amputation in our study. Good diabetic control and early recognition and management of risk factors for foot complications, prevention of road traffic crashes and community health education to encourage early medical care will reduce the number of patients undergoing limb amputations.

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REVISIONE DELLA LETTERATURA SUI PROTOCOLLI RIABILITATIVI PRE E POST PROTESI TOTALE DI GINOCCHIO

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Introduction. Sono sempre più numerosi i pazienti che si sottopongono ad intervento di protesi totale di ginocchio al fine di ottenere un miglioramento della qualità di vita anche a lungo termine. In relazione alla diffusione di questo intervento per migliorare ed accelerare il recupero funzionale è in costante crescita anche l'approfondimento delle diverse tecniche riabilitative. Non sembra, tuttavia, che vi sia un approccio riabilitativo univoco e mancano evidenze statisticamente significative riguardo l'efficacia delle diverse metodiche di rieducazione. Scopo di questa review è identificare quali tecniche siano realmente efficaci e sostenute da evidenze scientifiche.

Materials and methods. Tramite pub med è stata condotta una ricerca utilizzando le seguenti parole chiave: total knee replacement [mesh], cryotherapy [mesh], cold therapy, magnetic field therapy, continuos passive motion, electrical stimulation, drug therapy, phisical therapy, rehabilitation. Sono stati utilizzati i limiti: tempo (ultimi 10 anni), umani.

Results. È dimostrato che un programma completo di recupero postoperatorio è utile nel diminuire la durata del ricovero e l'incidenza di complicanze nei primi 6 mesi, nonostante ancora non vi siano dei protocolli validati. Inoltre non sono emerse differenze significative tra programma domiciliare o di gruppo e nemmeno tra fisioterapia precoce o iniziata dopo 6 settimane. Si evince che la Continous Passive Mobilization è efficace sull'aumento della flessione, sul dolore e sull'edema post-operatorio. La crioterapia riduce il dolore migliorando la compliance del paziente. La magnetoterapia non è efficace rispetto ai protocolli standard di riabilitazione. Relativamente alla fisioterapia preoperatoria, alcuni studi dimostrano come vada in misura minore a incidere sui tempi di ricovero, mentre faciliti l'esecuzione degli esercizi garantendo un miglior controllo dello stato di ansia del paziente. Dall'analisi degli articoli emerge come la fisioterapia dia reali benefici a breve termine, mentre i risultati a lungo termine sono ancora contrastanti. Non sono emerse evidenze statisticamente significative dell'efficacia di un protocollo riabilitativo, ma si è concordi nell'affermare che sono chiari i benefici di un trattamento fisioterapico specifico, nonché la necessità di proporlo a pazienti motivati e che desiderino un recupero più rapido e completo possibile.

Conclusions. Sulla base della ricerca effettuata e dei dati riscontrati sarebbe interessante valutare l'elaborazione di linee – guida da parte delle società specialistiche al fine di definire protocolli specifici di trattamento riabilitativo nel post operatorio di PTG.

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REVISIONE DELLA LETTERATURA SUL TRATTAMENTO CRUENTO, CONSERVATIVO E RIABILITATIVO NELLE LESIONI DEL TENDINE D'ACHILLE

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Introduction. Il tendine d'Achille è il tendine del corpo umano che si lesiona più frequentemente. Nonostante l'ampia casistica in tutto il mondo, non esiste ancora oggi un gold standard di trattamento accettato unanimemente. L'iter terapeutico può coinvolgere sia un trattamento chirurgico che uno conservativo. Entrambi possono portare alla guarigione completa, ma non sono comunque esenti da complicanze. L'opzione conservativa porta a buoni risultati in soggetti selezionati, ma espone il paziente ad un alto rischio di recidiva; invece l'opzione chirurgica comporta il rischio di lesioni cutanee, infezioni della ferita chirurgica e svariate complicanze generali post-operatorie. Target

principale di ogni scelta terapeutica è permettere al paziente di tornare a svolgere ogni attività senza limitazioni; per raggiungere tale obiettivo è necessario restituire al tendine una idonea lunghezza ed elasticità. Il mancato trattamento della lesione può comportare un consistente deficit funzionale residuo. Da sottolineare il ruolo fondamentale assunto dalla riabilitazione nella lesione trattata chirurgicamente.

Materials and methods. Per l'analisi della letteratura sono state utilizzate le seguenti parole chiave: "Achilles tendon lesion" [queries (therapy, broad)], "Achilles tendon injurie" [queries (therapy, narrow)], "Achilles tendon/injuries" [Majr] AND "Achilles tendon/surgery [Majr], achilles tendon rupture rehabilitation; sono stati selezionati 416 articoli. I risultati sono stati ulteriormente selezionati utilizzando i seguenti limiti: ultimi 5 anni, inglese/italiano, umani, adulti 19+aa. Rivalutando gli articoli trovati, 40 sono risultati significativi per la nostra ricerca.

Results. In soggetti anziani senza elevate richieste funzionali e con un maggior rischio sia anestesiologico che chirurgico può essere adottata la scelta conservativa, considerando comunque il rischio di recidive (20%). Nel trattamento chirurgico si possono considerare tre tecniche con risultati sovrapponibili: sutura a cielo aperto, legatura percutanea e tecnica mini-invasiva. L'infezione è la principale complicanza della tecnica a cielo aperto che risulta nettamente meno frequente nelle altre tecniche; inoltre queste ultime risultano avere un minor stress chirurgico oltre ad un minor costo sanitario. Buoni risultati derivano anche dall'infiltrazione locale intraoperatoria di gel piastrinico autologo e l'augmentation con cross stitch o con acellular tissue graft. Eseguito l'intervento chirurgico è necessario considerare il più adeguato protocollo riabilitativo da proporre al paziente. Seguendo le linee guida si è sempre optato per l'immobilizzazione della caviglia nelle prime settimane post-operatorie, ma recenti studi hanno dimostrato come una precoce mobilizzazione abbia permesso il raggiungimento di risultati funzionali sovrapponibili ma tempi più rapidi.

Conclusions. Attraverso diverse tecniche di trattamento è possibile raggiungere buoni risultati. L'opzione terapeutica migliore è quella che si adatta al paziente, alle sue esigenze funzionali e al tipo di lesione senza ovviamente tralasciare un protocollo riabilitativo post-operatorio ad hoc. Risulta di fondamentale importanza l'elaborazione di linee guida validate e condivise da specialisti ortopedici e fisiatri al fine di migliorare l'outcome di questi pazienti.

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FUNCTIONAL AND PROFESSIONAL BECOMING OF LOWER LIMB AMPUTATED POPULATION WITH PROSTHESIS.

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Introduction. Lower limb amputation is an handicap which will affect several levels of functional capacity, social and professional life and individual psychology. The purpose of our study was to evaluate functional and professional becoming of lower limb amputated population with prosthesis, using a questionnaire.

Materials and methods. Our study is retrospective. It interested lower limbs amputated patients who have received prosthesis during the period between 2008–2010. Data of our study were gathered by an hetero questionnaire. In order to evaluate the quality of life of our patients, we have adopted the SF36, the HAD and the SAT-PRO scores.

Results. During the period of our survey, we have questioned 34 lower limb amputated patients with prosthesis: 31 were male and 3 were female. The mean age of our patients is 53 years (21 to 82 years). Our population was divided into: 14 traumatic amputated, 5 arteritics and. 15 amputated due to infectious etiologies. The majority of our patients were diabetic (60%), with a high blood pressure in 6% of cases and a peripheral arteriopathy in 3%. Amputation was transtibiale in 79.5% of the cases, transfemoral in 17, 5% and a disarticulation of knee in 3%. Various types of dentures have been used according to the level of amputation. Before the amputation, the type of work was manual in 62% of cases, desktop in 16% of cases and 12% of patients were unemployed. Twenty percent had a leisure activity prior to amputation. After the amputation, 20.5% of amputees have kept the same work, 5.5% were dismissed, 29.5% of cases have stopped work, 20.5% have early retirement, 12% have had a professional upgrading and 12% of patients were without work. Three patients were unemployed. Only 6% of amputees guarding a leisure activity and 29.5% continued to drive. The average anxiety HAD was 4.5 and the average depression HAD 8. The average PCS was 43.5 and the average MCS was 45.5. The average SAT - PRO was 26±4.

Conclusions. The amputation of lower limb constitute a major handicap which involves a functional and professional incapacity. We can reduce the risk of this incapacity by a good and appropriate rehabilitation.

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RCT NELLA SINDROME DA IMPINGEMENT DI SPALLA: UNA PROPOSTA NEUROCOGNITIVA

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Introduzione. La riabilitazione neurocognitiva (RN) pone il paziente di fronte ad una situazione programmata che richiede l'utilizzazione delle facoltà cognitive superiori per l'assegnazione di un significato alle informazioni propriocettive e il corretto reclutamento delle sequenze motorie[1]. Esistono in letteratura evidenze sull'efficacia dell'approccio neurocognitivo nella riabilitazione del ginocchio trattato chirurgicamente[2]. Non sono tuttavia disponibili dati riguardanti l'efficacia della RN nel trattamento della spalla dolorosa. Obiettivo del presente studio è pertanto quello di valutare l'efficacia della RN nel trattamento di pazienti affetti da sindrome da impingement acromion-omerale, confrontandolo con l'esercizio terapeutico tradizionale, attraverso un trial clinico randomizzato controllato.

Materiali e metodi. Abbiamo effettuato uno studio clinico prospettico randomizzato controllato per il quale sono stati reclutati 24 pazienti con sindrome da impingement acromion-omerale senza lesioni della cuffia dei rotatori. I pazienti sono stati randomizzati in due gruppi di 12 pazienti ciascuno: il gruppo 1 (gruppo di studio) è stato trattato con RN mediante l'impiego di ausili quali spugnette di diversa consistenza, tabelloni con cerchi concentrici, tabelloni con quadrati e tavoletta oscillante[3]. Il gruppo 2 (gruppo di controllo) è stato trattato con l'esercizio terapeutico tradizionale mediante esercizi di stretching, esercizi di rinforzo muscolare con pesi, esercizi pendolari di Codman ed esercizi contro resistenza con elastici. In entrambi i gruppi sono state effettuate 15 sedute con frequenza di 3 sedute a settimana per 5 settimane. Le misure di outcome comprendevano la quickDASH (outcome primario), la Constant-Murley (outcome secondario), una scala visuoanalogica (VAS) per il dolore a riposo e durante il movimento (outcome secondario) e la scala dell'American Shoulder And Elbow Surgeons (ASES; outcome secondario). Le misure di outcome primario e secondario sono state valutate al baseline (T0), alla fine del trattamento (T1) e a 3 mesi dalla fine del trattamento (T2).

Risultati. I pazienti trattati con RN hanno ottenuto un miglioramento significativo dello score alla quickDASH rispetto al gruppo di controllo. Il gruppo di studio ha inoltre ottenuto un miglioramento significativo dei punteggi della Constant-Murley e della VAS a riposo rispetto al gruppo di controllo. I punteggi delle altre misure di outcome secondario (ASES e VAS in movimento) sono migliorati rispetto ai valori rilevati al baseline nei due gruppi, in assenza di differenze significative tra i due trattamenti. Il gruppo di studio ha inoltre riferito un miglioramento della sintomatologia dolorosa durante l'esecuzione degli esercizi, rispetto al gruppo di controllo.

Conclusioni. I risultati del nostro studio indicano che la RN è più efficace dell'esercizio terapeutico tradizionale nella riduzione della disabilità, nel recupero della funzionalità della spalla e nel controllo del dolore a riposo in pazienti affetti da sindrome da impingement acromion-omerale. Stiamo attualmente ampliando in campione di studio e stiamo effettuando controlli nel lungo termine per verificare se la RN può rappresentare una metodica terapeutica alternativa per il trattamento di pazienti affetti da patologie dolorose di spalla.

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INTEREST OF THE REHABILITATION MANAGEMENT IN CASE OF SUBACUTE COMBINED DEGENERATION OF THE SPINAL CORD

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Introduction. The vitamin B12 deficiency is common in the elderly. It can lead in rare cases (10%) to a combined sclerosis of the spinal (CSS). We report the case of a patient supported in physical medicine and rehabilitation (PMR) outpatient.

Clinical case. Patient aged 61 with no history, who have walking problems and loss of autonomy progressively installed. The diagnosis was a CSS by vitamin B12 deficiency. The initial review found a lower limbs weakness (MRC scale 2/ 5), signs of pyramidal irritation, proprioceptive disorders, incapacity of walking and memory and orientation troubles. In terms of functional independence, initial FIM was 58/126. In terms of balance, the Berg scale was 8/56 and the FAC modified corresponded to class 0. The get up and go test, the Tinetti test and gait speed were performed during rehabilitation from the gait recovery. After 45 sessions of rehabilitation (3 sessions per week) associated to a vitamin therapy, we noted an improvement in motor weakness (3-4/5) and proprioceptive disorders, a recovery of walking using crutches, and an improvement of function (FIM =108/126) and equilibration (Berg scale =35/56). The Tinetti test was 28 for balance and 17 for walking, the FAC was 6 and get up and go test was 26.

Conclusion. Support in PRM helps functional recovery and improvement of the autonomy of patients with CSS.

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PROPOSTA DI PROTOCOLLO PER IL FOLLOW-UP CLINICO-FUNZIONALE IN PAZIENTI CON MPS TIPO I E TIPO II IN TERAPIA ENZIMATICA SOSTITUTIVA

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Introduction. Le MPS sono malattie genetiche da accumulo lisosomiale, causate dal deficit di idrolasi acide coinvolte nella degradazione dei GAG_s. Le varianti di MPS coinvolgono tutte l'apparato muscolo scheletrico con disostosi multiple, artropatie degenerative, contratture articolari deformanti; inoltre per la rigidità e la brevità dei tendini spesso i pazienti camminano sulle punte. Tutti i pazienti, inoltre, tranne quelli affetti da MPS Is ed MPS IV, presentano un ritardo mentale di grado variabile L'obiettivo del nostro studio è quello di proporre un protocollo di follow-up fisiatrico in pazienti pediatrici ed adulti con MPS I e II per il monitoraggio dell' efficacia del trattamento FKT ed IKT sulla mobilità articolare e sull'autonomia. La motivazione dello studio proposto è data dalla mancanza di protocolli di valutazione abbastanza ampi da prendere in considerazione gli outcomes funzionali a diversi livelli, tali da consentire un inquadramento più completo della disabilità complessa e variegata di questi pazienti, anche alla luce dei possibili effetti della terapia enzimatica sostitutiva.

Materials and methods. Lo studio propone un protocollo costituito da 6 strumenti di valutazione, originale per la tipologia e la varietà degli items considerati, anche se basato sull'utilizzo di questionari e test già adottati isolatamente in studi precedenti. Abbiamo arruolato 10 pz, tutti in terapia enzimatica sostitutiva, 7 in età pediatrica e 3 in età adulta, 4 maschi con MPS I e 6 (5M e 1F) con MPS II. I partecipanti sono stati valutati mediante: visita fisiatrica, JROM passivo, scala MRC, 6 minute walking test, schede di valutazione CHAQ e HAQ (qualità della vita), MPS-PPM (funzionalità arti superiori ed inferiori). Alcuni pazienti, selezionati in base alle capacità motorie, hanno anche eseguito analisi tridimensionale del movimento dell' arto superiore e Gait analysis, allo scopo di confermare con valutazione quantitativa le misure cliniche. Il follow-up impostato è stato ripetuto a cadenza semestrale. Ciascun paziente è stato sottoposto a protocolli riabilitativi personalizzati comprendenti: FKT, IKT e ginnastica respiratoria ed, in alcuni casi, logopedia e psicomotricità.

Results. Il protocollo proposto ha consentito una valutazione completa ed affidabile delle capacità funzionali motorie globali e manipolative dei soggetti studiati anche in rapporto alle ADL. La sua somministrazione ha comportato difficoltà relative non tanto alla complessità dei test inclusi, quanto alla compromissione psicointellettiva e motoria dei pazienti, che in genere non mostrano una compliance ottimale per un tempo sufficientemente lungo. La validità dei risultati ottenuti ai fini dell'inquadramento globale della disabilità complessa di questi soggetti, ci conferma l'utilità del suo impiego, pur ritenendo utili aggiustamenti per renderlo più facilmente accettabile, anche frazionando la valutazione per aree differenti in più sedute.

Conclusions. Spesso nella pratica clinica la semplificazione e velocità di esecuzione di test di valutazione e questionari va a discapito della accuratezza dell'esame e dell'ampiezza dei parametri e delle caratteristiche esaminate. Pazienti così complessi necessitano di test in grado di misurare nella loro globalità abilità funzionali e motorie non solo per un migliore inquadramento clinico, ma anche allo scopo di redigere un progetto riabilitativo mirato ed adattato ai diversi ambiti considerati dalla valutazione effettuata.

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REHABILITATION OF CEREBRAL ANOXIA SEQUELAE: A CASE REPORT

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Introduction. The cerebral anoxia (CA) is a rare disease, responsible for a diffuse brain injury. Because of the lack of consistency in the literature, it was difficult to predict functional outcome. The aim of this study is to describe a multi-disabled case of a 22-year-old boy suffered CA outside the hospital and to study the functional outcome.

Observation:

The cause of CA of this case was ventricular arrhythmia secondary to electrification. Duration of cardio-pulmonary restitution was 20 minutes and duration in intensive care unit was 47 days. The rehabilitation lasted about 2 months. In rehabilitation unit we evaluated: motor, behaviour, general cognitive functioning, language and praxis. Impairment in function was assessed using the functional independence measure (FIM). Initially, the patient had severe bahavioural disorders and he was not independent in his daily life. Motor impairments related to hypertonia and akinesia appeared a few weeks after the CA. The rehabilitation approach was axed on orientation, communication, mobility and self care. Very severe cognitive impairments were noted, as well as praxis disorders, deficit of memory, amnesic aphasia and executive functioning. The patient achieved clinically significant functional improvement within 7 months. He regained his sporting activities, and he better recognized his family members and usual locations. He remembered the accident within 6 months. Nevertheless, the reduced language fluency persisted.

Conclusions. In this case, improvement in function was slow and significant. Neuropsychological impairment was severe. Early prediction of neurological outcome after post-anoxic coma is uncertain. Functional outcome is open to debate.

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CONSAPEVOLEZZA E STILI DI COPING DEL CAREGIVER: CONFRONTO TRA PATOLOGIE CEREBRALI A ESORDIO ACUTO E PATOLOGIE A LENTA PROGRESSIONE

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Le funzioni esecutive dipendono dall'integrità delle aree frontali e la loro compromissione può avere ripercussioni sulla consapevolezza che il soggetto ha del proprio deficit con ricadute sugli esiti del processo riabilitativo. A seconda del tipo di patologia neurologica, ad esordio acuto o a lenta progressione, è possibile riscontrare livelli differenti di consapevolezza sia nel paziente che nel caregiver. In patologie ad esordio acuto il livello di consapevolezza del familiare è in genere conforme alla performance oggettiva del paziente mentre i pazienti con esiti di Trauma Cranio-Encefalico (TCE) e Incidente Cerebro-Vascolare (ICV) con compromissione cognitiva tendono a sottostimare i propri disturbi neuropsicologici. Non esistono invece risultati concordi per patologie progressive come la Sclerosi Multipla (SM) in cui i pazienti sembrano essere più accurati nella propria valutazione rispetto al caregiver. In entrambe le sindromi neuropsicologiche la percezione e l'adattamento alla malattia da parte del caregiver sembrano influenzare comunque l'outcome del paziente favorendo o rallentandone il recupero.

Scopo. del presente studio è di indagare quanto la consapevolezza in pazienti con patologie cerebrali a esordio acuto (TCE e ICV) e patologie a lenta progressione (SM), influiscano sui diversi stili di coping del caregiver.

Materiali e metodi. Una valutazione neuropsicologica selettiva per le abilità esecutive ed il Dysexecutive Questionnaire-versione paziente (DEX-pz) sono stati somministrati a 39 pazienti, 20 affetti da SM, 9 da TCE e 10 da ICV. Il Proactive Coping Inventory (PCI) e Dysexecutive Questionnaire- versione familiare (DEX-fam) sono stati compilati dai familiari dei pazienti.

Risultati. La consapevolezza valutata mediante DEX risulta nei pazienti con patologia a lenta progressione inferiore rispetto ai pazienti ad esordio acuto senza però raggiungere un livello di significatività. Emersa una differenza statisticamente significativa nelle variabili al Proactive coping inventory (PCI) a favore dei caregiver TCE rispetto ai careviger SM e ICV: $F(2,32)= 3.52$ e $p=.042$ per il Reflective Coping; $F(2,34)= 4.36$ e $p=.021$ per lo Strategic Planning; $F(2,31)= 3.41$ e $p=.046$ per il Preventive Coping. Differenza inoltre statisticamente significativa a favore della patologia ad "esordio acuto" rispetto a quella a "lenta progressione" (DEX Fam TCE+ICV > SM; $p= 0.014$). Il confronto tra i tre gruppi (DEX-fam di SM, di TCE e di. ICV) evidenzia una differenza significativa con TCE> SM; TCE>ICV ($F(2,33)= 7.89$ e $p=.002$).

Conclusioni. I risultati mostrano che i familiari dei pazienti con TCE presentano valori più alti alle scale: reflective coping, strategic planning e preventive coping indice di una probabile maggiore capacità nell'analisi dei problemi e nella generazione di risorse, nella previsione ed aggiustamento dei fattori di stress. I caregiver dei pazienti con TCE mostrano inoltre livelli più alti al questionario sulla consapevolezza sottolineando una probabile connessione tra questi due ambiti. Nelle patologie a "lenta progressione" ed "esordio acuto" sembrano presenti differenze nella consapevolezza: nella SM si riscontrano valori più bassi al DEX, sia nella versione paziente che in quella familiare, sebbene alla valutazione psicometrica risultino gravemente deficitari, nel TCE è invece evidente un maggior valore nel DEX-fam rispetto ai pazienti con SM e ICV in relazione ai propri caregiver.

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PERCORSO RIABILITATIVO INTEGRATO NELLA MALATTIA DI CHARCOT-MARIE-TOOTH: LA NOSTRA ESPERIENZA

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Introduzione. La malattia di Charcot-Marie-Tooth è una neuropatia simmetrica distale mista prevalentemente motoria ad eziologia genetica. Lo scopo dello studio è stato l'elaborazione di un protocollo di valutazione e trattamento dei pazienti affetti da CMT, in modo da assicurare loro un percorso riabilitativo integrato volto all'efficacia della presa in carico globale.

Materiali e metodi. Lo studio è stato condotto nel periodo compreso tra settembre 2011 e gennaio 2012. Sono stati reclutati presso la Struttura Complessa di Medicina Fisica e Riabilitativa universitaria dell'Università degli studi di Foggia, 5 pazienti con diagnosi certa di malattia di Charcot-Marie-Tooth. Ciascun paziente è stato sottoposto ad una valutazione funzionale completa al momento del reclutamento dello studio (T0) per decidere il piano di trattamento da effettuare ed alla fine del trattamento (T1). Tutti i pazienti sono stati sottoposti, prima e dopo il periodo di trattamento riabilitativo, allo studio dell'appoggio plantare con esame baropodometrico e stabilometrico e della forza prossimale con test isocinetico della flesso-estensione del ginocchio. La forza degli arti inferiori e superiori è stata quantificata secondo la Medical Research Council Scale. L'equilibrio è stato indagato con la Scala di Berg. È stata utilizzata la scale patologia-specifica: Charcot Marie Tooth Disease Neuropahty Score (CMTNS). L'eventuale presenza di dolore è stata valutata mediante la scala visuo-analogica VAS, stessa metodologia è stata utilizzata per quantificare la fatica muscolare e la frequenza dei crampi. Inoltre il sintomo dolore è stato analizzato con la scala DN4 specifica per il dolore neuropatico. La fatica inoltre è stata valutata con una scala sull'impatto della fatica (MFIS). La capacità deambulatoria è stata investigata con il 6 minute-walking-test per la valutazione della resistenza e il 10 Meters Timed Walking è stato effettuato per determinare la velocità media del cammino in m/sec calcolata su un percorso di 10 metri ripetuto 3 volte. Per la valutazione funzionale della deambulazione è stato somministrato il Walking Scale Questionnaire (Walk-12). Anche la capacità di utilizzare l'arto superiore è stato valutato con la Manual Ability Measure e con il 9 Hole Peg Test. La qualità di vita è stata indagata tramite la scala "Short Form 36". Infine tutti i pazienti sono stati classificati tramite ICF. I 5 pazienti hanno effettuato il percorso riabilitativo personalizzato, basato su esercizi di stretching, un moderato rinforzo muscolare aerobico ed esercizi contro resistenza, esercizi propriocettivi e training deambulatorio e del passo ed eventuale terapia fisica. Il trattamento è stato di 60 minuti al giorno, 5 volte a settimana per un totale di 30 sedute. Si è provveduto alla realizzazione delle ortesi (modifiche a scarpe, plantari, ecc) per migliorare la funzionalità del cammino e corregge le alterazioni posturali instauratesi precedentemente. Quindi, al termine del ciclo di trattamento intensivo, i pazienti sono stati rivalutati dal fisiatra e sono tornati al proprio domicilio con un piano di trattamento già impostato da continuare. L'analisi statistica è stata effettuata mediante test di Wilcoxon. La significatività statistica è stata accettata per p-value < 0,05.

Risultati. Tutti i pazienti hanno ottenuto alla fine del percorso riabilitativo un significativo miglioramento delle performance motorie, sia per quanto riguarda i pattern della deambulazione (migliorata sia grazie al percorso riabilitativo che all'utilizzo di scarpe e plantari adatti) che per l'utilizzo fine della mano. Inoltre i pazienti hanno avuto una netta diminuzione del senso di fatica, dolore e percezione di crampi. anche i deficit dell'equilibrio sono migliorati in modo significativo. Infine la qualità della vita è significativamente migliorata.

Conclusioni. Se da un lato la frontiera è la terapia genica per rimuovere all'origine la causa della CMT, dall'altro, al momento è la fisioterapia che può accompagnare l'evoluzione della malattia contenendone i danni e le deformità articolari. È necessario che il trattamento riabilitativo della CMT possa diventare patrimonio comune di ciascuna equipe riabilitativa diffusamente sul territorio, solo in questo modo si potrà prospettare ai pazienti, un trattamento efficace in grado di apportare vantaggi reali nelle prestazioni e le attività funzionali e nella qualità della loro vita. Prima ancora di intraprendere un trattamento riabilitativo, è fondamentale una valutazione integrata del paziente che abbia caratteristiche di uniformità ed equità attraverso una standardizzazione delle misure di outcome. Questo permetterà la formulazione di un progetto con obiettivi condivisi dal team e di un programma riabilitativo necessario per un valido trattamento.

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L'EFFICACIA DEL TRATTAMENTO CON SISTEMA A TRASFERIMENTO ENERGETICO CAPACITIVO E RESISTIVO NELLA GONARTROSI: STUDIO CLINICO RANDOMIZZATO CONTROLLATO IN DOPPIO CIECO

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Introduction. La gonartrosi (AG) è la più comune patologia cronico-degenerativa del ginocchio in età senile. É caratterizzata da una alterazione progressiva a carico della cartilagine articolare dei compartimenti femoro-tibiali e femoro-rotuleo. Gli obiettivi del trattamento consistono nella riduzione del dolore, della rigidità articolare, della disabilità e nel miglioramento della qualità della vita. Negli ultimi anni è stata introdotta nell'ambito della terapia conservativa la diatermia da contatto o Trasferimento Energetico Capacitivo Resistivo, una termoterapia endogena che stimola i processi riparativi e antiinfiammatori dell'organismo. A livello cellulare induce un aumento dell'attività

metabolica e a livello tissutale provoca un aumento della circolazione ematica e del drenaggio linfatico conseguenti alla vasodilatazione da calore e all'aumento di flusso. L'obiettivo dello studio è stato quello di valutare l'efficacia a breve e medio termine della diatermia da contatto in pazienti affetti da gonartrosi confrontandola con un trattamento placebo [1,2,3].

Materials and methods. Lo studio è un trial clinico prospettico randomizzato in doppio cieco. Sono stati inclusi pazienti con AG di grado lieve o moderato secondo Kellgren-Lawewnce, gonalgia da almeno 3 settimane, età>18 anni. I criteri di esclusione sono stati i seguenti:, precedenti interventi chirurgici a livello del ginocchio affetto, lesioni legamentose al ginocchio, infiltrazioni intrarticolari con corticosteroidi o acido ialuronico, e/o trattamento fisioterapico per gonalgia nei 6 mesi precedenti, patologie infiammatorie o neurologiche congenite o acquisite (sistemiche o locali) a carico del ginocchio, trattamento farmacologico cronico con corticosteroidi o FANS, disordini cognitivi o psichiatrici, gravidanza o allattamento, controindicazioni all'utilizzo della Tecarterapia. Al base-line ai pazienti è stata somministrata una scheda di raccolta dei dati anagrafici, clinici ed anamnestici. I pazienti sono stati divisi in maniera randomizzata in due gruppi: gruppo 1 (gruppo di studio) sottoposto ad un ciclo di diatermia a trasferimento energetico capacitivo e resistivo di 6 sedute a giorni alterni. Ogni seduta aveva la durata complessiva di 20 minuti. Il gruppo 2 (gruppo di controllo) è stato sottoposto ad un ciclo terapeutico simulato (con apparecchio non erogante) analogo per durata e frequenza al trattamento effettivo. Come misure di outcome sono state valutate a T0 (inizio trattamento), T1 (fine trattamento), T2 (1 mese) e T3 (3 mesi): dolore articolare, rigidità e limitazione funzionale mediante la scala WOMAC; forza muscolare mediante scala BMRC; dolore mediante l'utilizzo di una scala VAS. Le misure di outcome sono state determinate da un operatore in cieco rispetto al trattamento assegnato.

Results. Sono stati reclutati 60 pazienti (52 femmine; età media: 68,7±10,3). Non si sono osservate differenze significative fra i gruppi a T0. L'ANOVA a 2-vie ha messo in evidenza un effetto significativo dei fattori gruppo ($p<0.001$) e tempo ($p<0.001$) e della loro interazione ($p<0.001$) per quanto riguarda la VAS, con valori significativamente minori a T1 e T2 rispetto a T0 nel gruppo 1, ma non nel gruppo 2. Per quanto riguarda i valori della scala WOMAC si è notato un effetto significativo dei fattori gruppo ($p=0.02$), tempo ($p=0.01$) e della loro interazione ($p<0.001$) sempre a favore del gruppo 1. La valutazione della forza muscolare con scala MRC ha messo in evidenza un incremento significativo nel gruppo 1 ai tempi T1 e T2 (interazione gruppo*tempo, $p=0.04$). Non si sono osservati effetti avversi. La valutazione del follow-up T3 è in corso, i risultati verranno esposti in sede congressuale.

Conclusions. L'utilizzo della diatermia da contatto è efficace nel ridurre il dolore, recuperare l'articolarità e la forza muscolare distrettuale in paziente affetti da artrosi di ginocchio.

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CONSERVATIVE TREATMENT WITH LYONESE BRACE AND INTENSIVE REHABILITATION PROGRAM IN ADOLESCENT IDIOPATHIC SCOLIOSIS: A CASE REPORT.

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Introduction. The primary aim of scoliosis management is to prevent curvature progression. Three types of treatment are available: an intensive rehabilitation program, in-brace correction and surgery. It is widely recognized, that the brace treatment is regarded as an ordinary procedure for conservative management of idiopathic scoliosis when progressive curvatures of moderate Cobb angle are involved. The aim of this study is to describe a case of an adolescent patient affected by idiopathic scoliosis subjected to conservative treatment with Lyonese brace and intensive rehabilitation program.

Materials and methods. We report on a case of a girl, aged fourteen, suffering from adolescent idiopathic scoliosis, single right thoracic curve (Cobb angle=25°, vertebral rotation angle= 22° measured with Perdriolle method, Risser sign=3). The patient was subjected to conservative treatment with Lyonese brace for 20 hours daily. Treatment strategy also included a combination of exercises to reduce brace side effects, such as a pulmonary rehabilitation programme, stretching of hind musculature, proprioceptive exercises to balance the posture and the walking. Exercises were carried out with the following attendance: weekly individual session (40 minutes), twice weekly group sessions (40 minutes each). The patient wore the brace for 19 consecutive months and then she gradually removed it in the space of three months according to the following timing: at the beginning 12 hours out of 24 in the evening (night), then adding an hour of unused brace every week. Follow-up was clinic and it consisted of a six monthly medical examination. At the beginning and at the end of the treatment, a postero-anterior spine radiograph was performed to measure the Cobb angle, the vertebral rotation and the Risser sign. The following parameters were considered to evaluate the treatment effectiveness: the clinical improvement and the radiographic features such as the measure of Cobb angle and the vertebral rotation using the method of Pertriolle.

Results. At the last follow-up, after 22 months of brace and further 22 months of rehabilitation treatments, the patient showed important clinical and radiological improvements. The right rib hump and the ipometry of the left limb completely disappeared and the patient recovered her right standing balance. As far as the radiological features are concerned, it has been ascertained a reduction of both Cobb angle and vertebral rotation angle which were brought down to 7° and 10° respectively.

Conclusions. This study confirms that intensive rehabilitation exercises and bracing are important instruments to effectively tackle the adolescent scoliosis with Cobb angle between 25° and 40°. Moreover, the case under consideration was affected by adverse clinical conditions of the patient (delayed diagnosis, young age, recent menarche, high degree of vertebral rotation, size of thoracic rib hump, incomplete degree of skeletal maturity) that, as objective of primary importance, called for measures to prevent the worsening of the clinical picture. Well, the achieved results were beyond expectation: not only the curvature progressive was stopped, but also the curve itself significantly decreased. Based on the above satisfactory results, we are now motivated to improve our rehabilitative strategy through the implementation of structured high performance procedures and activities aiming at setting more ambitious goals for the future.

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VALUTAZIONE CLINICA E STRUMENTALE DEGLI EFFETTI DELLA TOSSINA BOTULINICA NEI BAMBINI CON CAMMINO SULLE PUNTE IDIOPATICO: UNO STUDIO PILOTA

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Introduction. Il "Toe-walking" idiopatico è una condizione osservata in età infantile, caratterizzata dalla persistenza di cammino sulle punte; la patogenesi non è del tutto nota e la diagnosi si formula solo dopo l'esclusione altre patologie nervose o muscolari. Le complicanze a lungo termine legate a tale condizione sono in particolare patologie del rachide conseguenti al sovraccarico lombare per l'antiversione pelvica e lo sviluppo di un piede equino strutturato. Scopo dello studio è valutare l'efficacia del trattamento con Tossina Botulinica A (BTA) sui muscoli del polpaccio nel paziente "toe-walker" idiopatico, mediante valutazione clinica e Gait Analysis (GA). Il razionale all'uso di BTA è basato sul rilassamento muscolare del gastrocnemio in seguito all' inoculazione, quindi alla possibilità di ripristinare un corretto appoggio del tallone al suolo durante la deambulazione con conseguente correzione dello schema motorio alterato.

Materials and methods. Sono stati studiati 9 bambini, con età media di 7,6 anni. La valutazione clinica ha previsto la misurazione della dorsiflessione della caviglia con test di Silfverskiold; la valutazione strumentale è stata eseguita con il sistema Vicon Motion System per lo studio della cinematica, associata ad EMG dinamica. Ogni bambino è stato trattato con BTA, con dosaggio relativo al peso corporeo (6 U/kg/per muscolo) nei muscoli gemelli bilateralmente. La terapia è stata integrata dall'utilizzo di tutori AFO e da un programma di stretching ed esercizi per il controllo dello schema del passo. Il follow-up ha previsto controlli ad 1 mese dalla inoculazione, a 3 e a 6 mesi. I dati relativi ai parametri spazio-temporali e alla cinematica sono stati statisticamente analizzati con il metodo GLM con valori pre-post trattamento come effetto fisso e pazienti come effetto random, accettando una significatività di $p<0.05$.

Results. Clinicamente i valori medi di dorsiflessione pre trattamento da 0° sono passati a valori medi di dorsiflessione post trattamento di 5°. L'elaborazione statistica dei dati ha dimostrato che dopo un mese dalla somministrazione della tossina non si sono osservate differenze nel cammino attraverso la GA. Questo contrasta con quanto osservato clinicamente, ma potrebbe essere attribuito al fatto che il bambino, in seguito alla terapia, abbia bisogno di un tempo maggiore per riorganizzare il proprio schema del passo. I risultati ottenuti a tre mesi dal trattamento evidenziano invece un significativo miglioramento della antiversione del bacino, della intrarotazione dell'anca e della cinematica della tibiotarsica.

Conclusions. In conclusione si può affermare che la BTA rappresenta una terapia valida ed efficace nel trattamento del toe-walking idiopatico, ripristi-

nando il normale schema del passo e riducendo i compensi a livello della pelvi sul piano sagittale.

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STRATEGIA DI NAVIGAZIONE RIABILITATIVA DI SUPERFICIE MA NON SUPERFICIALE. ANELLI DI COMPLESSITÀ ATTRAVERSO L'ACQUA

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Introduction. Sono proposte caratteristiche concettuali di trattamento in ambiente acquatico attraverso otto casi complessi di Persone con Paralisi Cerebrale Infantile: cinque presentati in follow up dopo 10 anni dal -4th Mediterranean Congress of PRM- (Siracusa 2002) e relativi a quattro giovani con tetraplegia ed a un ragazzino con triparesi che attualmente hanno sospeso il trattamento in acqua perché hanno integrato le acquisizioni ottenute, ed altri tre casi prototipici in quanto caratterizzati da tetraplegia spastico distonica del tipo antigravità verticale, con associata dispercettività che sono attualmente in trattamento sia a terra che in acqua.

Materials and methods. I pazienti sono stati seguiti estensivamente con cadenza mono o bi-settimanale con trattamento alternato o complementare a terra e in acqua. La durata della seduta in acqua è di 30 minuti: il trattamento è basato sulla Categorizzazione Percettiva (Incasa, Venezia ESPRM 2011) ed è attuato attraverso l'Azione Condivisa Terapeutica (Incasa, Roma SIMFER 2008, Campobasso SIMFER 2009). Il trattamento combinato, secondo questi canoni, permette di traslare a terra i risultati facilitati dall'acqua. L'ambiente acquatico facilita la gestione dei pazienti e gli aspetti del trattamento relativi alla ricerca di SIMMETRIA FUNZIONALE (attraverso le componenti percettive Dermatomerica, Miomerica, Sclerotomica) attraverso la selettiva stimolazione INERZIALE e sottolinea la funzione RESPIRATORIA. L'Azione Terapeutica è orientata coerentemente agli aspetti neurofisiologici dei sistemi di riferimento percettivi descritti da Berthoz: 1. il primo sistema di riferimento afferenziale è relativo all'INERZIA - GRAVITÀ ovvero sistema vestibolare e dell'Equilibrio. 2. Il secondo riguarda recettori situati nell'Addome correlati alla Respirazione diaframmatica. 3. Il terzo sistema è relativo alla Percezione della Verticale corporea e corrisponde all'organizzazione assiale posturale; coincide con la percezione dell'asse mediano o rachide nello schema corporeo. 4. Infine il sistema riguardante i Segmenti Corporei, trova corrispondenza nella categorizzazione percettiva fasica sia nel cammino, che nella ricerca di movimento degli arti che pure come orientamento del capo. Coerentemente alla categorizzazione percettiva dell'approccio questo sistema si pone a completamento dell'organizzazione ontogenetica tra GRAVITAZIONE e INERZIA.

Results. I cinque pazienti presentati in follow up hanno mantenuto le acquisizioni precedentemente descritte, i più grandi hanno concluso il periodo di crescita senza perdere le capacità posturali, espressive e funzionali ottenute (anche se è stato necessario ricorrere alla PEG in una situazione) mentre il più giovane continua a incrementare la capacità di deambulare per resistenza e variabilità del cammino. I tre casi di tetraplegia ad antigravità verticale hanno tutti raggiunto e ottenuto una soddisfacente reazione di carico, passaggi posturali agevoli (con assistenza lieve) e possibilità di collaborare alle ADL personali.

Conclusions. Crediamo in una Navigazione Sostenuta e Sostenibile Essenzialmente Utile ed Utilmente Essenziale, di Superficie ma non Superficiale per raggiungere una tenuta di rotta che permetta di investire costruttivamente le Funzioni Eteromodali: Attenzione-Intenzionalità, Comunicazione e Motivazione per potere "Aiutare a farsi Aiutare" in una possibile realtà di Equilibrata Autodeterminazione. Riteniamo l'ambiente Acqua un costituente semplice ma complesso e quindi appropriato al trattamento della paralisi cerebrale infantile, Efficace nel tempo, coerente alle basi neurofisiologiche del trattamento e Vantaggioso elemento per gli aspetti posturali e percettivi: un setting che può rendere più agevole la riabilitazione (se Efficacemente Collocata e Completata) della Persona con disabilità medio-grave.

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PREVALENZA E FATTORI PREDITTIVI DI DISABILITÀ NELLA FASE ACUTA POST-CHIRURGIA MAMMARIA

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Introduction. Nelle donne affette da Carcinoma mammario sono descritte molteplici complicanze post-chirurgiche, conseguenti sia alla menomazione strutturale resa necessaria dall'asportazione della neoplasia, sia alla compromissione funzionale emergente da un ridotto uso dell'arto superiore omolaterale all'intervento. Benché si ipotizzi un ruolo per la riabilitazione precoce nel prevenire e limitare l'insorgenza di dolore, linfedema, limitazione articolare di spalla e ipostenia dell'arto superiore, gli studi primari sull'argomento sono scarsi. Questa indagine si propone di valutare la prevalenza di complicanze del trattamento chirurgico della mammella a breve termine, identificarne i fattori predittivi al fine di indirizzare le scelte terapeutiche più appropriate.

Materials and methods. 1209 soggetti sottoposti ad intervento chirurgico per patologia oncologica mammaria presso la Chirurgia Senologica degli Ospedali Riuniti di Ancona da Gennaio 2004 a Giugno 2012 hanno partecipato ad uno studio osservazionale che prevedeva una fase trasversale di raccolta delle caratteristiche clinico/funzionali e demografiche e una fase prospettica di analisi delle complicanze ad un mese. Sono stati misurati: il ROM della spalla durante i movimenti di elevazione, abduzione, extra- ed intra-rotazione, la circonferenza del braccio e dell'avambraccio (rispettivamente a 10 cm dall'olecrano), il dolore tramite la scala NRS; sono stati inoltre ricercati eventuali deficit stenici e sensitivi e monitorata la ferita chirurgica. Tutte le valutazioni sono state condotte in prima giornata post-operatoria (T1) e a distanza di 30 giorni dall'intervento (T30).

Results. L'età media delle pazienti è di 56,2 ± 12 anni (range 28-87 anni). Il 70.5% delle pazienti ha subito una quadrantectomia, il 18,3% una mastectomia radicale, l'11,1 % una mastectomia non radicale. In media la mastectomia radicale viene proposta a donne di età significativamente più avanzata (62 vs 55 anni) rispetto alla quadrantectomia. Nel 71,9% dei casi è stata eseguita una linfadenectomia totale e l'indicazione a questo intervento è diminuita significativamente nel corso degli anni (91% dei casi nel 2004-2005 vs 62 % casi nel 2011-2012). L'impianto di protesi viene effettuato nel 21% dei casi ed in donne in media 7 anni più giovani rispetto alle altre (51 vs 58 anni). Nella maggior parte dei casi l'intervento chirurgico è unilaterale senza differenza significativa di lato (dx 48.7%, sn 47.5%, bilaterale 3.8%). Al T1 si rilevano: dolore alla spalla omolaterale (41%); ipo/anestesia (19.3%); limitazione ROM spalla elevazione (56,8%); limitazione ROM spalla abduzione (60,5%), limitazione ROM spalla extra-intrarotazione (27%); incrementi volumetrici arto superiore (9,6%). Al T30 sono stati valutati 124 soggetti con caratteristiche sovrapponibili alla popolazione di provenienza. Il dolore rappresenta la complicanza più frequente (62% dei casi) e risulta indipendente dalla presenza di dolore in acuto. La limitazione del ROM della spalla è presente nel 39% ed il posizionamento del drenaggio in acuto rappresenta l'unico fattore predisponente (69% vs 33%, Chisquare 9,0; p-value:,002). Ricorrono inoltre disturbi della sensibilità (ipo-anestesia -50%- e disestesie/parestesie-14%), aderenze cicatriziali (32%), linfosclerosi (24%); quest'ultima complicanza appare indipendente dall'età, dal tipo di intervento e dalla linfadenectomia. Sono stati inoltre rilevati: reazioni cicatriziali/cheloidi (11%), contratture muscolari (9%), linfedema (6%) ed altro (10%, tra cui depressione e neuropatia).

Conclusions. Le pazienti sottoposti ad intervento chirurgico per carcinoma della mammella sono soggette a numerose complicanze post-chirurgiche, indipendentemente dall'età e dal tipo di intervento. L'identificazione precoce delle alterazioni clinico-funzionali da parte di un team esperto può consentire di applicare un programma riabilitativo dedicato che favorisca il recupero e prevenga danni permanenti.

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PERCORSO DI CURA CLINICO-RIABILITATIVO PER LA GESTIONE DELL'EVENTO CEREBROVASCOLARE ACUTO: UN MODELLO ORGANIZZATIVO DI INTEGRAZIONE A RETE DELLE STRUTTURE DI RICOVERO E TERRITORIALI

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Introduction. L'ictus cerebrale rappresenta la seconda causa di morte nei paesi occidentali e una delle prime cause di disabilità nell'adulto. Per garantire la più appropriata modalità di cura è necessario iniziare a programmare il percorso riabilitativo successivo alla dimissione ospedaliera, nei primi giorni successivi all'ictus. Dopo la fase acuta è indicato che il piano di cura sia realizzato in strutture riabilitative specializzate, tenendo conto delle esigenze a lungo termine del soggetto. L'obiettivo di questo lavoro è stato quello di sperimentare e valutare il governo clinico del "*Percorso Stroke*" nelle diverse fasi e realizzare di un confronto relativo alle caratteristiche del percorso riabilitativo del paziente tra le due realtà territoriali dell'ASL di Lecco e dell'ASL di Pavia.

Materials and methods. La popolazione in studio è composta da due gruppi di pazienti, arruolati consecutivamente dal 1 settembre '10 al 31 luglio '11, con diagnosi di ictus cerebrale (ischemico o emorragico), ricoverati presso la Struttura Complessa Neurologia-Stroke Unit dell'Azienda Ospedaliera "Ospedale di Lecco" e presso la Fondazione S. Maugeri di Pavia. I pazienti arruolati nello studio, alla dimissione dalle U.O. per acuti, hanno intrapreso il percorso terapeutico riabilitativo secondo le predisposizioni del Progetto Riabilitativo Individuale (PRI). La raccolta dei dati anagrafici e clinici è avvenuta tramite schede condivise: T0 compilata alla dimissione dalla fase acuta, T1 all'ingresso in riabilitazione, T2 alla dimissione dalla riabilitazione e T3 compilata dopo un anno dall'evento acuto. Per ciascun paziente è stato inoltre individuato il principale caregiver, ovvero il familiare di riferimento che fornisce al paziente un'assistenza informale continuativa, al quale sono stati somministrati dei questionari che rilevano la presenza di ansia e/o depressione e il sovraccarico emotivo a seguito dell'evento ictus.

Results. La raccolta dei dati non è ancora terminata, essendo in corso le visite ad un anno dall'evento acuto. I risultati attesi sono: 1. applicazione e verifica di operatività, efficienza ed efficacia delle azioni previste nel percorso ictus nella rete delle ASL di Lecco e Pavia tramite l'analisi degli indicatori di processo e di esito. 2. valutazione dell'efficienza del modello organizzativo a rete. 3. valutazione del modello organizzativo dell'ASL di Lecco e confronto con quello dell'ASL di Pavia.

Conclusions. Questo progetto delinea e sperimenta essenzialmente il modello di organizzazione dell'assistenza sanitaria globale, dalla fase acuta alla riabilitazione, realizzabile nella rete delle strutture erogatrici presenti nel territorio. La novità principale di questo progetto risiede nella creazione di una vera e propria *rete sanitaria di patologia*, che accompagna il paziente dall'evento acuto alla fase riabilitativa e di reinserimento sociale. Inoltre il progetto ha consentito di monitorare e intervenire anche sul carico emotivo e psicologico del caregiver, fornendo così una presa in carico globale del paziente e della sua famiglia. I risultati di questo progetto potranno essere trasferiti ad altre ASL, allo scopo di garantire una migliore assistenza dei pazienti e una oculata gestione delle risorse finanziarie e personali disponibili.

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FUNCTIONAL STATUS AND EXECUTIVE FUNCTIONING DEFICITS AFTER TRAUMATIC BRAIN INJURY - ONE-YEAR EXPERIENCE OF A REHABILITATION CENTER

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Introduction. The aim of this study is to assess the motor and cognitive evolution of a sample of patients with the diagnosis of traumatic brain injury (TBI), admitted to an inpatient rehabilitation centre.

Materials and methods. We evaluated 10 from a total 30 patients, admitted as inpatient in the year of 2010, with mild to severe TBI using Functional Independent Measure (FIM) and Behavioural Assessment of the Dysexecutive Syndrome (BADS) Battery. All patients were evaluated during the inpatient rehabilitation period. During this period they did a comprehensive rehabilitation program consisting of pharmacological treatment, physical therapy, occupational therapy, speech therapy, nursing care and neuropsychology intervention.

Results. Ten subjects, 2 women and 8 men**,** aged between 20 and 59 years old, were evaluated from January 2010 to December 2010. The average length of stay was 153.1 days (SD 60.79). The mean motor FIM gain scores were of 37.2 (SD 21.48) and the mean cognitive FIM gain scores were of 7 (SD 7.57). There were statistically significative differences concerning problem resolution (p=0.04), temporal judgement (p=0.03), time spent on tasks that imply cognitive flexibility (p=0.01), and spontaneous (p=0.04) and structured (p=0.01) planning.

Conclusions. These results emphasize the importance of comprehensive rehabilitation program in the cases of TBI and the role of neuropsychological assessment in order to identify impaired and preserved functions providing adequate management of these patients.

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AXIAL SYMPTOMS IN PARKINSON DISEASE: COMPARATIVE EFFECT OF THREE DIFFERENT REHABILITATION APPROACHES FOR GAIT AND BALANCE IMPAIRMENT.

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Introduction. The attention toward rehabilitation in Parkinson's Disease (PD) is rising due to both emerging evidences about neuroprotective role of exercise in neuro-degenerative syndromes and pharmacological and surgical treatment failure to cope with disability progression. Study's objective is to compare the short- and medium-term effects of 3 different approaches to gait and balance rehabilitation in PD subjects.

Materials and methods. 43 subjects suffering from moderate-advanced PD (2 to 4 Hoehn & Yahr stages) were randomized as follows: 13 subjects into DANCE (D) group (12 sessions: 1 hour 3days/week with Latino and Tango music); 14 subjects into BALANCE (B) group (20 sessions: 30min 5days/week; 20/25min of trainings on Balance Platform Cosmogamma + 5/10min of stretching); 16 subjects into TREADMILL (T) group (20 sessions: 30min 5days/week; 20/25min of treadmill walking with aerobic protocol and increasing velocities + 5/10min of stretching). Outcome measures: 10 meter walking test (10MWT), 6 minutes walking test (6mWT), Berg Balance Scale (BBS), Time Up and Go (TUG). Assessment timing: T0= pre-treatment, T1= immediately post-treatment, T2= one month after treatment end. Outcome measures were collected in the morning and after the intake of the personal first morning dose of dopaminergic drugs. ANOVA for repeated measures was applied for data analysis.

Results. Age, disease duration, disability (UPDRS II) and outcome measures scores were comparable across groups at baseline. The amount of hours of training did not differ significantly between groups. At the end of treatment (T1), gait velocity and balance improved in all groups (10MWT: F=5.1; p=.02; BBS: F24.6; p=.0001) with respect to T0, without significant differences between groups; gait endurance (6mWT) improved (treatment effect: F=12.1; p=.001) in all groups, though to higher extent in the T group (group x treatment effect: F=6.4; p=008); TUG score also improved (treatment effect: F=12.4; p=.002) more in the B group than T group (group x treatment effect: F=4.6; p=.04). Treatment compliance was better for D group than the most intensive (daily) treatments. At T3 gait velocity and endurance remained unchanged, BBS and TUG scores slightly worsened in all groups.

Conclusions. All rehabilitation approaches were effective at improving both gait and balance, in line with the hypothesis that PD gait is impaired due to both gait cycle generation/maintenance and balance problems. The intensive approach allowed a carry-over effect at one month follow-up. A global approach to axial symptoms as provided by DANCE therapy resulted as effective as task-oriented approaches at improving gait and balance.

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MUSICTHERAPY AND VEGETATIVE STATES: OBSERVATIONS THROUGH THE STUDY OF THREE CLINICAL CASES

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Introduction. The Authors bring out new algorithms in relation to the therapeutical and rehabilitative influence of the Bodily-Environmental-Rhythmical-Sonorous-Vocal-Energy (BERSVE) within an Integrated Musictherapy Plan (IMP) applied to patients in vegetative state.

Materials and methods. The data of the studies about a group of three patients with serious brain injury are valued. The IMP is articulated according to the following methodological steps: - Sonorous-Musical Anamnesis of the Patient and his Family and drawing up of the Musictherapy Assessment Document; - Some Patient's Observation Sessions; - BERSVE production by the musictherapist/patient system and through recorded classical music and modern songs and environmental and landscape sounds the patient listens to. Use of conventional and non conventional Sonorous Musical Instruments (SMI) and some SMI made by the Author/musictherapist with savage and some foods (Edible SMI: ESMI); - Use of the musictherapist's canto and patient's relatives and friend voice; - four Protocols for each BERSVE production; - Evaluation of patient's Somatic and Graphic Pattern and physiological parameters, before, during and after BERSVE production: Cardiac Frequency, Plasmatic Oxygen Saturation, Respiration Acts, Blood Pressure, Evoked Potentials, fNMR, SPECT, hormonal and immune body dosages; - Administration of Patient-Environment-Music Index at time t_n, in order to estimate patient's behaviour evolution and the Musictherapeutic Advancement Index. The test score is from 0 to 100, in order to set up the patient's Recovery Advancement Index. This research intends to compare the outcome of the patients in vegetative state (VS) (clinical case n. 1 and n. 2) and in state of minimal consciousness (MCS) (clinical case n.3) and to carry out some clinical/functional assessments by means of the Disability Rating Scale and the Glasgow Coma Scale. The Authors point out the effectiveness of the neuroendocrine and immunobiological assessments and the imaging diagnostics too. The recorded messages of relative's voices and music listening promote the cortical activation of the temporal bilateral area in the VS. In the MCS the word and music listening supports the activation of the posterotemporal and temporo-insular areas. It's clear that some biochemical, neuroendocrine and immunological functional elements with the functional neuroimages and the event-related evoked potentials of some association areas joined in the intentionality and the motor program processing namely the response to the sensorial stimuli that can be the words and the musical pieces. These motor programs can give rise not only to the activation that the fNMR shows but to the favourable responses in relation to the immunological and neuroendocrine-vegetative area in order to make superficial the consciousness states and promote the recovery.

Results and conclusions. Particularly the three patients have showed a progressive psychomotor recovery and a resumption of communicative skills. It's worth pointing out the event of comitial crises in the third patient: these fits are likely to have caused a superficiality of the coma and therefore a recovery joined in a fire of the reticular formation (this occurrence is the same as in relation to the generalized convulsive fits). In this way a neosynaptogenesis has been promoted with regards to the neurotransmitters too and then a reconstitution of the continuity/entireness of the neural network in order to guarantee some suitable relations of vigilance between the cortex and the peripheric structures and at the same time a right conduction of the afflux from the peripheric to central structures. The IMP can promote patient's improvement in the communication, relation and psychomotricity training.

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AGE IMPACT ON REHABILITATION OUTCOMES IN POST-STROKE PATIENTS

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Introduction. Stroke is a leading cause of disability and as a result of the increasing of life-span, older people have a greater incidence and prevalence of stroke (1, 2, 3), thus is important to examine the outcomes in terms of functional disability and neurological conditions after a 2 months of intensive neuro-rehabilitation treatment.

Materials and methods. From the cohort of the patients admitted in our department, we have selected the ones affected by stroke (ischemic or hemorrhagic), admitted from an acute ward (Intensive Care, Neurosurgery, Stroke Unit) and with Glascow Coma Scale ≥12, in order to assure that patients were equally able to accomplish the rehabilitation program. To define the performances in activities of daily living at admission, Barthel Index (BI) has been considered. We used the National Institutes of Health Stroke Scale (NIHSS) to evaluate neurological status and Functional Independence Measure (FIM™) to assess functional disability. Age and all the quantitative variables analyzed deviated significantly from the normal distribution (Shapiro Test for normality $p < 0.05$), thus median and Interquartile Range (IR) has been reported. The presence of statistically significant differences in terms of variables distribution between the two age intervals has been tested by the two-sided non parametric Wilcoxon Rank-Sum test. The significance threshold for discriminating between significant and null associations has been set to $p < 0.05$. Statistical analyses have been performed by the R statistical software (www.**r**-project.org/).

Results. 122 patients have been selected for this study. The median age was 69 years (Interquartile Range (IR)= 20.75 years) and ranged from 20 to 89 years. Age has been dichotomized using a cut off value corresponding to 65 years (n ≥ 65 years = 76 patients; n < 65 = 46 patients). Female gender was more prevalent within the subgroup of patients aged ≥ 65 years old with respect to the rest of the cohort (0.49% vs. 0.30%, p = 0.07). Patients <65 y.o. had worst neurological conditions comparing to the ≥65 y.o. at admission and at discharge and this difference was statistically borderline significant (p=0.07):
– < 65 y.o. median NIHSS at admission = 8.5 (IR = 6.75), median NIHSS at discharge = 4 (IR=5.75).
– ≥ 65 y.o median NIHSS at admission = 6 (IR =7), median NIHSS at discharge = 3 (IR =4).

Taking under consideration the BI at admission, elderly patients were more independent (< 65 y.o. median BI = 65, ≥65 y.o median BI = 85) even thaw this difference was not statistically significant (p > 0.05). Regarding FIM scale, younger patients became significantly more independent after hospitalization period (p<0.05):
– < 65 y.o. median FIM at admission=57 (IR = 45.75), median FIM at discharge = 103.5 (IR =41),
– ≥ 65 y.o median FIM at admission=55 (IR =52), median FIM at discharge = 97 (IR =53).

Conclusions. These results demonstrate the existence of a difference in the neurological and functional outcomes between young and old patients affected by stroke after a 2 months of neuro-rehabilitation treatment. In the collected data just the total FIM score was reported, missing the motor and cognition sub-scale data. Even though younger patients seem to better recuperate in terms of functional disability, older patients have a better outcome in their neurological conditions. Consequently, older patients may cope better after a rehabilitation treatment.

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PREVALENCE, MONITORING AND TREATMENT OF PRESSURE ULCERS IN A NEUROREHABILITATION WARD.

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Introduction. Pressure ulcers (PU) are localized areas of tissue damage, caused by forces of pressure and friction, which constitute a common and serious health care problem having high costs in both economical and quality of life terms [1]. In order to prevent PU, patients at risk must be identified systematically evaluating individual risk factors: well-known vulnerability factors include increasing age, immobility, poorer nutritional status, fecal or urinary incontinence, decreased peripheric sensitivity [2]. Moreover, a wide range of preventive measures, such as the adoption of pressure-reducing mattresses and patient's repositioning, is considered fundamental for the avoidance of PU. The aim of this study is to investigate the presence and evolution of PU in subjects admitted in a Neurorehabilitation Unit during the year 2011.

Materials and methods. At admission patients were evaluated by registered nurses educated on risk assessment for developing PU (assessment of activity and mobility, risk of friction shear and sensory perception using the Braden Scale and general health status) and their nutritional states was screened and

assessed by nutritionist. In case of PU presence registered nurse classified the PU, photographed the sore and started specific treatment according to the NPUA-EPUAP guide-lines [3].

Results. During 2011, 176 patients have been admitted in the Neurorehabilitation Department (age: 17-89, media=53, men=112, women=64). At admission 47 patients (26.7%) presented at least one PU (one patient presented 2 PU at admission) and just one patient (0.57%) presented one PU during the hospitalization period. The majority (n=24, 50%) of these patients was affected by stroke (ischemic stroke: n=14, 58.33%; hemorrhagic stroke: n=10, 41.66%), while 13 (27.08%) were post-traumatic patients, 5 patients (10.42%) had postanoxic brain injury and 6 (12.5%) had various neurological pathologies i.e. Parkinson Disease, meningioma etc. According to the NPUAP-EPUAP classification 12 PU (24.49%) were presented at stage I, 18 PU (36.73%) at stage II, 9 PU (18.37%) at stage III and 10 PU (20.41%) at stage IV. After specific treatment for PU, according to the NPUA-EPUAP 2009 guide lines, 46 patients (95.83%) out of 48 reached the complete healing of the ulcers while 2 patients deceased for causes not related to the PU presence.

Conclusions. These results demonstrate the importance of the evaluationof the patients risk assessment on developing PU and of the presence of PU, at admission in a Neurorehabilitation Ward, in order to activate immediately prevention measures and specific treatment. Thus, we observed a reduction of clinical complications due to PU and a substantial improvement of patients life quality.

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LA TERAPIA INFILTRATIVA CON PLASMA RICCO DI PIASTRINE ATTIVATO CON OZONO NELLE PATOLOGIA CARTILAGINEA DEL GINOCCHIO.

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Introduction. I Fattori di Crescita contenuti nelle Piastrine assumono un importante ruolo nella proliferazione, differenziazione e migrazione cellulare in differenti organi e tessuti. Da alcuni anni vengono utilizzati in alcune specifiche patologie dell'apparato muscolo scheletrico al fine di accelerare il processo di guarigione e di riparazione tissutale. Recenti studi hanno dimostrato l'efficacia dei fattori di crescita nella condrogenesi e nella prevenzione della patologia degenerativa articolare. L'azione terapeutica del Plasma Ricco di Piastrine (PRP) risiede proprio nei numerosi fattori di crescita (PDGF; TGFa; TGFb; EGF; FGF; IGF; VEGF) che stimolano l'angiogenesi, la sintesi di collagene, la proliferazione e la migrazione dei fibroblasti. La terapia infiltrativa con PRP in associazione a specifici esercizi riabilitativi è particolarmente indicata negli sportivi e nei pazienti, anche non sportivi, con patologie articolari, tendinee e muscolari. Da alcuni mesi abbiamo deciso di utilizzare la terapia infiltrativa con PRP attivato con Ozono per trattare le patologie degenerative e post-traumatiche della cartilagine articolare delle ginocchia.

Materials and methods. Sono stati reclutati 12 pazienti, di età media di 44.5 anni con range di età compreso tra i 21 e i 44 anni, in prevalenza donne con rapporto F:M pari a 5:1, dediti ad attività fisica non agonistica ad eccezione di due casalinghe, con dolore anteriore del ginocchio (in tre casi presente bilateralmente) senza importanti variazioni assiali o rotazionali degli AAII, né eccessivi sovraccarichi ponderali. Abbiamo raccolto il punteggio delle scale di valutazione VAS per il dolore (riferita tra i valori di 6 e 9/10), KOOS per la funzionalità di ginocchio e FIM per le autonomie della vita quotidiana; le lesioni sono state inquadrate da un punto di vista radiodiagnostico tra il II ed il III grado. Tutti i pz, dopo preparazione di PRP (prelievo di 20 cc di sangue venoso, centrifugato, trasformato in PRP e attivato con Ozono a concentrazioni variabili a secondo della conta piastrinica) sono stati sottoposti a ciclo di tre infiltrazioni intraarticolari nell'arco di nove settimane. Dopo i primi giorni dalla prima seduta il paziente iniziava il programma riabilitativo specifico.

Results. I primi dati a nostra disposizione sembrano essere davvero significativi, con una riduzione di 5,5 punti di media il punteggio della scala VAS, infatti nel 50% dei casi il dolore si riduceva fino a scomparire quasi completamente e complessivamente. La valutazione relativa alla funzionalità del ginocchio mostra un evidente recupero del range articolare, con una netta riduzione delle limitazioni nelle attività di vita quotidiana.

Conclusions. Dai risultati ottenuti, seppure con un campione ridotto e follow up insignificante, appare evidente come tale metodica innovativa possa potenziare di gran lunga i già confortevoli risultati registrati con le sole infiltrazioni di PRP grazie alla capacità dell'ozono di stimolare il rilascio dei fattori di crescita. L'impiego del PRP nei difetti cartilaginei teoricamente offre significativi vantaggi rispetto alle metodiche convenzionali di trapianto cartilagineo: la procedura è più semplice e molto meno costosa.

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THE EFFICACY OF VERY LOW LEVEL LASER THERAPY (VLLLT) ON DISEASE ACTIVITY IN RHEUMATOID ARTHRITIS. A PLACEBO CONTROLLED DOUBLE-BLIND INVESTIGATION.

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Introduction. Despite the fact that the Rheumatoid arthritis (RA) therapeutic arsenal has increased dramatically during the past decade and comprises of disease modification drugs, as well as new biological agents, a therapy problem in RA still exists in contemporary rheumatology. So, studying the possibilities to apply and investigate non medication methods is of great importance, particularly low level laser therapy (LLLT). Until now, there has been a lack of objective methods in evaluating the clinical efficacy of LLLT, especially in RA patients. Furthermore, the results of a relatively small number of published studies in patients with RA are controversial. Additional confusion has been created by expression of the energy dose in J/cm^2 instead of J. Now it is clear that the effects of LLLT could be different, from placebo equal to significantly positive, under the same pathological conditions, average output power and energy dose, but using different energy density (J/cm2) which is not usually shown in published studies. Fortunately, after many years of opposite points of view between scientists, common opinion has been reached that power density and energy density are more important than the energy dose as a whole and that these need to be shown in published papers (1). Moreover, literature data showed that the application site and location-specific doses used in tendinopathy and chronic joint disorders are of great importance (2,3). Disease activity in RA, extensively validated with Disease Activity Score (DAS28) during clinical trials and daily clinical practice in patients with RA, has never been used in LLLT studies. The main advantage of DAS28 (review of 28 tender and swollen joints count and erythrocyte sedimentation rate - ESR in mm/hour) is intended not only to monitor the effect of therapy but also for accurate monitoring of disease activity individually. Ultrasound assessment of synovitis and joint erosions has become a part of everyday RA clinical practice. Therefore, we included ultrasound monitoring of the thickness of the synovial membrane of the knee, as an indicator of synovitis, in patients who had had knee pain prior to this investigation and VLLLT was applied to the knee. In a randomised, placebo-controlled double-blind investigation we examined the effect of pulsed infrared VLLLT on the activity of RA using the DAS28 score and the local effects on the knee synovitis due to membrane thickness of the knee joints using US examination.

Materials and methods. According to ACR criteria, 136 patients belonged to the elementary and 29 to the placebo-control group (sham laser). The main condition governing the choice of parameters of laser radiation was to get a clinical effect without acutisation of RA. VLLLT was applied in individually assesed doses in all of the painfull joints and/or periarticular structures involved in the inflammatory process for 10 consecutive days (λ=890nm, pulse power 7W), exposure time (60-240 sec.per point). Dose per one treatment ranged from 0.035J to 7.32 J and energy density from 0.008 J/cm^2 to 0.16 J/cm^2 depending on the selected frequency pulse (80-1500Hz). So, the parameters of laser beam applied were more VLLLT than LLLT.

Results. The elementary group showed significantly decreased values of DAS28 ($p<0.01$) but these increased in the placebo group ($p<0.01$). LLLT had the greatest effect on RA patients with a high DAS28 score (> 5.1), whose numbers decreased from 74(54.4 %) to 20(14.7%). The thickness of the knee synovial membrane (n= 105 in the elementary and 20 in the placebo group, normal value up to 2 mm) was significantly reduced from 4.12 ± 1.20 to 3.76± 1.21 ($p< 0.05$). The most pronounced effect we noticed in patients with synovial membrane thickness of more than 4mm (n=49, 5.22±0.79 to 3.70± 1.26, $p<0.001$), while we did not notice any effect in the placebo group ($p>0.05$).

Conclusions. This placebo-controlled investigation proved that VLLLT, under optimal chosen irradiation parameters and strictly selected application site, decreases the activity of DAS28 score and synovial membrane thickness even in high activity RA patients.

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THE EFFICACY OF VERY LOW LEVEL LASER THERAPY (VLLLT) ON DISEASE ACTIVITY IN RHEUMATOID ARTHRITIS. A PLACEBO CONTROLLED DOUBLE-BLIND INVESTIGATION.

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Introduction. Despite the fact that the Rheumatoid arthritis (RA) therapeutic arsenal has increased dramatically during the past decade and comprises of disease modification drugs, as well as new biological agents, a therapy problem in RA still exists in contemporary rheumatology. So, studying the possibilities to apply and investigate non medication methods is of great importance, particularly low level laser therapy (LLLT). Until now, there has been a lack of objective methods in evaluating the clinical efficacy of LLLT, especially in RA patients. Furthermore, the results of a relatively small number of published studies in patients with RA are controversial. Additional confusion has been created by expression of the energy dose in J/cm^2 instead of J. Now it is clear that the effects of LLLT could be different, from placebo equal to significantly positive, under the same pathological conditions, average output power and energy dose, but using different energy density (J/cm2) which is not usually shown in published studies. Fortunately, after many years of opposite points of view between scientists, common opinion has been reached that power density and energy density are more important than the energy dose as a whole and that these need to be shown in published papers (1). Moreover, literature data showed that the application site and location-specific doses used in tendinopathy and chronic joint disorders are of great importance (2,3). Disease activity in RA, extensively validated with Disease Activity Score (DAS28) during clinical trials and daily clinical practice in patients with RA, has never been used in LLLT studies. The main advantage of DAS28 (review of 28 tender and swollen joints count and erythrocyte sedimentation rate - ESR in mm/hour) is intended not only to monitor the effect of therapy but also for accurate monitoring of disease activity individually. Ultrasound assessment of synovitis and joint erosions has become a part of everyday RA clinical practice. Therefore, we included ultrasound monitoring of the thickness of the synovial membrane of the knee, as an indicator of synovitis, in patients who had had knee pain prior to this investigation and VLLLT was applied to the knee. In a randomised, placebo-controlled double-blind investigation we examined the effect of pulsed infrared VLLLT on the activity of RA using the DAS28 score and the local effects on the knee synovitis due to membrane thickness of the knee joints using US examination.

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IL PERCORSO DELL'ICTUS LACUNARE IN FASE ACUTA: DATI DAL PROTOCOLLO MINIMA ICTUS CEREBRALE (PMIC).

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Introduction. Il protocollo PMIC, promosso da alcuni centri Italiani di riabilitazione aveva come obiettivo lo sviluppo di un percorso comune per la valutazione della persona con ictus nei vari setting. Questo ha consentito di raccogliere prospetticamente in 8 ospedali i dati clinici e demografici per quanto attiene alla fase acuta.

Materials and methods. rilevare i fattori associati e predittori di successivo ricovero in regime di riabilitazione intensiva (codice 56) nei pazienti affetti da sindrome lacunare tra i 2272 inclusi nella fase acuta ospedaliera del progetto PMIC. A tal fine veniva svolta analisi bivariata tramite test del Chi quadro o Mann Whitney test. Inoltre analisi di regressione logistica utilizzando l'ipotesi di successivo ricovero in regime di riabilitazione codice 56 quale variabile dipendente.

Results. Nella casistica 448 (19,7%) pazienti erano affetti da sindrome lacunare secondo i criteri OCSP. Questi soggetti provenivano in genere da stroke unit (210) o reparti neurologici (164). Il sottotipo LACI all'analisi bivariata risultava associato più spesso a proposta di percorso riabilitativo alternativo a cod 56 (387 vs 69 $p<0.0001$). I pazienti più spesso ($p<0.05$) inviati in regime di riabilitazione intensiva cod 56 erano invece i soggetti sottoposti a trombolisi, provenienti da Neurologie con TACI quale tipologia clinica. All'analisi multivariata corretta per genere, età e reparto di provenienza, la tipologia clinica LACI (OR 0,42) appariva essere predittore ($p<0.01$) di invio verso percorso alternativo al cod 56.

Conclusions. L'ictus lacunare, nell'ambito della casistica PMIC, rappresenta una entità clinica ove il percorso riabilitativo viene più spesso inviato a regime alternativo a quello di ricovero per trattamento intensivo.

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COMPLICATIONS AND SOCIAL INTEGRATION IN PEOPLE WITH SPINAL CORD INJURY

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Introduction. Spinal cord injury (SCI) results in neurological function loss that can cause permanent motor, sensitive, visceral impairments and significant long-term complications. Due to disability, people are affected in participation and in quality of life. Aim of this study was to assess the level of community re-integration of people affected by SCI and to analyse which factors influence it.

Materials and methods. 148 adults with SCI occurred before 2000 and at a minimum of 1-year post-injury were included in the study. Demographics data and medical characteristics were collected. Social integration was evaluated using the short form of the CHART (Craig Handicap Assessment and Reporting Technique). Values over 75 were considered as satisfactory.

Results. Participants (28 female/120 male; 44 and 39 years old on average respectively; 41% tetraplegics and 59% paraplegics; 49% AIS B-D, 51% AIS A) were distant 2,8 years on average from the lesion. 76% of people suffered from complications, 56% from neuropathic pain, 49% from spasticity and 16% from pressure ulcers. Pain and spasticity interfere with activity of daily living (ADL) respectively in 76% and 79%. 86% of subjects were independent in bladder management and 75% in bowel management. The CHART questionnaire showed a satisfactory value in physical independence and mobility domains for 66% of people, in social integration for 82% and only for 36% in

occupation. Age seem to be inversely proportional to physical independence, mobility and occupation. Neurological level affects all CHART domains while complications as pain and spasticity affected only mobility and occupation. Independence in bladder and bowel management affected positively all CHART domains. Social integration have the highest values among the CHART domains, while it is not affected by gender, neurological level, pain and spasticity.

Conclusions. Our results underline the importance to identify the factors for adapting treatment according to the individual social aspects of self-worth, habits of life, and social integration for person with tetra-paraplegia.

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BLADDER MANAGEMENT METHODS AND UROLOGICAL COMPLICATIONS AFTER TRAUMATIC SPINAL CORD INJURY

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Introduction. Renal failure was the leading cause of death 30–40 years ago after spinal cord injury (SCI), but this has declined dramatically most likely due to advances in urological management. The optimal bladder management method should maintain low bladder pressures and continence while minimize infections and the risk of upper tract deterioration. Intermittent catheterization (IC) is generally accepted to be the best and safest long-term bladder method. The aim of this study is to evaluate bladder management methods and urological complications during 5 years of follow-up after traumatic spinal cord injury.

Materials and methods. The medical records of 137 patients that were admitted to our Physical and Rehabilitation Department between January 1993 and December 2006 were reviewed. Data regarding classification of the SCI (according to the ASIA classification), method of bladder management and urological complications (urinary tract infections (UTI), lithiasis, ureterohydronephrosis, increased bladder wall thickness, epididymitis, urethral stricture and decreased creatinine clearance), were recorded during the first 5 years after traumatic SCI.

Results. 137 patients (115 males and 22 females) with traumatic spinal cord injury were included in the study. 26 patients were lost to follow-up during the first year and 68 patients were lost to follow-up in the 5 years. At time of injury, 59,9% had less than 40 years old. At admission 51,8% had complete SCI and 48.2% had incomplete SCI (AIS B 8,0%; AIS C 15,3%; AIS D 28,8%). 54,7% of patients had a neurological level below T1. Comparing the bladder emptying methods on the established time periods, indwelling urethral catheter was the method for almost all patients at admission (89,8%). At discharge, 41,8% performed intermittent catheterisation, 29,1% could void spontaneously, 18,7% used a indwelling urethral catheter, 9,7% performed vesical emptying manoeuvres and 0,7% had a suprapubic cystostomy. As expected, indwelling catheter was carried out mainly by patients with complete cervical lesions. One year after discharge (n=111), 30,6% performed intermittent catheterisation, 30,6% could void spontaneously, 20,7% used an indwelling urethral catheter, 17,1% performed vesical emptying manoeuvres and 0,9% had an urine collector. During the first year, patients with an indwelling urethral catheter had higher incidence of UTI, lithiasis and ureterohydronephrosis. In the period between 1 and 5 years, the use of an indwelling urethral catheter was associated with higher frequency of recurrent UTI and epididymitis. Patients who performed vesical emptying manoeuvres or had an indwelling urethral catheter had higher incidence of lithiasis, ureterohydronephrosis and increased bladder wall thickness. A decrease in the creatinine clearance was observed especially in patients who performed vesical emptying manoeuvres. IC was associated with more urethral stricture. Five years after discharge (n=69), 33,3% performed intermittent catheterisation, 24,6% could void spontaneously, 17,4% used a indwelling urethral catheter, 15,9% performed vesical emptying manoeuvres, 5,8% had a suprapubic cystostomy, and 2.9% had an urine collector.

Conclusions. The management of bladder dysfunction is crucial in patients with a neurogenic bladder. Although there isn't a perfect method, IC is usually the chosen one and should be established as soon as possible in order to minimize the consequences of an unbalanced bladder function. This study emphasizes, once more, the superiority of IC versus others methods of bladder management.

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THE ROLE OF PHYSICAL MEDICINE AND REHABILITATION ON HEREDITARY SPASTIC PARAPLEGIAS

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Introduction. Hereditary Spastic Paraplegias (HSP) or Strumpell-Lorrain Syndrome are a heterogeneous group of inherited disorders, in which the main clinical feature is progressive lower limb spasticity and weakness. Inheritance may be autosomal recessive, autosomal dominant or X-linked. The main symptoms are the result of a "dying back" degeneration of the terminal portions of the long descending (corticalspinal tracks) and ascending (dorsal columns) pathways in the spinal cord. Traditionally, it has been divided into pure HSP, when there are only symptoms related with medullary envolvement (lower limbs spasticity, weakness, and other pyramidal signs), and complex or complicated HSP whem associated with other neurological symptoms (ataxia, extrapyramidal signs, visual dysfunction, dementia, mental retardation, pseudobulbar signs and others signs and symptoms). The aim of this study is to review the literature on HSP, describe the clinical features and emphasize the holistic approach of Physical Medicine and Rehabilitation (PMR).

Materials and methods. We performed a literature search using PubMed. The search was conducted using the terms "hereditary spastic paraplegia" and "Strumpell-Lorrain".

Results. PMR making use of its evaluation and diagnostic tools (physical examination, functional scales, gait analysis laboratory, urodynamic studies and others) and therapeutic modalities (physical therapy, pharmacotherapy, invasive techniques including Botulinum Toxin injection, prescription of assistive technology and others modalities) has a nuclear role following these patients. The main goals are to minimize spasticity, improve balance and strength, optimize the gait pattern, trying to preserve functional independence, maximizing quality of life and participation.

Conclusions. Although HSP is generally considered a mild disease, in some cases it has a marked impact on functional independence. Early in the course of HSP, patients should be evaluated by a physiatrist in order to establish an intervention strategy.

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ABILITÀ IN CARROZZINA, INTEGRAZIONE SOCIALE E QUALITÀ DELLA VITA NELLE PERSONE CON LESIONE DEL MIDOLLO SPINALE

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Introduction. Il verificarsi di una lesione midollare conduce ad un cambiamento radicale nello stile di vita di un individuo; le limitazioni della mobilità possono influenzare e diversificare la capacità di partecipazione a quasi tutte le attività della vita quotidiana. Gli obiettivi di questo studio sono: valutare l'ipotesi che esista una relazione fra la capacità di manovrare la carrozzina nel proprio ambiente naturale, la percezione della qualità di vita e l'integrazione sociale; verificare quali relazioni esistono fra variabili clinico-demografiche, mobilità in carrozzina, stato funzionale percepito in relazione alle caratteristiche della carrozzina, livello di indipendenza funzionale, qualità della vita ed integrazione sociale.

Materials and methods. I pazienti, reclutati in base a specifici criteri d'inclusione, sono stati studiati attraverso anamnesi, esame clinico ed i seguenti

strumenti di misura: test Wheelchair Skills Test (WST) per valutare le abilità del soggetto in carrozzina, questionario Functioning Everyday with a Wheelchair (FEW) per testare lo stato funzionale percepito dall'utente in relazione all'uso della carrozzina, scala Spinal Cord Independence Measure (SCIM) per valutare l'indipendenza in specifiche aree funzionali, questionario Short-Form 12 items Health Survey (SF-12) per valutare lo stato di salute fisico e mentale percepito dal paziente ed il questionario Craig Handicap Assessment and Reporting Technique short form (CHART-SF) per misurare il livello di partecipazione della persona con disabilità.

Results. 53 soggetti con età media 44 (DS ± 13,7) e distanza media dalla lesione 10 anni (DS ± 7) sono stati inclusi. L'età correla negativamente con la abilità in carrozzina (WST-Performance) e la CHART-SF. I soggetti riferivano spasticità nel 72%, dolore nel 59% ed ulcere da pressione nel 15%. La maggior parte del campione è autonomo nella gestione della vescica (83%). Il livello neurologico influenza la performance delle abilità in carrozzina (WST-Performance), l'indipendenza fisica secondo SCIM, e l'integrazione sociale secondo CHART-SF. Il dolore è in relazione con la mobilità in esterni secondo FEW e la percezione della qualità di vita legata allo stato fisico (SF-12 PCS), la spasticità sembra non influenzare la mobilità ma incidere negativamente sull'integrazione sociale (CHART-SF). La performance delle abilità in carrozzina (WST-Performance) ha mostrato un punteggio medio di 67% (DS ± 21), la SCIM di 59 (DS ± 17), il FEW di 49 (DS ± 9), l'SF-12 PCS di 37 (DS ± 9), il SF-12 MCS di 51 (DS ± 1). Il questionario CHART-SF ha registrato un punteggio totale medio di 313 (DS ± 84) sul punteggio totale di 400 ed in media il campione ha registrato un punteggio maggiore di 90. Il SF-12 è correlato significativamente (p<0,01) con età, titolo di studio, SCIM, CHART-SF, WST-Performance e FEW.

Conclusions. I risultati emersi contribuiscono a sottolineare l'importanza nella pratica clinica dell'addestramento finalizzato all'acquisizione di specifiche abilità in carrozzina con protocolli mirati in funzione dell'età, del background culturale, della capacità di apprendimento e del grado di disabilità del paziente in rapporto alle caratteristiche del mezzo di trasporto, perché possa rispondere alle necessità funzionali della persona non deambulante.

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HEALTH RELATED QUALITY OF LIFE IN CHILDREN WITH SPINA BÍFIDA

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Introduction. Spina bífida is an important cause of disability in children. This condition can result in decreased mobility, bladder and bowel incontinence, neurosensory impairment and social disadvantages. One of the goals in these children is to optimize quality of life and this parameter can vary greatly in this population. So, the objective of this study is to determine predictors of quality of life in children with spina bífida.

Materials and methods. A retrospective study was carried out including patients with spina bífida who were followed at the pediatric rehabilitation unit of Centro Hospitalar do Porto for 12 months. Quality of Life according to the Child Health Questionnaire (CHQ-PF50) at end of 12 months was considered the dependent variable. The following factors were chosen as indepedent variables and tested as determinants of Quality of Life in children with spina bífida: age, gender, functional status, Urinary tract infection in the last 12 months, bladder emptying method, chronic renal failure and hospital admission in the last 12 months. Statistical analysis was performed using SPSS 18.0. Graphic relation analysis and linear correlation between independent and dependent variables was carried, with the subsequent study of the difference in response according to the predictor variables. A linear regression analysis was carried to identify the significant determinants and to find the best model adjustment.

Results. The study included 54 patients with a mean age of 12,8 years with spina bífida who were followed in the pediatric rehabilitation unit of Centro Hospitalar do Porto.

Conclusions. Spina bífida is a prevalent cause of impairment in the pediatric population. Some reports show that despite optimal medical care, many children have some degree of functional dependence and less social and employment opportunities when entering adulthood. One of the therapeutical goals in these patients is to optimize quality of life. Knowing which factors influence Quality of Life can help in improving healthcare in these children.

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EFFECTS OF VACUUM-COMPRESSIVE THERAPY IN PATIENTS WITH PERIPHERAL OCCLUSIVE ARTERIAL DISEASE

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Introduction. Vacuum-compressive therapy (VCT) is physical mechanic therapeutic agent which is used in therapy of peripheral circulation disorders. The appliance itself is a computerised machine which produces and enables the effect of pressure and subpressure in defined rhythm and duration, usually following the pre-existing therapeutic schemes, for various degrees of ischemia. Patient's limbs are placed in cylinders and exposed to the above described pressure and subpressure. Therapeutic exercises are also an obligatory part of treatment protocol for patients with vascular diseases. For functional assessment of the peripheral blood vessels one could use subjective parameters (intermittent claudications, pain in rest) and objective parameters (palpation pulsation, ankle-brachial index (ABI), claudication distance of walk etc.). The aim of the paper is to present the effects of complex pharmacological and physical treatment in patients with peripheral occlusive arterial disease (POAD) in stage II; Fontain scale.

Materials and methods. Prospective study included 18 patients with POAD, average age of 66, among them there were 10 males and 8 women. All participants were in-patients in the Institute for the Physical Medicine and Rehabilitation „Dr Miroslav Zotović" in Banjaluka; in the period February - July 2012. The study followed the efficacy of the pharmacological therapy (Pentoksifilin amp) and physical therapy (therapeutic exercises, current therapy, vacuum-compressive therapy) by measuring the claudication walking distance and real values of ABI prior and after the applied therapy. VCT was applied on lower limbs, with two types of parameters, depending on arterial pulsations – if palpable, the VCT parameters were (-35mmHg / 30sec, +30mmHg / 35sec) – if palpations weak or absent, the VCT parameters were (-50mmHg / 35sec, +25 /15sec). Duration of VCT session was 20 min. The initial and maximal claudication walking distance was measured in 15 patients, and the AB indexes were measured in 17 patients, prior and after the 15 VCT treatments. Student¢s t - test was used for data analysis.

Results. After 15 VCT treatments, which are used as part of the complex therapeutic protocol, during the period of one month, there was an increase in the initial and maximal claudication walking distance and there was a statistically significant difference (p=0.03<0.05) in values prior and after therapy. After 15 VCT treatments there was an increase in AB index value and there was a extremely statistically significant difference (p<0.0001<0.01) in values prior and after therapy.

Conclusions. Timely, preventive and therapeutic effect on POAD can decelerate its course and development. The application of complex therapy including the VCT may shorten hospitalisation, extend the life expectancy and working ability and lower the complication rate, but requires further research in this area.

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A REVIEW OF THE LITERATURE ABOUT SCHEUERMANN'S DISEASE

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Introduction. In this article the authors present a review of the available literature on Scheuermann´s Disease (SD). Anatomy and biomechanics of the spine are described in a summary form. It presents the epidemiology and pathogenesis of SD, the evaluation of patients with this disease, as well as the natural history of the disease and the therapeutic approach.

Materials and methods. Textbooks of reference in the field of Physical Medicine and Rehabilitation were consulted, as well as the "E-Textbook" from "Scoliosis Research Society". Electronic databases were searched, including: "PubMed" and "Medscape", using the terms: "Scheuermann", "Scheuermann's

disease", "Scheuermann's kyphosis" and "thoracic hyperkyphosys". From the initial research, chapters from two textbooks, a chapter of the "E-Textbook" from "Scoliosis Research Society" and 12 papers were selected.

Results. In the sagittal plane, the rachis has curvatures that, within certain limits, are considered normal. According to the Scoliosis Research Society, a thoracic kyphosis between 20° and 50° (20° to 40° in a teenager during the period of maturation) is considered normal. The rigid thoracic hyperkyphosis typically present in SD is the most common form of hyperkyphosis in adolescence. If untreated, it may lead to progressive deformation of the spine. It has an estimated prevalence of 4% and 8% in the United States of America. Although there are several theories regarding its pathogenesis, there's no concrete data, to date, it's cause may possibly be multifactorial. The evaluation of a patient with SD requires a clinical history and a detailed physical examination, complemented by an imaging evaluation. The mode of presentation varies with age: during adolescence complaints focus mainly on issues related to cosmesis, whereas in adulthood the pain is the main complaint. Physical examination allows the characterization of thoracic kyphosis and the evaluation of its flexibility. The imaging evaluation enables to observe, if present, radiographic changes that are typical of SD: the thoracic hyperkyphosis, the Schmörll nodes, the reduction of intervertebral spaces, the irregularities of the vertebral platforms, as well as wedge-shaped deformities of the vertebral bodies. It also enables to evaluate the evolution of the curve. The differential diagnosis must be made, being postural kyphosis the most frequent one.

Conclusions. The therapeutic approach in SD is related to the degree of the deformity, the presence of back pain and the maturation status of the patient. In most cases, the establishment of a rehabilitation program and / or the administration of non steroidal anti inflammatory drugs during short periods of time, allows a relief of the pain. The use of orthotics is recommended in patients with SD and potential growth, as studies show its effectiveness in preventing the progression of kyphosis. The surgical approach should be considered in situations where patients do not respond to conservative treatment or in patients with severe deformities.

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FAVOURABLE OUTCOME IN FECAL INCONTINENCE AFTER MULTIMODAL REHABILITATION TREATMENT

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Introduction. Fecal Incontinence (FI) is a psychologically and socially debilitating condition which can lead to social isolation, depression and loss of self-esteem and self-confidence, thereby contributing to worsening of quality of life (QoL). The management of FI requires a multidisciplinary and multiprofessional team, in which Physical and Rehabilitation Medicine (PRM) plays an important role. The aim of this study was to evaluate results of multimodal rehabilitation treatment in patients with FI from non neurological ethiologies in a PRM Department of a central Portuguese hospital.

Materials and methods. Prospective cohort study of 25 patients consecutively referred to Pelvic Floor Rehabilitation Consultation of PRM Department of a central Portuguese hospital between July 2010 and July 2012, who underwent multimodal rehabilitation treatment. Data regarding clinical, laboratorial (including manometry and electromyography) and functional response were collected at baseline and at treatment completion and then analysed using SPSS Statistics 17.0.

Results. From an initial sample of 25 patients who underwent multimodal rehabilitation treatment, 11 were excluded from the analysis either because they didn't complete treatment or because there was insufficient data. Therefore, the final sample included 14 patients. The patients were mostly women 13 (92.9%), with a mean age of 59.5 (9.5) years, married 10 (71.4%) and retired 8 (57.1%). Mean duration of multimodal rehabilitation treatment was 3.25 (1.14) months.. In 57.1% patients, there was a prior history of colorectal surgery, which, in most of them, was the primary cause of FI. The type of FI was: gas 1 (7.1%), gas and liquid stool 5 (35.7%), gas and soft stool 1 (7.1%), gas and solid stool 4 (28.6%), liquid stool 1 (7.7%) and solid stool 2 (14.3%). In the vast majority of patients (92.9%), FI caused a severe impact in QoL. At baseline, most patients had marked hypotonia of both internal and external anal sphincters; mean Wexner score was 11.86 (3.21). At treatment completion, the majority of patients improved hypotonia of both internal and external anal sphincters; mean Wexner score was 6.71 (4.38). Mean reduction of Wexner score was 5.14 (4.99). Treatment had at least good results in 57.1% of cases. There were statistically significant correlations between the following parameters: age and initial Wexner score (p=0.037); external anal sphincter voluntary contraction pressure and afectation of QoL (p=0.000); initial Wexner score and afectation of QoL (p=0.050); duration of Pelvic Floor Rehabilitation (PFR) and PFR results (p= 0.017); PFR results and reduction in Wexner score (p= 0.020); PFR results and final Wexner score (p= 0.002).

Conclusions. This study showed favourable outcome in FI after multimodal rehabilitation treatment. It is in accordance with other studies that support multimodal rehabilitation treatment as an important aspect in the management of FI. Further studies, with bigger sample sizes, are necessary to identify predictors of favourable outcome in FI and to evaluate its impact.

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IMPACT OF REHABILITATION INTERVENTION ON PAIN, FATIGUE, ENDURANCE AND LEVEL OF DISABILITY IN PATIENTS WITH FIBROMYALGIA: A CASE - CONTROL STUDY

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Introduction. Fibromyalgia (FM) is a chronic condition of unknown pathogenesis, typically characterized by widespread pain, reduced pain threshold, nonrestorative sleep, fatigue, cognitive dysfunction and other somatic symptoms which negatively impact physical function. Rehabilitation is recommended in the management of people with FM. The aim of the present study was to evaluate the impact of a rehabilitation treatment, consisting in a customized exercise and educational-behavioural programme, on pain, fatigue, endurance and physical function at a 6-month follow-up.

Materials and methods. Forty-one FM patients (39 female, 2 male, mean age 52.2 ± 9.21 yrs), afferent to the ambulatory facility of the University of Padova, were randomly assigned to an exercise and educational-behavioural programme group (Experimental Group, EG = 21) or to a control group (GC=20). Both groups maintained their own pharmacological therapy throughout the study period. Each subject was evaluated before, at the end (T1) and after 6 months from the beginning of the rehabilitation treatment (T2). Standard validated scales were used, in particular the Fibromyalgia Impact Questionnaire (FIQ), the Visual Analogue Scale (VAS), the Health Assessment Questionnaire (HAQ) and the Fatigue Severity Scale (FSS), together with clinical evaluation methods such as the 6-Minute Walking Test (6MWT), tender points assessment (TP) and spinal active range of motion measured by a pocket goniometer. The exercise protocol included 20 sessions (twice a week) conducted under physiotherapist's supervision, consisting in self-awareness, postural exercises, stretching, strengthening, spine flexibility and aerobic exercises, which patients were subsequently educated to perform at home.

Results. The two groups were comparable at baseline. On intergroup comparison at T1, the EG showed improvement, although non statistically significant (p between 0.221 – 0.56) in the FIQ, VAS, HAQ and FSS scales, and significant improvement in the 6MWT,TP, muscle stiffness and in most spinal active range of motion measurements (p between 0.001 – 0.04). The positive results achieved by the EG were maintained at the 6-month follow-up (T2).

Conclusions. FM patients showed excellent adherence to our exercise and educational-behavioural programme obtaining immediate and medium - long term beneficial effects on pain, tender points activity, endurance, muscle stiffness, fatigue and physical function thus improving sleep disorders and overall quality of life.

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PEDIATRIC ROBOTIC-ASSISTED GAIT TRAINING VIA AUGMENTED FEEDBACK IN TWO TYPES OF CEREBRAL PALSY

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Introduction. Seventy to eighty percent of children with cerebral palsy (CP) have spastic CP, manifested by increased tone, weakness and impairments in sensation and coordination[1]. A decrease in walking proficiency and economy is the main physical disability in children with spastic CP. Ataxic-Hypotonic cerebral palsy is observed in 10% of children with cerebral palsy[2]. Problems include poor head and trunk control, absence of balance reaction and protective responses, and excessive hypermobile joints. Recent work has examined the feasibility of robotic-assisted gait training in pediatric patients, including children with CP[3] demonstrating beneficial effects of intensive task-specific gait training on motor recovery. Task-oriented rehabilitative gait techniques include Body Weight Supported Treadmill Training (BWSTT). The aim of this study was to investigate the effectiveness of incorporating the Augmented Feedback module in robotic driven gait orthosis (DGO) (pediatric Lokomat©, Hocoma AG, Switzerland) of our 2 studies: 1) a case report of a child with a diagnosis of Hypotonic CP and 2) to compare the results to our previous study in children with spastic CP patients.

Materials and methods. We examined two different studies: 1) Four children with a diagnosis of spastic diplegia due to CP. They were paired based on functional abilities (Gross Motor Function Classification System, GMFCS) and observed gait characteristics. Two subjects were classified as GMFCS III and showed excessive ankle plantar-flexion during stance. The others were classified as GMFCS II with a crouch gait pattern. 2) A 5-year-old girl with a diagnosis of Ataxic-Hypotonic CP. Each subject participated in a 6-week intervention of robotic-assisted gait training involving three 30-minute sessions per week. The study included a baseline data collection, 6 weeks of gait training using a robotic-assisted BWSTT with augmented feedback, a post-intervention data collection and a 3-month follow-up data collection. Pre- and post-training evaluations included tests of standing and walking function (Gross Motor Function Measure, GMFM), walking speed (10 m walk test), and walking endurance (6 minute walk test). Clinical gait analyses were performed using a Vicon 512 motion capture system to assess changes in gait mechanics.

Results. 1) All the subjects showed an improvement in walking function as assessed clinically. The lower functioning children (GMFCS III) showed large improvements in standing function, but few changes in gait mechanics. Conversely, the higher functioning children (GMFCS II) showed improved gait mechanics, including an increased step length, greater peak hip extension, greater peak knee extension and less ankle dorsiflexion in stance. 2) The child with Ataxic-Hypotonic CP successfully completed the 18 training sessions. GMFM scores revealed significant improvements in standing and walking function. The comfortable walking speed (10 m walk test) increased by 38% post-training compared to pre-training, while greater walking endurance (43% increase) was observed using the 6 minute walk test. Gait analyses revealed a reduction in the peak of ankle dorsi-flexion during stance and a bilateral improvement in hip extension during stance.

Conclusions. The present study supports recent findings that robotic-assisted gait training can lead to enhanced walking function in children with CP. For lower functioning children, improvements may be mediated by improved trunk control.

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ESPERIENZE DELLA PRESA IN CARICO RIABILITATIVA DI SOGGETTI CON POLINEUROPATIA AUTOIMMUNE: RILIEVI PRELIMINARI SULL'OUTCOME.

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Introduction. Le polineuropatie autoimmuni sono un gruppo eterogeneo di polineuropatie acquisite con caratteri elettrofisiologici ed istologici di danno demielinizzante o assonale, determinate da un meccanismo patogenetico disimmune. La forma più comune (incidenza annua di 2-4 nuovi casi/100000 abitanti) è la poliradicolonevrite acuta ascendente nota come Sindrome di Guillain Barrè (GBS). La disabilità dei pazienti che ne vengono colpiti è conseguenza del deficit motorio, spesso bilaterale e simmetrico, dei più rari disturbi sensitivi, dell'importante disautonomia (con aritmie cardiache, ipertensione arteriosa e/o ipotensione ortostatica), dell'incostante coinvolgimento dei nervi cranici con disfagia, disartria, disturbi dell'oculomozione e paralisi faciale, e dei muscoli respiratori. Il decorso clinico più tipico è quello monofasico acuto, con corrispettivo patologico di patologia demielinizzante ad interessamento prevalentemente motorio; esiste una variante assonale, non rara, associata a prognosi più severa. In questo studio si espongono alcuni dati preliminari sull'efficacia del trattamento riabilitativo, associato alla terapia medica (plasmaferesi ed infusione endovenosa di immunoglobuline ad alto dosaggio) in pazienti con polineuropatia autoimmune in termini di recupero del deficit motorio e di disabilità.

Materials and methods. Si è descritta l'evoluzione nel tempo del decorso della patologia di 4 pazienti ricoverati presso l'U.O. di Medicina Fisica e Riabilitazione del Policlinico di Bari con riferimento al deficit motorio (valutato con la scala Medical Research Council MRC sia agli arti superiori AASS sia agli arti inferiori AAII) ed alla disabilità (Barthel Index BI). *Le valutazioni sono state effettuate al momento del ricovero (T0), dopo 2 settimane (T1) e dopo un'ulteriore settimana (T2).*

Results. Due di questi pazienti, di sesso maschile, hanno presentato all'esordio un quadro elettroneurografico di patologia demielinizzante pura in fase non attiva. A T0 si presentavano con un danno motorio moderato (MRC medio tot AASS=24/40; MRC medio tot AAII=21,75/35) ed un grado moderato di disabilità (BI medio=50/100). Essi hanno mostrato un'ottimale recupero riportando alle valutazioni a T1 MRC medio tot AASS= 30/40 e MRC medio tot AAII= 33,5/35 e BI medio=80/100; a T2 sono stati registrati i seguenti valori: MRC medio tot AASS=34,75/40, MRC medio tot AAII= 34/35 e BI medio=87,5/100. *In altri due casi il recupero è stato più lento ed incompleto. Si tratta di due pazienti di sesso femminile, con danno assonale in un caso primitivo e nell'altro secondario alla demielinizzazione. A T0, MRC medio tot AASS= 9/40 e MRC medio tot AAII=5/35 e BI medio=10/100. A T1, MRC medio tot AASS=17/40 e MRC medio tot AAII= 7,75/35 e BI medio=10/100. A T2, MRC medio tot AASS=18/40, MRC medio tot AAII=8/35 e BI medio= 10/100.*

Conclusions. Sia nelle forme con esclusivo danno demielinizzante sia nelle forme con danno assonale, primitivo o secondario, il trattamento riabilitativo, associato alla terapia con plasmaferesi ed immunoglobuline ad alti dosaggi, si è mostrata utile nel favorire il recupero della forza muscolare, ma solo nelle forma demielinizzanti pure si è riscontrata una una riduzione significativa del grado di disabilità.

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MULTIMODAL ANALGESIA AND REHABILITATION PROTOCOL IN TOTAL KNEE REPLACEMENT: A PILOT STUDY

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Introduction. Pain is of considerable concern in patients undergoing total knee replacement (TKR). Although uncontrolled pain is an acknowledged obstacle to functional recovery, analgesic strategies during rehabilitation have yet to be integrated into clinical practice; in fact, a pain reduction is able to

promote the recovery of physiological voluntary muscle contraction. Oxycodone is effective in alleviating postoperative pain, moreover a recent association with naloxone has shown to significantly reduce the incidence of side effects. Moreover, the surgical stress response includes inflammatory components; nonsteroidal antiinflammatory drugs (NSAIDs) have been reported to decrease pain scores postoperatively and are used synergistically with opioids. Furthermore, previous studies demonstrated the efficacy of perioperative administration of corticosteroids to improve analgesia and immediate recovery after TKR, even when combined with a multimodal analgesic regime. Given the expanding numbers of arthroplasties, the optimal postoperative management is becoming increasingly important as a public-health concern. If pain control affects restoration of functional autonomy, and/or postoperative utilization of resources, the clinical and economic consequences of pain control could be substantial. We conducted a randomized, double-blind, placebo-controlled trial to assess whether multi-modal pain treatment (preoperative steroids administration, COX-2 inhibitors and controlled-release opioids) is able to provide superior control of postoperative pain resulting in better functional recovery following unilateral TKR in comparison with on-request, immediate release analgesics.

Materials and methods. Patients who were scheduled for unilateral TKR for osteoarthritis were eligible; included patients (n=33) were randomly allocated to study or control group. The severity of preoperative pain was assessed using a visual analogue scale (VAS), both at rest and during activity (flexion-extension active movement). Postoperative pain was assessed in two ways: pain at rest was assessed by measuring VAS at days 4 and 15, and pain during activity was assessed by VAS at days 4 and 15. Passive Range of Motion (ROM) was recorded preoperatively and postoperatively at days 4 and 15. Patients of study group (n=17) started on the day before intervention with Oxycodone-Naloxone (ON) 20 mg-10 mg every 12 hours; in addition, they received a single dose of Metil Prednisolone 125 mg i.v. just before performing anaesthesia. After operation, this group continued with ON 20 mg-10 mg every 12 hours and Etoricoxib 90 mg daily for 2 days, then they received only ON 10-5 mg every 12 hours for 10 days. The placebo group (n=16) received acetaminophen-codeine 500-30 mg as needed (three doses/day maximum) for 15 days. Both groups participated in a standard rehabilitation program for three hours each day.

Results. Compared with the control group, a significant and early improvement in pain control was observed in patients who received multimodal treatment at day 4, both at rest and during activity ($p<0.05$). Moreover, these patients showed a significantly greater gain in ROM of the knee at days 4 and 15 ($p<0.05$).

Conclusions. A multimodal analgesia protocol in TKR leads, associated to rehabilitation treatment, to improved pain control and more rapid functional results.

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MODIFICAZIONI DELLA CLASSIFICAZIONE ICF E DELLA SCALA FIM NEI PAZIENTI AFFETTI DA SPASTICITÀ SOTTOPOSTI A TRATTAMENTO CON TBA.

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Introduction. L'ipertono spastico, conseguenza di numerose patologie neurologiche, è causa di disabilità per il paziente che ne è affetto, ripercuotendosi sulla sua indipendenza e qualità di vita. L'efficacia ottimale di un trattamento focale della spasticità richiede la combinazione di una terapia farmacologica e di un trattamento fisioterapico. **S**i è dimostrato utile l'impiego della tossina botulinica, potente agente miorilassante che, a livello presinaptico, blocca il rilascio di acetilcolina, il principale neurotrasmettitore coinvolto nella contrazione muscolare. L'iniezione locale con TB nel muscolo appare efficace, sicura e completamente reversibile. Le modificazioni in eccesso del tono muscolare vanno a condizionare alterazioni delle funzioni e strutture corporee, dell'attività e partecipazione nonché dell'autonomia nelle attività della vita quotidiana. Con questo lavoro ci siamo proposti di individuare le differenti problematiche correlate alla spasticità, che più frequentemente sono emerse durante la nostra attività di Day Hospital, e di verificare le modificazioni che hanno rilevato gli strumenti valutativi utilizzati, in particolare la CL dell'ICF e la scala FIM. Questo per consentire alle persone con spasticità il miglioramento dell'autonomia nello svolgimento delle attività di vita quotidiana e di verificare, quindi, il raggiungimento degli obiettivi formulati nel progetto e nel programma riabilitativo.

Materials and methods. Il lavoro, iniziato nell'estate 2008 e tutt'ora in corso, ha permesso di arruolare 38 pazienti, di cui 19 M e 19 F con età media di 50,07±22,57, ricoverati in regime di Day Hospital presso la nostra U.O.C di Medicina Fisica e Riabilitativa. Tutti i pazienti, dopo un'accurata raccolta anamnestica ed un esame obiettivo completo, sono stati classificati con la Check-list ICF e valutati con la scala FIM. Ciascun paziente è stato sottoposto a valutazione clinica prima dell'inoculazione con TB (T1), a 15 giorni dal trattamento fisioterapico post-inoculativo (T2) e a 3 mesi (T3). Sono stati utilizzati i seguenti strumenti di valutazione e classificazione: -Misurazione goniometrica per rilevare l'escursione articolare passiva; -Scala MRC per misurare la forza muscolare; -Motricity Index nei pazienti emiplegici; -Scala FIM per valutare il carico assistenziale del pz; -Scala di valutazione della spasticità secondo Ashworth (non la scala modificata di Bohannon e Smith); -Classificazione ICF per definire lo stato di salute ed i fattori contestuali. Questo lavoro di revisione casistica è stato successivamente utilizzato per la stesura del Progetto-Programma riabilitativo. Subito dopo l'inoculazione di TBA i pazienti sono stati sottoposti per almeno 15 giorni a cadenza quotidiana a trattamento riabilitativo comprensivo di stretching dei muscoli infiltrati e mobilizzazione passiva ed attiva-assistita specifica dei distretti mioarticolari interessati.

Results. Dai valori ottenuti con la somministrazione della scala FIM risulta che i pazienti affetti da spasticità prima dell'inoculazione di TBA (T1) mostrano quadri diversi nell'autonomia funzionale, passando da livelli di assistenza intensa a livelli di autosufficienza con adattamenti al tempo T2 e T3. I dati rilevati con la somministrazione della CL dell' ICF al tempo T1, T2 e T3 prevedono l'attribuzione, a ciascuno dei codici identificati, di un qualificatore, il cui valore permette di quantizzare l'importanza di ogni singola categoria per la popolazione oggetto di studio. Dal campione analizzato si è visto che in una percentuale di casi residua una limitazione delle attività nonché una restrizione alla partecipazione.

Conclusions. Le modificazioni della check-list ICF e della scala FIM, nei pazienti sottoposti ad inoculazione con TBA, hanno dimostrato quanto questo trattamento possa influenzare molti fattori relativi alla salute di questi soggetti. Il problema fondamentale in questa casistica si rivela essere il mantenimento del temporaneo risultato raggiunto che in maniera evidente decade con il funzionamento della TBA, anche se la condizione funzionale finale risulta mediamente migliore di quella di partenza. Questo conferma la nostra opinione che l'intervento inoculativo debba essere inserito in un progetto molto ben coeso e attivo. La check-list più di altri indicatori permette di rilevare i campi in cui attuare programmi da verificare nel tempo, la FIM permette di seguire l'andamento nel tempo delle modificazioni dei livelli di autonomia dei pazienti esaminati.

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ASSESSMENT OF QUALITY OF LIFE IN PATIENTS AFTER STROKE

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Introduction. Cerebrovascular accident causes permanent disorders and these patients become invalids with specific social problems, caused either by their physical or mental disability, which requires rehabilitation and conditions for self-support, economic and social reintegration. The aim of this study is to establish different domains of the quality of life (by using several standardized tests) according to aetiology, lateralization and location of the lesion and to compare with healthy persons.

Materials and methods. The study includes 60 stroke survivors who were treated at the Clinic for Medical Rehabilitation of the Clinical Centre of Novi Sad, during the period October 1, 2008 – October 1, 2010. The evaluation was done at rehabilitation admission, at discharge, and the outcomes 6

and 12 months after discharge. Control group includes 60 healthy persons, of the same age, different sex and professions.

Results. The obtained results show that after rehabilitation treatment there are statistically significant improvement in all domains of the quality of life and that all results are significantly worse comparing to healthy persons. According to sex, lateralization, aetiology and location of lesion there are no statistically significant differences..

Conclusions. The results of the study point to the fact that the quality of life in stroke survivors are significantly worse than in healthy persons, as well as to the significance of an early rehabilitation of patients after stroke.

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VALUTAZIONE DELL'EFFICACIA DEL BACLOFEN INTRATECALE NEL TRATTAMENTO DELLA DISTONIA IN PAZIENTI AFFETTI DA PARALISI CEREBRALE INFANTILE: CASE REPORT

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Introduction. La distonia è un disturbo del movimento caratterizzato da contrazioni muscolari involontarie, che costringono alcune parti del corpo ad assumere posture o movimenti anormali e spesso dolorosi e ripetitivi. La distonia può colpire qualunque parte del corpo, ad esempio le braccia, le gambe, il tronco, il collo, le palpebre, il viso o le corde vocali. La distonia insieme ad altri disturbi del movimento come ad esempio l'ipertono spastico spesso caratterizzano a vario grado quadri clinici di paralisi cerebrale infantile. La somministrazione intratatecale di baclofene tramite pompa di infusione (ITB) può rappresentare un'opzione terapeutica nei casi di alcune malattie caratterizzate da ipertono. Numerosi lavori in letteratura tuttavia dimostrano l'efficacia del trattamento intratecale nel ridurre la distonia oltre che l'ipertono spastico nelle paralisi cerebrali infantili [1], [2]. Tuttavia non sempre tale approccio terapeutico risulta risolutivo sulla componente distonica soprattutto quando essa non si associa a ipertono spastico. Preserntiamo il caso di un ragazzo di 14 anni, affetto da paralisi cerebrale infantile, già portatore di sitema di infusione intratecale di baclofen da circa 3 anni, giunto alla nostra attenzione per la gestione della terapia antispastica.

Materials and methods. Alla valutazione obiettiva si riscontrava grave tetraparesi, non limitazioni del rom articolare alla mobilizzazione passiva in nessun distretto esaminato, grave distonia del capo, del collo e dell'emilato sinistro, ipotrofia muscolare diffusa, scoliosi toraco-lombare destra. Il grado di distonia è stato valutato attraverso la Unified Dystonia Rating Scale [3] e si attestava su un valore di 3 (distonia severa) per i segmenti corporei interessati. L'ipertono è stato valutato attraverso la scala di Ashworth e in tutti i distretti esaminati si attestava su un valore di 0. La dose giornaliera di baclofene intratecale somministrata era di 620 µg/die in modalità di infusione continua semplice alla concentrazione di 2000µg/ml. I care-givers non hanno riferito sostanziali variazioni del quadro clinico rispetto al periodo pre-impianto, e in relazione a questo dato recentemente era stata confermata l'integrità dell'impianto e il suo corretto funzionamento con radiogrammi e test contrastografici. Per le scarse condizioni nutrizionali, a distanza di 2 anni dalla nostra presa in carico, il paziente ha sviluppato una lesione da decubito a livello della cute sovrastante l'infusore a livello della tasca addominale. L'utilizzo di medicazioni avanzate e di presidi antidecubito non ha impedito l'evoluzione peggiorativa della lesione in soluzione di continuo della cute. Tale quadro clinico ha imposto la rimozione dell'impianto di infusione intratecale di baclofen in breve tempo. L'intervento di rimozione dell'impianto è stato preceduto da riduzioni scalari del dosaggio giornaliero di baclofen intratecale e dalla progressiva integrazione di baclofen per os, in modo da evitare complicanze da sottodosaggio di farmaco.

Results. Dal punto di vista clinico, non si sono evidenziate variazioni del quadro neuromotorio, sia nella fase della progressiva riduzione del dosaggio, sia dopo la rimozione dell'impianto. In particolare, in nessun distretto muscolare si è assistito ad un incremento del tono muscolare, e il punteggio alla Unified Dystonia Rating Scale non si è modificato. A distanza di un mese dalla rimozione dell'impianto, è stato possibile svezzare il paziente dalla terapia orale con baclofen senza il manifestarsi di alcuna complicanza e senza variazioni del quadro neuromotorio.

Conclusions. La terapia con Baclofen intratecale non modifica né la malattia nè il suo decorso, si tratta infatti di un trattamento sintomatico il cui compito è alleviare il sintomo bersaglio (spasticità e/o distonia). La riduzione dell'ipertono può portare ad un miglioramento del quadro clinico, ma talvolta la progressione della patologia e le possibili complicanze possono nel tempo rendere insufficiente di tale trattamento. Il caso clinico presentato, tuttavia, impone una riflessione sulla corretta valutazione delle indicazioni di tale terapia e sulla accurata selezione del paziente oltre che sui meccanismi fisiopatologici alla base della distonia che devono essere alla base dell'approccio terapeutico. In conclusione, esiste un generale consenso sull'efficacia dell'ITB nella riduzione delle distonie, in particolar modo nelle distonie secondarie, ma sono necessari studi scientifici rigorosi che ne dimostrino l'evidenza.

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THERMAL EFFECTS OF THERAPEUTIC ULTRASOUND ASSESSED ON A JOINT-MIMICKING PHANTHOM

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Introduction. Therapeutic ultrasound (US) is used in physiotherapy to treat a variety of inflammatory and post-traumatic diseases. Most of its effects depends on the ability of inducing a local thermal increase, which elicits local vasodilatation and toxic substances washout. A quantitative assessment of the local temperature increase, depending on the US parameters (frequency, emitted power, pulsed or continue waves) and the treatment modalities (fixed field or massage, duration of the treatment) is however often misconsidered in Physioterapy Units, although it could be usefully and simply investigated on joint mimicking muscle-equivalent phantoms.

Materials and methods. The clinical apparatus Sonopulse 434, Enraf Nonius, Rotterdam, NL, operating at 1 and 3 MHz was used to simulate currently delivered treatments on a home-made agar-based phantom, which contains at one end a bovine bone disk 2 mm thick inserted at 3 cm depth (simulating a 'deep joint') and at the other end a bovine bone disk 1 mm thick inserted at 1 cm (simulating a 'superficial joint'). Deep and superficial 'joints' were treated at 1 and 3 MHz respectively. Thermal probes, built by connecting resistive elements to thin metallic fibers to a home-made digital signal processor, were inserted in fixed positions both in front of and behind the 'joints'. Measurements were taken before, during and after sonications lasting 5 minutes and performed using the most diffused clinical treatment modalities. Data were collected on a PC for off-line evaluation. Experiments were performed at our Dep of Rehab Med by our multidisciplinary team.

Results. Significant temperature increments were detected both in front and behind the bones, being their actual values critically dependent on the treatment modality. In particular, a dramatic temperature increase (up to 10 °C) was observed operating at fixed field using continuous ultrasound waves. On the contrary, when the probe was moved during treatment, and pulsed ultrasound waves were used, the temperature increase was far less important. In all cases thermal effects were detected also in the deepest positions, up to 2 cm behind the bone.

Conclusions. Such quantitative indications can be useful to define more precisely which US parameters and treatment modality should be selected to adequately sonicate any specific joint, in order to induce the expected thermal effects and clinical advantages. The study will systematically investigate equipment and treatment modalities normally used in physical therapy, in order to define specific operative protocols for different diseases and conditions.

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VALUTAZIONE DELLA FORZA E DELL'EQUILIBRIO IN SPORTIVI OPERATI DI RICOSTRUZIONE ARTROSCOPICA DEL LEGAMENTO CROCIATO ANTERIORE CON TENDINE ROTULEO E SEMITENDINOSO E GRACILE

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Introduction. Dopo ricostruzione artroscopica del legamento crociato anteriore può verificarsi l'insorgenza di un deficit di forza e propriocettivo. Nel presente lavoro viene valutato il recupero di queste ultime a 12 mesi dall'intervento di sostituzione del legamento crociato anteriore con tendine rotuleo o semitendinoso e gracile in un gruppo di sportivi.

Materials and methods. Sono stati reclutati 40 pazienti, di età media 29 anni, suddivisi in 2 gruppi di 26 maschi e 14 femmine. Ciascun gruppo è stato sottoposto ad una valutazione comparativa a distanza di 12 mesi, dell'arto sano e di quello operato con Ergo Jump test, Stiffness test, test isocinetico (forza ed endurance a velocità angolare di 90°/sec e 180°/sec) e test stabilometrico. I risultati ottenuti sono stati sottoposti a valutazione statistica con T test per campioni indipendenti considerando significativo un punteggio di p≤0,05.

Results. Il test isocinetico non ha evidenziato, sia nel gruppo dei maschi che delle femmine, risultati statisticamente significativi per quanto riguarda il picco di forza e la potenza media dei muscoli quadricipite e ischiocrurali. Dall'analisi dei risultati ottenuti nel gruppo delle femmine, sono emerse differenze statisticamente significative per l'altezza massima (p=0.049) e la potenza massima (p=0,02) nel salto squat nei casi di innesto con semitendinoso e gracile. Nei soggetti maschi trapiantati con semitendinoso e gracile, il test stabilometrico ad occhi aperti ha evidenziato valori significativi per le oscillazioni antero-posteriori F(+)B(-) (p=0,044). Lo stesso test effettuato nel gruppo delle femmine trapiantate con semitendinoso e gracile ha mostrato differenze statisticamente significative delle oscillazioni latero-laterali R(+) L(-) (p=0.040).

Conclusions. In base ai risultati ottenuti, non si può affermare che, al termine del percorso riabilitativo, a distanza di un anno dall'intervento, il tipo di trapianto condizioni il recupero della forza; al contrario, il tipo di innesto sembra condizionare il recupero propriocettivo.

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EPIDEMIOLOGIA E FATTORI PREDISPONENTI NELLE DISTORSIONI DI CAVIGLIA DURANTE LA STAGIONE AGONISTICA NELLE SQUADRE DI CALCIO DELLA PROVINCIA DI PARMA

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Introduction. Il calcio è lo sport piu' popolare al mondo, conta circa 200 milioni di praticanti secondo i dati forniti dalla Federazione delle Associazioni Internazionali di calcio.

(FIFA). La distorsione di caviglia rappresenta di fatto ben il 75% di tutti i traumi della caviglia e l'articolazione tibiotarsica viene interessata da eventi traumatici acuti nel corso di molte discipline sportive e fra queste il calcio presenta la piu' alta percentuale. Il presente studio ha lo scopo di verificare l'incidenza dei traumi distorsivi tibio-tarsici in calciatori militanti in squadre della provincia di Parma nella stagione agonistica 2006 e le possibili correlazioni degli stessi con fattori di rischio.

Materials and methods. Sono state contattate 66 società sportive della provincia di Parma associate alla F.I.G.C.: 16 squadre militanti in Terza categoria, 24 in Seconda categoria, 12 in Prima categoria, 10 in Promozione, 3 in Eccellenza e una in Serie A. Queste sono state poi suddivise in tre gruppi: "dilettanti" (Terza, Seconda, e Prima categoria), "semiprofessionisti" (Promozione ed Eccellenza,) e "professionisti" (Serie A). Per valutare la frequenza, il numero di traumi distorsivi tibio-tarsici occorsi agli atleti nel corso della stagione agonistica 2005/06 e la correlazione di questi con altre variabili, è stata proposta a ciascuna squadra una scheda comprendente diversi punti:

- Dati anagrafici.
- Altezza, peso, e B.M.I.
- Ruolo: suddivisione in portieri, difensori, centrocampisti e attaccanti,
- Dominanza.
- Anni di attività calcistica.
- Mese dell'infortunio.
- Situazione dell'infortunio.
- Condizioni del terreno di gioco.
- Tipo di scarpa.
- Grado di allenamento: valutazione soggettiva della condizione fisica.
- Numero di allenamenti settimanali.
- Caviglia infortunata.
- Precedenti infortuni.
- Meccanismo patogenetico.
- Tipo di trattamento.
- Complicanze e/o recidive.

Results. In totale i calciatori militanti nelle società sportive della provincia di Parma erano 1452, fra questi 1144 (78,8%) erano dilettanti, 286 (19,7%) semiprofessionisti e 22 (1,5%) professionisti Nella stagione agonistica 2005/2006 si sono verificate cinquantatre distorsioni di caviglia. Fra dilettanti e semiprofessionisti non c'è differenza significativa (p=0.204). Fra professionisti e non professionisti la differenza è significativa (p=0.007). In sostanza l'incidenza di distorsioni alla caviglia non è significativamente diversa fra il gruppo dei dilettanti e quello dei semiprofessionisti e all'interno delle diverse categorie di entrambi, mentre è più alta nel gruppo dei professionisti.

Conclusions. L'incidenza di distorsioni non è significativamente diversa fra i dilettanti e i semiprofessionisti, mentre è più alta nel gruppo dei professionisti, dove raggiunge un valore del 18.18%. L'attività sportiva praticata ad alti livelli rappresenta quindi un fattore di rischio. La differenza fra il trauma distorsivo verificatosi durante la partita e quello avutosi nel corso dell'allenamento è ai limiti della significatività, anche se nel 64.2% dei casi è avvenuto nella prima situazione. Quasi la metà delle distorsioni alla caviglia vede come meccanismo patogenetico un contrasto; questo deve far riflettere sul fatto che, anche se il calcio resta uno sport di contatto. L'incidenza di distorsioni è molto bassa tra i portieri; non è significativamente differente fra gli altri ruoli. Esiste un'associazione significativa fra il trauma distorsivo e gli infortuni precedentemente subiti dall'atleta.

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APPLICAZIONE DELLA CLASSIFICAZIONE ICF NELLA DEFINIZIONE DELL'OUTCOME FUNZIONALE DEL PAZIENTE CON MIELOLESIONE INCOMPLETA

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Introduction. Classificazione ICF come strumento per la descrizione del funzionamento e della disabilità delle persone con lesione midollare incompleta, nell'ambito di un progetto riabilitativo. globale. Verificare l'efficacia di ICF nella definizione del quadro funzionale del paziente con lesione midollare incompleta. L'obiettivo specifico è verificare se, nella codifica della componente Attività e Partecipazione, l'adozione del qualificatore performance sen-

za assistenza consenta di evidenziare con maggior precisione le competenze raggiunte dal paziente con l'intervento del solo ausilio e di definire in modo più efficace l'entità dell'assistenza.

Materials and methods. Lo studio, svolto presso Montecatone R.I., ha coinvolto 20 pazienti con quadro di tetraplegia incompleta. È stato utilizzato un set di codici ICF appartenenti alla componente "Attività e Partecipazione" selezionati dall'ICF Core Set per la mielolesione nella fase post-acuta. Per la codifica di questa componente sono stati utilizzati i qualificatori capacità, performance e performance senza assistenza. La codifica è stata effettuata dopo una settimana dalla riacquisizione della posizione seduta e trenta giorni prima della dimissione.

Results. Incremento sia della capacità che della performance. L'utilizzo del qualificatore performance senza assistenza ha permesso di leggere più chiaramente quanto l'incremento della performance sia legato all'assistenza e quanto all'ausilio.

Conclusions. Il qualificatore performance senza assistenza è risultato essenziale poiché ha permesso di definire per quali attività e in che entità sia necessaria assistenza.

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LINFODRENAGGIO MANUALE E QOL NEL LINFEDEMA DOPO CHIRURGIA PER CARCINOMA MAMMARIO

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Introduction. Il linfedema rappresenta una patologia disabilitante cronica la cui incidenza dopo intervento chirurgico per carcinoma mammario si attesta intorno al 20-25% nelle pazienti sottoposte a linfoadenectomia, fino a raggiungere il 35% nelle pazienti sottoposte anche a terapia radiante. L'impatto sulla qualità di vita (QOL) di questa patologia è notevole incidendo, oltre che sull'aspetto fisico, anche su quello psico-sociale e funzionale. Nel nostro studio abbiamo valutato l'efficacia del trattamento con linfodrenaggio manuale sull'entità dell'edema e sulla QOL dei pazienti.

Materials and methods. Tra Gennaio 2007 e Giugno 2012 64 pazienti (63 femmine e 1 maschio, età media 57,14 anni) sono stati valutati e trattati per linfedema all'arto superiore dopo intervento per carcinoma mammario; nell'82,8% dei casi l'intervento comprendeva la linfoadenectomia ascellare, in 51 pazienti era stata effettuata chemioterapia e/o radioterapia. Nel 53,1% dei casi la diagnosi è stata posta in sede di valutazione fisiatrica. Ad ogni paziente è stato prescritto almeno un ciclo di 10 sedute di linfodrenaggio manuale (LDM); al trattamento è stato associato uno schema di esercizi autogestiti al domicilio per il recupero funzionale dell'arto superiore e sono state consigliate norme igienico-comportamentali per la prevenzione di episodi linfangitici. La QOL è stata valutata tramite Scala di Weiss (Weiss Scale for Lymphoedema) alla prima e all'ultima seduta di trattamento. La scala consta di 17 items divisi in tre clusters: fisico, psicosociale e funzionale. Per ogni item il paziente attribuisce un punteggio da 1 (nessun disturbo) a 7 (grave disturbo); a un punteggio maggiore corrisponde pertanto una peggiore QOL. Contestualmente è stata effettuata la misurazione centimetrica dell'arto affetto rispetto al controlaterale con il calcolo della relativa differenza in cm.

Results. Il 40,6% del campione esaminato ha iniziato il trattamento con LDM entro 3 mesi dalla diagnosi di linfedema; l'87,5% entro un anno. La differenza centrimetrica media si riduce da 1,49 cm iniziali a 1,41 cm dopo il trattamento (p=0,66). Il punteggio totale medio alla scala di Weiss passa da 58 punti nel pre-trattamento a 53 all'ultima seduta, con un miglioramento della QOL dell'8,6% (p=0,156); considerando i singoli cluster, quello fisico ha un miglioramento dell'11,8% (p=0,08), quello psicosociale dell'11,1% (p=0,35) e quello funzionale del 6,6% (p=0,8). In particolare il dolore (item n.1) risulta correlato ai disturbi di tipo sensitivo (item n.2) quali pesantezza (p=0,001) prima del trattamento e formicolio (p<0,0001) e pesantezza (p=0,0004) dopo il trattamento. La percezione delle dimensioni dell'arto (item n.3) correla con l'effettiva differenza centimetrica tra arto affetto e arto sano sia nel pre (p=0,043) che nel post trattamento (p<0,001); la scelta dell'abbigliamento (item n.15) viene invece condizionata dall'immagine del proprio corpo (item n.8) sia nel pre che nel post-trattamento (p<0,001).

Conclusions. Considerando il carattere cronico del linfedema, nei pazienti trattati con LDM si è riscontrata una riduzione della differenza centimetrica media e un miglioramento del punteggio ottenuto alla Scala di Weiss per la QOL, seppur in assenza di significatività. Il dolore risulta collegato ai disturbi di tipo sensitivo e viene sottolineata l'importanza della componente psicologica della patologia sulla QOL.

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QUALITY OF LIFE AMONG HIGH-RISK PATIENS UNDERGOING TRANSAPICAL AORTIC VALVE IMPLANTATION AND REHABILITATION

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Introduction. Over the last years, the prolongation of life expectancy and the introduction of new mininvasive surgical approaches have brought to an increase of surgical interventions in patients with high comorbidities and elevate operative risk for traditional surgery. In patients with severe aortic stenosis and high operative risk, the transcatheter aortic valve implantation (TAVI) is indicated. In those patients, new goals are gaining importance for social and economics relapses, such as pain control, maintenance of independence in daily life activities and quality of life.

Aim. of our study was to evaluate quality of life one year after TAVI among patients with severe aortic stenosis and high comorbidities.

Materials and methods. Between March 2009 and June 2012, 39 patients (mean age 82 years, 68% females), with high risk for traditional surgery (mean log EuroScore1: 25.2±11.9; mean EuroScore2: 7.5±4.9: mean STS-Score: 7.1±3.3) underwent Edwards Sapien transapical aortic valve implantation, followed by a training of respiratory and motor rehabilitation during the acute phase (mean duration 7 days). Quality of life was evaluated by administering the Minnesota Living with Heart Failure Questionnaire (MLHFQ) and EQ-5D test before and 1-year after TAVI. To compare preoperative and 1-year results, Wilcoxon signed-rank test was used.

Results. In-hospital and 1-year mortality were 0% and 17.9% respectively. At the discharge, 78% of patients recovered the deambulation. The preoperative and 1- year assessment of quality of life was available for 22 patients. The MLHFQ showed a significant enhancement in quality of life (p=0.005), as it was significantly increased the perception of the global health state at 1-year follow-up (p=0.001) and compared to one year before (p<0.001). The EQ-5D test showed a reduction of pain/discomfort (p=0.029) and no differences in terms of mobility (p=0.74), self-care (p=0.48), usual activities (p=0.22) and anxiety/depression (p=0.09).

Conclusions. One year after TAVI, patients showed global health state benefit especially in what concerns the influence of heart failure on the physical, emotional, social, and mental dimensions of quality of life. A long-term rehabilitation program could be planned to improve mobility and independence in daily life activities.

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TRATTAMENTO CONSERVATIVO DELLE TALLODINIE PLANTARI E POSTERIORI: STATO DELL'ARTE

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Introduction. Essendo la fascite plantare la causa più comune di tallodinia e considerando la variabile eziologia e la prevalenza del sintomo, sorge un vivo interesse riguardo le molteplici tecniche di trattamento conservativo.

Materials and methods. La ricerca è stata eseguita utilizzando le seguenti parole chiave: plantar fascitis, heel pain, extracorporeal shock wave therapy, stretching, plantar fascia thickness, phisical therapy, rehabilitation. Abbiamo utilizzato i seguenti limiti: di tempo (ultimi 10 anni), umani.

Results. Le scale utilizzate più frequentemente nella valutazione dell'efficacia di un determinato trattamento sono la scala del dolore VAS e quella FFI (foot function index). L'utilizzo di calzature con l'eventuale aggiunta di plantari ortopedici dedicati, il riposo funzionale e lo stretching sono le indicazioni più corrette per diminuire il sovraccarico funzionale plantare. Lo stretching della fascia plantare è risultato fondamentale nel trattamento della componente dolorosa mentre il trattamento dei trigger points abbrevia i tempi di recupero. Nelle fasi acute il trattamento con lo stretching ha riportato migliori risultati rispetto alle onde d'urto a bassa energia, mentre nelle fasciti croniche e resistenti è emerso come le onde d'urto ad alta energia possano portare a notevoli regressioni dei sintomi. È stato inoltre dimostrato come, attraverso l'utilizzo diagnostico e terapeutico degli ultrasuoni con le rispettive dedicate frequenze, la diminuzione dello spessore della fascia plantare coincida con una significativa riduzione della tallodinia; in relazione a ciò è risultato statisticamente significativo come l'iniezione locale di corticosteroidi riduca lo spessore, l'edema perilesionale e di conseguenza il dolore. La radioterapia a basse dosi ha portato a buoni risultati nel controllo del dolore nel breve e lungo periodo, ma il rischio di gravi effetti collaterali ne controindica il corrente utilizzo. La tossina botulinica utilizzata a scopo antalgico ha portato a risultati statisticamente significativi, mentre non è risultata significativa nel ridurre l'inspessimento e l'edema a livello della fascia plantare. Studi singoli propongono terapie quali agopuntura, step di scarico e IPST (intracorporeal pneumatic shock therapy) che dimostrano miglioramenti soggettivi ma non statisticamente significativi.

Conclusions. È stato dimostrato come diverse tecniche e metodiche riabilitative arrechino un reale beneficio al paziente sebbene non risultino statisticamente significative. In letteratura sono presenti risultati contrastanti nel breve e nel lungo periodo probabilmente poiché la precisa eziologia della fascite plantare e la componente soggettiva della manifestazione algica non permettono una corretta standardizzazione dei risultati. Nella quotidiana pratica terapeutica vengono contemporaneamente utilizzate terapie fisiche, infiltrative ed esercizi fisioterapici: risulta dunque difficile, attraverso questa tipologia di review, individuare quale sia il migliore trattamento durante le diverse fasi sintomatologiche della fascite plantare. Si rende quindi necessario individuare procedure terapeutiche validate scientificamente al fine di redigere linee guida standardizzate mirate al corretto trattamento di ogni quadro clinico caratterizzante la fascite plantare.

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ICF E LINFEDEMA

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Introduction. La SIMFER ha iniziato un percorso di modifica delle Sezioni di Studio, rapportandole alla Classificazione Internazionale del Funzionamento. Il gruppo di studio dell'edema e delle patologie vascolari periferiche e delle ulcere ha già proposto valicato un Indice di disabilità (di Ricci) dal linfedema che risponde a pieno a questa prerogativa per quanto riguarda l'attività e partecipazione. In questo lavoro l'autore propone una modalità di categorizzazione del linfedema negli altri domini dell'ICF.

Materials and methods. L'autore mostra una serie di proposte che conducono alla descrizione clinica e non solo del linfedema utilizzando la classificazione in titolo. Tale descrizione è in grado anche di orientare e modificare la condotta terapeutica degli operatori.

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TRIGEMINAL NEURALGIA - CASES REPORTS.

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Introduction. Trigeminal neuralgia, also known as tic douloureux, prosopalgia, the Suicide Disease or Fothergill's disease is a neuropathic disorder characterized by episodes of intense unilateral pain in the face, often accompanied by a brief facial spasm or tic, originating from the trigeminal nerve, that last from a few seconds to several minutes or hours. The attacks are said by those affected to feel like stabbing electric shocks, burning, pressing, crushing, exploding or shooting pain. One theory refers to the possibility of an enlarged blood vessel - possibly the superior cerebellar artery - compressing or throbbing against the microvasculature of the trigeminal nerve near its connection with the pons, leading to pain. Other causes are an aneurysm, a tumor, an arachnoid cyst in the cerebellopontine angle or a traumatic event such as a car accident or a tooth removal. In about 85% of cases, no lesion is identified, even after extensive investigations, and the etiology is labeled idiopathic by default. Patients with characteristic history and normal neurologic examination may be treated without further workup. Some physicians recommend elective MRI for all patients to exclude an uncommon mass lesion or aberrant vessel compressing the nerve roots. Botulinum toxin type A has been studied as a potential tool in the treatment of several pain syndromes. It has been used in trigeminal neuralgia when it becomes unresponsive to other treatments such as carbamazepine, oxcarbazepine, phenytoin, clonazepam, lamotrigine, valproic acid, gabapentin and pregabalin.

Materials and methods. Three patients, with different causes of trigeminal neuralgia, were treated with botulinum toxin type A. Case 1: A 51-year-old female presented in Neurorehabilitation consultation after a tooth removal, with severe paroxysmal pain, which she described as an electric shock, in the left hemifacial area, mainly involving the territory of the left maxillary (V2) branch. The trigger point was located in the left nasolabial fold. The patient said that at one time she wished death. Neurological examination was normal. A brain MRI with contrast enhancement was normal. She was treated before with carbamazepine, gabapentin and oxcarbazepine. Forty units (40U) of botulinum toxin type A (Botox®) were injected in the V2 trigeminal area. Case 2: A 66-year-old female presented in Neurorehabilitation consultation after a dental implant, with severe pressing pain, involving the territory of the left mandibular (V3) branch. Neurological examination was normal. A brain MRI with contrast enhancement was normal. She was treated before with pregabalin. Forty units (40U) of botulinum toxin type A (Botox®) were injected in the V3 trigeminal area. Case 3 A 68-year-old female presented in Neurorehabilitation consultation. She was targeted in the face fourteen years ago and since there she has a crushing pain in the left hemifacial area, mainly involving the territory of the left maxillary (V2) branch and the left mandibular (V3) branch. Neurological examination was normal. A brain MRI with contrast enhancement shows the bullet inside of the skull. She was treated before with gabapentin. One hundred and fifty units (150UI) of botulinum toxin type A (Dysport®) were injected in the V2 trigeminal area and thirty units (30UI) in pre-auricular area.

Results. Case 1: Baseline VAS evaluation: 10 points. Evaluation at 12 week post-injection: VAS: 5 points. Case 2: Baseline VAS evaluation: 10 points. Evaluation at 12 week post-injection: VAS: 6 points. Case 3: Baseline VAS evaluation: 10 points. Evaluation at 12 week post-injection: VAS: 5 points.

Conclusions. Trigeminal neuralgia is a neuropathic disorder characterized by episodes of intense unilateral pain in the face. In this three cases we observed different etiologies for this acute pain. The treatment with botulinum toxin type A seemed to have good results in decreasing pain in these patients. It´s important to consider botulinum toxin as alternative treatment in patients with trigeminal neuralgia.

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LIMITI E MODALITÀ DEL CONSENSO INFORMATO PER LE METODICHE INVASIVE IN MEDICINA RIABILITATIVA ALLA LUCE DELL'ATTUALE LEGISLAZIONE

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Limiti e modalità del consenso informato per le metodiche invasive in medicina del dolore e riabilitazione alla luce dell'attuale legislazione.

Introduzione. La ricerca clinica in Medicina Riabilitative e in Terapia del dolore ha permesso nel corso degli ultimi decenni di validare scientificamente erendere applicative diverse e rilevanti linee-guida che hanno permesso il controllo farmacologico del dolore delpaziente sofferente. Il metodo classico dell'OMS si basa su un approccio sequenziale a tre scalini in cui la scelta deifarmaci è fatta su sostanze ben conosciute e studiate scientificamente e ad ogni scalino terapeutico possono essereaggiunti farmaci adiuvanti. Non ultime, ma meno frequentemente usate, esistono varie metodiche micro emacroinvasive. Tutti questi approcci vengono indistintamente usati entro ed al di fuori delle indicazioni"terapeutiche ufficiali" e modificando associazioni e posologia, talvolta senza "target terapeutici" ben definiti esufficientemente accettabili. Sorge in questi casi, più che mai, la necessità e l'indicazione ad un corretto utilizzo del"consenso informato".Letteralmente il concetto di "consenso informato"1 2 implica l'accettazione di un trattamento (medico e/o chirurgico), proposto da altri, dopo che siano stati spiegati vantaggi e svantaggi (rischi compresi). Quando vengono esaminativantaggi e svantaggi di più scelte terapeutiche, compresa quella di non fare nulla, possiamo parlare di sceltainformata3. Oltre al consenso informato va preso in considerazione, ed accettato dal medico, il rifiuto informato4. Imedico deontologicamente corretto auspica e propone un consenso informato inteso come scelta informata5 cheimplichi la possibilità di rifiuto informato. Il paziente ha il diritto di essere informato in maniera esaustiva circa benefici e rischi di ogni procedura propostaglied il caregiver è obbligato ad ottenere il consenso firmato prima dell'esecuzione di ogni procedura diagnostica e/oterapeutica. In presenza di importanti malattie l'incontro medico paziente non deve essere fugace ed unico: l'informazione offerta.

Discussione. In presenza di importanti malattie l'incontro medico paziente non deve essere fugace ed unico: l'informazione offertaal paziente deve essere precisa, attenta, personalizzata, completa e scientificamente corretta. Sebbene tutto ciò possaembrare burocratico di fatto rappresenta per il medico la possibilità di entrare in relazione con il paziente, costruendo il rapporto attraverso un'interazione basata sul riconoscimento interpersonale ed egualitario. *Agire in assenza* di consenso oppure *andare oltre* il consenso del paziente, costituisce non solo un illecitodeontologico, ma anche un *reato,* indipendentemente dalla presenza di un eventuale danno. Infatti, in assenza didanno obiettivo rilevabile, se si agisce in assenza di consenso, si può configurare il reato *di violenza privata (art610 C.P.)* o quello di *lesioni personali (art.582 C.P.):* l'atto medico è un illecito indipendentemente dal fatto cheda tale atto ne derivi o meno un beneficio per il paziente. Da una sentenza della *Corte di Cassazione (N.6464 del08/07/1994)* è stato sancito l'obbligo di ottenere il consenso prima del trattamento, indipendentemente dalla presenzao assenza di errori da parte del medico. Se dovere del medico è a tutela della vita e della salute fisica ed il sollievodalle sofferenze e dolore, ne deriva l'impegno di considerare la salute nel senso più ampio del termine. *Background etico legale* Prima di esaminare, trattare o prendere in carico un paziente adulto, deve essere ottenuto un consenso informato. Ilconsenso è "*un diritto del malato"* che deve avere esaurienti informazioni sulla natura e sulle eventuali conseguenzedel trattamento curativo al quale si deve sottoporre ed autorizza il medico ad operare senza intercorrere in unarbitrio. Un diritto che deriva direttamente *dall'art 32 della Costituzione* in base al quale *"nessuno può essereobbligato ad un determinato trattamento sanitario se non per disposizione di legge"*.È quindi un grave errore ritenere che il consenso informato, come spesso accade, sia una procedura necessaria, madel tutto formale, quasi un atto burocratico, tanto che in molti casi il paziente non riesce a capire quale sia lo statodella sua malattia e quali sono gli eventuali rischi ai quali può andare incontro nel sottoporsi ad un trattamentoinvasivo, come talune indagini diagnostiche e tutti gli interventi operatori. Di recente, poi, vi è stata una specie di "novità" nella citata procedura del consenso informato. È derivata da unasentenza della *III Sezione civile della Corte di Cassazione (n.14638 del 30 Luglio 2004)* secondo la quale laresponsabilità ed i doveri del medico nei riguardi del malato non si devono limitare all'attività del medico stesso edella sua equipe, *ma si estende alla struttura sanitaria* nella quale opera con ulteriori doveri d'informazione verso ilpaziente. È dunque il consenso informato, in vista di un intervento o di un'altra terapia od accertamenti invasivi, nonriguarda soltanto i rischi legati alla situazione soggettiva ed allo stato dell'arte della disciplina, ma anche allaconcreta situazione della struttura ospedaliera in modo che il paziente stesso possa compiutamente decidere sesottoporsi sia l'intervento proposto e se farlo in quella struttura o richiedere di eseguirlo altrove. La materia, delicata ed allo stesso tempo spinosa, è costantemente in discussione ed all'ordine del giorno in ogniambito ed attualmente in discussione quale disegno di legge, d'iniziativa del senatore Tomassini (comunicato alla Presidenza del Senato il 4 Maggio 2004) recante il titolo "Norme in materia di dichiarazioni anticipate ditrattamento" (Legislatura 14º - Disegno di legge N. 2943,Senato della Repubblicato-XIV Legislatura: visibile online al sito www.sanita.it)La procedura deve sempre garantire, peraltro, la *riservatezza dei Suoi dati perso.*

Conclusioni. Il consenso informato (Es.:Appendix A)(10) è un atto importantenel rapporto tra medico e paziente, tra una struttura sanitaria ed il paziente. Consiste nell'accettazione del malato delle proposte diagnostico-terapeutiche fattegli dal medico.L'accettazione deve essere data consapevolmente dopo che il paziente viene preventivamente informato sul suo stato di salute, delle speranze e dei rischi che si accompagnano all'effettuazione delle prestazioni che gli vengono spiegate. Si tratta dunque di una procedura importante: il consenso informato, che non necessita per prestazioni non invasive, è un atto di rilevante interesse sia per il medico curante che per il paziente ed è una procedura chedeve essere chiara ed esaustiva. *Qualsiasi terapia antalgica invasiva e/o miniinvasiva nonché tecnico riabilitativa non deve venire meno ad una comprovata efficacia e richiede, comunque, l'acquisizione del consenso informato, nel pieno rispetto delle procedure.*

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VERIFICA DELL'EFFICACIA DEL KINESIOTAPING NEL LINFEDEMA POST-MASTCTOMIA

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Introduction. Da alcuni anni è invalso l'uso del Kinesiotaping nel trattamento del linfedema primitivo e secondario. L'uso quotidiano del Taping presso la SOD di medicina Riabilitativa dell'Azienda Ospedaliero-Universitaria Ospedali Riuniti di Ancona indicava una sua efficacia sia nei linfedemi primitivi che in quelli secondari. Per questo gli autori hanno deciso di verificare la reale efficacia utilizzando come metro di misura la linfoscintigrafia.

Materials and methods. Sono stati selezionati 8 casi di linfedema post-mastectomia dell'arto superiore in pazienti operate di mastectomia più dissezione ascellare e presentanti un linfedema dell'arto superiore insorto da non più di 5 anni (indipendentemente dall'epoca di dissezione ascellare). Le pazienti sono state sottoposte a linfoscintigrafia e dopo la prima ora dall'iniezione è stato applicato il taping alla radice dell'arto superiore in corrispondenza delle vie alternative deltoidee anteriore e posteriore, axillo-ascallare anteriore e posteriore. Al taping è seguita 1 ora di cinesiterapia dell'arto superiore poi sono stati presi i rilievi a 2 e 3 ore dall'iniezione.

Results. I risultati, che si propongono in tabella, evidenziano un mancato incremento della progressione del radiocomposto dopo l'applicazione del taping, sia in assoluto che in relazione alla progressione che si ottiene rispetto alla sola cinesiterapia.

Conclusions. I dati raccolti sono poco significativi dato l'esiguo numero di casi ma la metodica, specifica per l'inchiesta voluta, indica uno scarso apporto di mobilizzazione del liquido sottocute da parte del Taping che mantiene la sua efficacia nella stimolazione delle fibre propriocettive e sensitive in quanto le pazienti riferiscono un senso di benessere con la presenza del taping, ma non sulla mobilità dei liquidi sottocutanei.

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NEUROREHABILITATION IN MULTIPLE SCLEROSIS

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Introduction. Multiple sclerosis (MS) is a variable inflammatory disease where symptoms can be different in each person and overtime. Multiple sclerosis affects mainly women and white people. The disorder is most commonly diagnosed between ages 20 and 40. The fatty myelin sheaths around the axons of the brain and spinal cord are damaged by one's own immune system, leading to demyelination and scarring as well. Thus, the condition is called an autoimmune disease. The most common types of MS are relapsing-remitting MS**,** primary-progressive MS, secondary-progressive MS and progressive-relapsing MS. It is unknown what exactly causes this to happen. There have been described multiple factors like age, climate, latitude, social-economic condition, virus and genetic predisposition. The diagnosis of MS depends on clinic, laboratorial and image information. Lumbar puncture, MRI scan of the brain and of the spine and nerve function study (evoked potential test) are important to help in the diagnosis. Most common symptoms are fatigueFatigue is one of the most common symptoms of MS, occurring in about 80% of people. Fatigue can significantly interfere with a person's ability to function at home and at work, and may be the most prominent symptom in a person who otherwise has minimal activity limitations.

– Spasticity, weakness in one or more arms or legs, numbnessNumbness of the face, body, or extremities (arms and legs) is one of the most common symptoms of MS, and is often the first symptom experienced by those eventually diagnosed as having MS.

– Coordination problems, Problems with gait (difficulty in walking) are among the most common mobility limitations in MS. Gait problems are related to several factors.

– Bladder dysfunction. Bladder dysfunction, which occurs in at least 80% of people with MS, usually can be managed quite successfully.

– Bowel dysfunction. Constipation is a particular concern among people living with MS, as is loss of control of the bowels. Diarrhea and other problems of the stomach and bowels also can occur.

– Vision problems. A vision problem is the first symptom of MS for many people. The sudden onset of double vision, poor contrast, eye pain, or heavy blurring is frankly terrifying-and the knowledge that vision may be compromised can make people with MS anxious about the future.

– Dizziness and vertigo. Dizziness is a common symptom of MS. People with MS may feel off balance or lightheaded. Much less often, they have the sensation that they or their surroundings are spinning, a condition known as vertigo.

– Sexual dysfunction. Sexual problems are often experienced by people with MS, but they are very common in the general population as well. Sexual arousal begins in the central nervous system, as the brain sends messages to the sexual organs along nerves running through the spinal cord. If MS damages these nerve pathways, sexual response—including arousal and orgasm—can be directly affected. Sexual problems also stem from MS symptoms such as fatigue or spasticity, as well as from psychological factors relating to self-esteem and mood changes.

– Pain. Pain syndromes are common in MS. In one study, 55% of people with MS had "clinically significant pain" at some time. Almost half were troubled by chronic pain.

– Cognitive dysfunction. Cognition refers to a range of high-level brain functions, including the ability to learn and remember information: organize, plan, and problem-solve; focus, maintain, and shift attention as necessary; understand and use language; accurately perceive the environment, and perform calculations. Cognitive changes are common in people with MS—approximately 50% of people with MS will develop problems with cognition.

– Emotional changes. Emotional changes are very common in MS—as a reaction to the stresses of living with a chronic, unpredictable illness and because of neurologic and immune changes caused by the disease. Bouts of severe depression (which is different from the healthy grieving that needs to occur in the face of losses and changes caused by MS), mood swings, irritability, and episodes of uncontrollable laughing and crying (called pseudobulbar affect) pose significant challenges for people with MS and their family members.

– And depression. Neurorehabilitation have a crucial role in MS patient´s treatment, in their quality of life, activities and participation in the society. The multidisciplinary team with the physiatrist, physical therapy, speech therapy and occupational therapy is essential in this process. Botulinum toxin type A has been very important in this patient´s rehabilitation, especially in spasticity treatment. The objective of the research is to characterize the neurorehabilitation consultation patients with multiple sclerosis in Faro Hospital and search the importance of neurorehabilitation and botulinum toxin type A in their quality of life. Spasticity refers to feelings of stiffness and a wide range of involuntary muscle spasms (sustained muscle contractions or sudden movements). It is one of the more common symptoms of MS. Spasticity may be as mild as the feeling of tightness of muscles or may be so severe as to produce painful, uncontrollable spasms of extremities, usually of the legs. Spasticity may also produce feelings of pain or tightness in and around joints, and can cause low back pain. Although spasticity can occur in any limb, it is much more common in the legs.

Materials and methods. In this study, 753 patients of neurorehabilitation consultation have been analyzed, between 2007 and 2012. Those with the diagnosis of multiple sclerosis were searched. For each patient were registered gender, age, functional history, type of MS, year of the first symptoms and of diagnosis, neuromotor principle symptoms, additional symptoms, treatment used (physical therapy, speech therapy, occupational therapy, botulinum toxin type A), the evolution with the rehabilitation programme and their functionality in the present.

Results. Multiple sclerosis was present in 57 (7.6%) of the 753 patients searched. Women represent 63.2% of the patients with MS in this study. The mean age of MS patients was 46.9 years. The mean age of the first symptoms and diagnosis was 33.4 and 36.1 years, respectively. Relapsing-remitting MS was more common (82.4%). Paraparesis was present in 61.4% of MS patients. Fatigue (93.0%), vision problems (94.3%) and bladder dysfunction (86.0%) were the most frequent symptoms. Physical therapy was part of the treatment in 94.7 % of the patients, occupational therapy in 42.1% and speech therapy in 26.3%. Botulinum toxin type A was used in 14% of these patients. Gastrocnemius, Soleus and Rectus femoris were more injected then other muscles. 87% of patients treated with botulinum toxin type A felt less spasticity, pain and better gait pattern. No complications were reported. Actually, after the rehabilitation programme, 73.7% of these patients are independent now compare to 68.4% before.

Conclusions. Multiple sclerosis is a variable inflammatory disease where symptoms can be different in each person and overtime. Neurorehabilitation have a crucial role in MS patient´s treatment, in their quality of life, activities and participation in the society. The rehabilitation programme and treatment with botulinum toxin type A had good results in spasticity, pain and gait pattern in this study.

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FUNCTIONING AND DISABILITY IN POST-MASTECTOMY PATIENTS

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Introduction. Mastectomy is the medical term for the surgical removal of one or both breasts, partially or completely. Mastectomy is usually done to treat breast cancer. In some patients it´s possible to do a wide local excision, also known as a lumpectomy, an operation in which a small volume of breast tissue containing the tumor and some surrounding healthy tissue is removed to conserve the breast. Both mastectomy and lumpectomy are local therapies for breast cancer, targeting the area of the tumor, as opposed to systemic therapies such as chemotherapy, hormonal therapy, immunotherapy or radiotherapy. Sometimes, it´s necessary to make the removal of the lymph nodes in the armpit. Lymphedema is an abnormal buildup of fluid that causes swelling, most often in the arms or legs. The condition develops when lymph vessels or lymph nodes are missing, impaired, damaged, or removed. It can develop after breast surgery because there is an alteration in the pathway that drains the fluids involved in the immune system. It may occur at any time after the surgery. If untreated, it may become worse. A well done rehabilitation programme is essential to avoid complications such as infections or lymphangiosarcoma**.** The objective of the research is to characterize the senology-rehabilitation consultation patients in Faro Hospital and search for the importance of rehabilitation in their quality of life, based on the International Classification of Functioning, Disability and Health (ICF). Spasticity refers to feelings of stiffness and a wide range of involuntary muscle spasms (sustained muscle contractions or sudden movements). It is one of the more common symptoms of MS. Spasticity may be as mild as the feeling of tightness of muscles or may be so severe as to produce painful, uncontrollable spasms of extremities, usually of the legs. Spasticity may also produce feelings of pain or tightness in and around joints, and can cause low back pain. Although spasticity can occur in any limb, it is much more common in the legs.

Materials and methods. In this study, 80 patients of senology-rehabilitation consultation have been analyzed. A questionnaire was made based on ICF components. Functioning and Disability (body component, activity and participation) were searched with questions about mastectomy, the removal of the lymph nodes in the armpit (axillary nodes), lymphedema, physical therapy, compression sleeve, activities limitations (shoulder mobility, self-care, domestic work, driving), participation restriction (depression, confidence, communication, motivation at work), breast prosthesis and breast reconstruction surgery. Contextual factors were searched with questions about family, friends support and social discrimination.

Results. The mean age of patients was 59.3 years and lumpectomy was done in 35% of them. Patients operated for over one year represent 38% of the patients in this study and women represent 98%. The removal of the lymph nodes in the armpit was done in 90% of patients submitted to surgery. Lymphedema appeared in 68% of these patients. Trauma was associated to the beggining/worsening of lymphedema in 7.4% of patients, overstrain in 39%, skin lesions

in 15% and heat in 46%. Physical therapy and compression sleeve were part of the treatment in 94% and 63% of the patients with lymphedema, respectively, and the edema improved in 92% and 85% of them, respectively. Activities limitations happened in 65% of the patients (71% in shoulder mobility, 38% in self-care, 85% in domestic work and 17% in driving). Participation restriction ocurred in 75% of the patients (66% had depression, 46% less communicative, 38% less confidence and 26% less motivated at work). 38% of patients used breast prosthesis and 97% of these improved their participation activities. Breast reconstruction surgery was made in 9% of patients and 71% improved their social participation. Family and friends support was described by 94% of patients and 4% felt discriminated by society.

Conclusions. Mastectomy and lumpectomy are usually done to treat breast cancer. Lymphedema can develop after breast surgery because there is an alteration in the pathway that drains the fluids involved in the immune system. An appropriate rehabilitation programme has a crucial role in decreasing activities and participation limitations of these patients. Physical therapy, compression sleeves or breast prosthesis can contribute to help these particular patients.

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CONSERVATIVE TREATMENT IN LONG THORACIC NERVE PARALYSIS: ABOUT 4 CASES

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Introduction. Isolated long thoracic nerve injury causes paralysis of the serratus anterior muscle. Patients may present with periscapular pain, weakness, limitation of shoulder elevation and scapular winging. This condition remains relatively rare.

Materials and methods. We report four cases of patients treated at the Department of Physical Medicine and Rehabilitation at the University Hospital of Monastir.

Results. These are two men and two women, mean age 25 years (14-58) who have right shoulder pain (3 cases) lasting for several months (1 month to 2 years). A trigger is found in 2 cases: traumatic event in one case and after a stiff neck in the other case. Clinical examination found a lower point of the shoulder, full mobility, a detachment and hyperadduction edge of the scapula exaggerated in pushing postures. Complementary tests showed a scapula alata in the 14 year old girl, a partial denervation of the long thoracic nerve EMG in the two cases. All patients underwent 21 sessions of physical therapy on average (12-30). The program includes: analgesic therapy (TENS, IR), strengthening of the scapular fixators and exercises for self stretching with good recovery essentially regression of pain.

Conclusions. Long thoracic nerve dysfunction may result from trauma or may occur without injury and it can be disabling. Fortunately, most patients have a return of normal shoulder function with conservative treatment, but recovery may be long (2 years).

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FAMILY-CENTERED REHABILITATIVE APPROACH FOR PEDIATRIC SOMATIZATION

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Introduction. Somatic symptoms causing restrictions in activities and participation are common in the pediatric population. Comprehensive rehabilitation programs provide excellent opportunity for these children to return to full activity. The aim of this study was to: 1) describe the characteristics of selected cohort of children with somatization and their families, 2) present a unique comprehensive family-centered rehabilitation program for these children and 3) report the immediate and long term outcomes of our approach.

Materials and methods. Included in this study were children aged 6 to 18 years with functional disability due to motor somatization symptoms. The program's setting was either outpatient or inpatient. Correlations were calculated in order to examine association between variables. Participant's characteristics were compared with independent t-tests, Mann-Whitney U, Chi-square test or ANOVA. Treatment's success (symptoms' extinction and age appropriate activities at the end of the program and at one year follow up) is reported. *The rehabilitative approach* - The program was based on trusting the child's reports, individually tailored exercise and learning program and psychological intervention to facilitate parent-child communication (enhance child's verbal expression). Parents' participation in psychological sessions, separately and jointly with the child, was mandatory. Prior to treatment children and parents were provided with information regarding symptoms' etiology and the rehabilitation approach. In addition, a 'contract' was signed. In physical sessions, individually tailored pre-selected specific goals were established. Exercises intensity was reduced progressively.

Results. Participated in this program 51 children (69% girls, mean age 12.47+2.39). Most parents completed at least 12 years of education. Seventy-six percent of the children experienced a physical traumatic event prior to the appearance of the somatic symptoms. Ninety percent of the children exhibited at least one limb impairment and 66% had gait difficulties. Mean symptoms and intervention's duration was 2.40+1.91 and 3.19+1.49 months, respectively. No significant associations were found between symptom's duration, intervention's duration and child's and familial related characteristics. Immediate post program result: 94% of the children returned to age appropriate functioning and 84% did not exhibit any somatoform symptoms. At one year (n=43) only two children exhibited somatoform symptoms.

Conclusions. Our program showed short and long term significant success rate. It is suggested that the combined mandatory parental involvement and a child – guided specific goal directed rehabilitation program might be the keys to our patients' success. Further clinical support and further refinement of our program is required.

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FACIAL MOTILITY REHABILITATION IN A CHILD WITH QUADRIPLEGIC CEREBRAL PALSY

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DIPARTIMENTO DI NEURORIABILITAZIONE PEDIATRICA E DELL'ETÀ EVOLUTIVA, IRCCS SAN RAFFAELE PISANA, ROMA, ITALIA [1]

Introduction. Cerebral palsy (CP) defines a group of non-progressive, non-contagious diseases that cause physical disability in human development. CP is both one of the most common disabilities and represents two-thirds of severe motor disability cases in childhood. Spastic CP is by far the most widespread type of disability, occurring in 70% to 80% of cases. The objectives of rehabilitation programs, which have been conceived to be applied along the developmental age, are mainly related to the development of a correct organization of movement at axial level and of the four limbs within the framework of a specific action such as, for example, deambulation or reaching, grasping, object manipulation (as regards upper limbs). Less attention has up to now been paid, particularly in children, to the functional recovery of "facial motility", meant as the *ability to express* one's own emotions through facial expressions whose meaning is usually shared. This study describes a neurorehabilitative method which can considerably improve the mimic repertoire in a child with quadriplegic cerebral palsy.

Materials and methods. A 11-year old male child (D.T.) with quadriplegic CP; the neurologic examination revealed a double hemiparesis and a prevalence of the left side with a serious impairment of his gait and upper limbs motor control. The functional evaluation of cranial nerves exclusively hig hlighted central diparesis of hemifaces muscles, with no side prevalence. Electroencephalograms (EEG) did not show any epileptic activity. Magnetic resonance imaging of the brain showed a typical picture of periventricular leucomalacia. The latest assessment of the subject's intellectual abilities showed an average range (IQ: 88) with a reduced discrepancy between his verbal (VIQ: 98) and visual-spatial intellectual abilities (PIQ: 80). At a later stage, our attention focused on the communicative or, better, the expressive aspect, therefore it was oriented to the control of the mimic repertoire. The team realized that the child was not able to change facial expressions suitably, which led to an ineffective representation of his frames of mind. The therapeutic program was developed by us as follows: i) exercises to encourage proprioception; ii) exercises for recognizing objects of different shape and surface placed by the therapist

between the child's lips and, if necessary, providing assistance in half-closing his mouth; iii) exercises for the recognition and imitation of facial expressions; iv) exercises for the uttering of syllables and words; v) story-telling exercises in which the child had to grasp the different expressions of the various characters and mime them.

Results. As regards the recovery of the mimic repertoire, the child was suggested seven main facial expressions, at first represented as drawings and then directly interpreted by the therapist on his face (sadness, attention, surprise, happiness, fear, disgust and anger), which he was asked to recognize. At a later stage of the "rehabilitation game", the child was asked to imitate them (he was asked to choose a facial expression and interpret it "to enable" the therapist to recognize it). The child showed a number of considerable changes after 3 months of treatment, which was administered every three weeks.

Conclusions. The fibers innervating the orbicular muscle of mouth grow before others and this is to encourage suction and knowledge of the surrounding world by newborns: indeed, the mouth is the first sensory channel used by babies to get in touch with the intra- and extra-personal space. Facial muscles represent the most important part of the body for conveying our non-verbal frames of mind, thoughts and emotions; this ability, which is peculiar to mankind, is of the essence for the following functions:

1) Verbal Communication (VC), because speech depends on the movements of the mouth region and cheeks.
2) Non Verbal Communication (NVC), given by the expressions supporting Verbal. Communication in order to emphasize it.
3) Cognitive, or the tactile and kinesthetic identification of the different areas of the face.

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LA RIABILITAZIONE TERMALE DELLA SINDROME FIBROMIALGICA. STATO DELL'ARTE

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Introduzione. La fibromialgia è una malattia reumatica che interessa prevalentemente il sesso femminile ed è caratterizzata da dolori muscolo-scheletrici diffusi ad andamento cronico, rigidità assiale, facile faticabilità in assenza di alterazioni patologiche a livello del muscolo e in assenza di segni d'infiammazione. Lo scopo della nostra ricerca è stato di valutare l'efficacia della balneoterapia e/o dell'idrochinesiterapia termale nel trattamento del paziente fibromialgico mediante una revisione sistematica della letteratura.

Materiali e metodi. Sono stati utilizzati motori di ricerca scientifica Pubmed, Cochrane, Embase, Pedro utilizzando le parole chiave "fibromyalgia", "rehabilitation", "thermal therapy", "balneotherapy", "spa", "hydrotherapy", "exercise" "randomized clinical trial" considerando i lavori pubblicati dal 2001 al 2012. Sono stati considerati 24 studi scientifici randomizzati controllati. Misure di outcome sono state: a) intensità del dolore, b) riduzione del numero dei tender *points*, c) qualità di vita del paziente, d) fatica e rigidità muscolare, e) effetti sul quadro depressivo, f) miglioramento dello stato di salute percepita, g) durata dei benefici.

Risultati. I risultati della revisione hanno dimostrato che la balneoterapia in ambiente termale determina a) incremento della soglia del dolore, b) riduzione del numero dei tender *points*, c) miglioramento della qualità di vita del paziente; i benefici si mantengono sia a breve che a medio termine (24 settimane). Per quanto riguarda l'idrochinesiterapia termale, dai dati della letteratura evidenziano a) riduzione dell'intensità del dolore, b) riduzione della fatica e della rigidità muscolare, c) miglioramento del quadro depressivo, d) miglioramento dello stato di salute percepita.

Conclusione. La fibromialgia è una malattia cronica disabilitante con elevati costi per il Servizio Sanitario Nazionale. Ad oggi nessuna terapia farmacologica e non farmacologica, da sola, si è rilevata realmente efficace. La nostra revisione sembra confermare che l'intervento riabilitativo effettuato in ambiente termale può rappresentare un efficace strumento terapeutico da associare al trattamento farmacologico. Le numerosissime sedi termali in Italia potrebbero, pertanto, contribuire ad un nuovo approccio terapeutico per questi pazienti. Rimangono necessarie ulteriori future ricerche per confermare questi dati.

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TREATMENT OF NON-SPECIFIC CHRONIC LOW BACK PAIN (CLBP) THROUGH THE PERCEPTIVE SURFACES (SU-PER)

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Introduction. Several studies on patients with CLBP have shown a probable subsistence of reduced proprioceptive acuity of the back, corresponding with abnormal cortical representations thereof. Research has found the most promising therapeutic approaches to be cognitive-behavioural based interventions encouraging activity and exercise. Italian researchers have developed a therapeutic device called Su-Per, based on the interaction between the patient's body surface and a support surface comprised of small latex cones of various dimension and elasticity. In training sessions, patients were asked to perform perceptive exercise to rehabilitate the perception of the trunk and, in particular, the body midline. Our double-blind, randomized, control trial's aim was to determine the efficacy of Su-Per treatments for non-specific CLBP, with and without emphasis upon body midline.

Materials and methods. Twenty subjects received 10 Su-Per sessions emphasizing the body midline. Twenty more patients (control group) received the same treatment, but without emphasis upon the body midline. Pain was assessed using the VAS and McGill Pain Questionnaire. Disability was evaluated using the Oswestry Disability Index. All measurements were recorded before treatment (T0), at the end of treatment (T1), and after one (T2) and three (T3) months.

Results. In both groups, a significant reduction of pain and disability was observed at the first follow-up, and was maintained at later (T2 and T3) evaluations. No significant difference was observed between the two groups.

Conclusions. Su-Per has a positive effect on pain and disability in patients with non-specific CLBP, regardless of the role of the body midline in treatment.

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BALANCE IMPAIRMENT IN MULTIPLE SCLEROSIS PATIENTS – THE ROLE OF POSTUROGRAPHY, BERG BALANCE SCALE AND TIMED UP AND GO TEST AS ASSESSMENT TOOLS

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Introduction. Multiple sclerosis (MS) is after trauma the most frequent disabling neurologic disease in young people. Several different neurological systems - sensory, cerebellar, motor and visual - may be affected, leading to an impaired postural control and, consequently, an increased risk of falls. Our primary objectives were to identify balance impairment in MS patients and to find differences in balance between mildly disabled MS patients and a healthy control group. Our secondary objective was to test the existence of a correlation between standard clinical tests and the posturographic data.

Materials and methods. We selected a random sample of outpatients referred for a periodical assessment to the Neurology Department of Centro Hospitalar e Universitário de Coimbra and diagnosed with Relapsing-remitting Multiple Sclerosis (RRMS). Inclusion criteria were EDSS scores between 1.5 and 5 with cerebellar function score of 1 or higher. Twenty RRMS patients were included in this study and matched by age and gender to a control group of 20 healthy individuals. Evaluation was made using Dynamic Posturography, Timed Up and Go test (TUG) and the Berg Balance Scale (BBS) at the Physical and Medicine Rehabilitation Department. A tilting multiaxial force platform was used to assess postural stability. Both groups performed three consecutive trials of 20 seconds each and the medio-lateral, anteroposterior and overall stability indexes were registered. RRMS subjects also carried out three trials of the TUG and one trial of the BBS. Statistical analysis was performed using SPSS 17.0 ®. All subjects signed an informed consent according to the Declaration of Helsinki.

Results. The average age of the subjects in the MS group was 42 years with a maximum of 58 years and a minimum of 28 years old. In the control group the mean age was 41.4 years, with maximum age of 52 years and minimum age of 25 years. Forty per cent of subjects in the MS group were male and 60% female, whereas in the control group 35% of subjects were male and 65% female. There were no statistically significant differences in age or gender distribution between the sample of patients and the control group. Mean EDSS was 2,3. Thirteen MS patients had a cerebellar score of 1 and seven patients scored 2. The mean overall stability index for MS subjects was 3,95 with a standard deviation of 1,67, while the mean for the control group was 2,76 with a standard deviation of 1,06. Mean BBS test score was 53. The maximum score reached was 56 and the minimum 46. We found a statistically significant difference between the MS and control groups in terms of medio-lateral and antero-posterior stability $F(1, 38) = 10.193$, $p = 0.003$, partial eta-squared = 0.212 and overall stability $F(1, 38) = 7.265$, $p = 0.010$. There were no statistically significant differences in posturography values between patients with cerebellar score 1 or 2. We found no correlation between stability index results and EDSS scale, cerebellar score; TUG or BBS results. There is a positive correlation between TUG and EDSS ($r(18) = 0.477$, $p = 0.034$), and a negative correlation between EDSS and BBS ($r(18) = -0.652$, $p = 0.002$) and between TUG and BBS ($r(18) = -0.735$, $p < 0.001$). Only one patient reported falling in the previous month to the testing and none of the controls had any fall events.

Conclusions. Posturography seems to be an interesting examination to access postural impairment in MS. Our posturographic data allowed us to identify postural stability impairment, even in patients with low levels of disability as measured by EDSS. Nevertheless we found no correlation between worse posturographic performance and higher EDSS scores. Although our sample showed only one isolated falling event, the BBS allowed us also to identify slight balance impairment in our MS sample, indicating this scale as an effective screening instrument. TUG showed no difference from normal values and so it doesn't seem to be an adequate test in low disability MS patients.

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GLI EFFETTI DELLA STIMOLAZIONE CEREBRALE TRANSCRANICA A CORRENTE CONTINUA (TDCS) COMBINATA ALLA BACK SCHOOL IN SOGGETTI CON LOMBALGIA CRONICA. UNO STUDIO DI FATTIBILITÀ.

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Introduzione. La lombalgia cronica comporta elevati costi individuali e sociali [1]. La Back School (BS), costituisce uno strumento con un prevalente valore educativo nei riguardi del paziente al fine di prevenire l'insorgere di problematiche posturali e sintomatologie dolorose croniche del rachide. Studi sul trattamento del dolore cronico, hanno evidenziato come la stimolazione elettrica transcranica a corrente continua (tDCS) possa essere considerata un trattamento di particolare interesse per questa sintomatologia. È stato dimostrato come la tDCS sia in grado di diminuire l'intensità e la durata del dolore modulando l'attività di aree cerebrali coinvolte nei circuiti che regolano il dolore, come il talamo, e facilitando i meccanismi inibitori discendenti di controllo del dolore [2]. L'ipotesi alla base di questo studio è di abbinare l'effetto della tDCS con quello della BS per il trattamento del dolore in pazienti con lombalgia cronica con lo scopo di diminuirne l'intensità e la durata nel tempo, e favorire una migliore partecipazione del paziente alle attività quotidiane.

Materiali e metodi. Sono stati arruolati 4 soggetti con lombalgia cronica aspecifica diagnosticata da più di 2 anni, (VAS dolore >3), e sono stati sottoposti a tDCS anodica della durata di 20 minuti con intensità di 2mA per 5 giorni consecutivi nella settimana che precedeva l'inizio della Back School. Misure di outcome utilizzate: (1) scala VAS per il dolore (0-10); (2) Roland Morris Disability Questionnaire (RMDQ) (3) The Oswerstry Low Back Pain Disability Questionnaire (OLBPDQ); (4) Euroquol "Eq-5D". Mediante un questionario è stata riportata la presenza di effetti collaterali imputabili alla stimolazione (mal di testa, dolore nucale, bruciore, arrossamento e/o prurito nella sede cutanea di stimolazione). Le valutazioni sono state eseguite pre-tDCS (T0), post-tDCS (T1) e post-Back School (T2).

Risultati. Si è osservata una riduzione del dolore pari a 1.8 nella scala VAS dopo tDCS (VAS T0 = 6.3; T1 = 4.5), che si è mantenuta anche dopo BS (T2 = 4.5). La disabilità si è ridotta: di 4.5 punti al RMDQ dopo tDCS (T0=10.2, T1=5.7) con mantenimento dopo BS (T2=5.5), di 8.5 punti al OLBPDQ dopo tDCS (T0=34.5, T1=26) con ulteriore miglioramento dopo BS (T2=11.5). Non vi sono state sostanziali modifiche relative al Eq-5D. Non sono stati registrati significativi effetti collerali imputabili alla stimolazione.

Conclusioni. Questo studio ha valutato la fattibilità dell'utilizzo della tDCS quale metodica di neuromodulazione non invasiva per il trattamento del mal di schiena cronico. Nello specifico il protocollo di stimolazione è stato seguito da un intervento di Back School. I soggetti sottoposti a tale metodica hanno riferito un miglioramento pari al 28.6% del dolore con ripercussione sulla disabilità e la partecipazione del soggetto alle attività di vita quotidiana. In futuro sarà necessario ampliare il campione di soggetti e disegnare uno studio randomizzato controllato.

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TAKAYASU'S ARTERITIS AND JUVENILE RHEUMATOID ARTHRITIS: WHAT CARE IN REHABILITATION MEDICINE

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Introduction. Takayasu's arteritis (TA) is an uncommon vasculitis of young woman that affects predominantly the aorta and aortic trunk above. Its association with juvenile chronic arhtite been reported rarely and is discussed. We report a new case of this association and we describe its management in physical medicine.

Materials and methods. This is a 26 year old patient with a history of juvenile rheumatoid arthritis since the age of 4 years. It was apositive oligoarticular form (ANA + at 1/800) complicated by bilateral anterior uveitis. She was addressed to us initially for chronic neck and left shoulder pain.

Results. The initial clinical examination was in favor of thoracic outlet syndrom. She received physical therapy without any improvement. A blood test done revealed inflammatory syndrome with VS at 120 and inflammatory anemia at 7g/dl. In front of this results and the development of hypertension with syncope, we address the patient in internal medicine for suspected Takayasu arteritis. This diagnosis was made in front of the existence of five ACR criteria: age <40 years, vascular claudication in the left upper limb, bilateral lower humeral and radial pulses, the systolic murmur at the subclavian artery, parietal épaicissement of common carotid arteries right and left, and the achievement of common carotid, sub clavian, vertebral and thoracic aorta in the chest CT angiography. The patient was put under high-dose of corticosteroids (1mg/Kg/day) initiated by a bolus of solumedrol in combination with methotrexate 7.5 mg / week. Despite this treatment, there was persistence of the left upper limb claudication, left shoulder pain due to supraspinatus tendinitis for which the patient received two sub acromial injections framed by an appropriate rehabilitation program with a significant improvement.

Conclusions. The association between Takayasu arteritis and juvenile rheumatoid arthritis is rare. Takayasu's disease should be suspected whenever coexist joint symptoms and vascular signs mainly vascular claudication in the upper limb in a young woman. Functional training always finds its place in the management of its vascular and osteo arthritis manifestations.

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VISCOSUPPLEMENTAZIONE E TRATTAMENTO RIABILITATIVO NEI PAZIENTI AFFETTI DA COXARTROSI: NOSTRA ESPERIENZA.

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Introduction. La coxartrosi è una patologia cronico-degenerativa della cartilagine articolare, che determina usura della stessa, rimodellamento dell'osso sub-condrale ed alterazioni delle strutture adiacenti. Tale patologia deve considerarsi causa frequente di disabilità e di limitazione nello svolgimento delle ADL primarie e secondarie. I trattamenti conservativi della coxartrosi hanno come fine primario la riduzione dei sintomi o semplicemente procrastinare l'intervento chirurgico. In questo lavoro, gli autori, si propongono di dimostrare come si possono limitare le disabilità presenti e far recuperare il miglior livello di vita possibile ai pazienti affetti da coxartrosi associando al trattamento riabilitativo, la viscosupplementazione eco-guidata.

Materials and methods. È stata ammessa allo studio, previa valutazione fisiatrica, una popolazione di 60 pazienti, suddivisa in due gruppi di 30 pazienti ciascuno, affetta da coxartrosi mono e bilaterale di grado 2-3 (secondo la scala Kellgren-Laurence) nel periodo settembre 2010– dicembre 2011. Il primo gruppo è stato sottoposto a sola monoinfiltrazione intra-articolare sotto guida ecografica con HYADD 4 (esadeciclammide di sodio ialuronato altamente purificato), al secondo gruppo è stato associato anche un adeguato programma riabilitativo. Ciascun paziente è stato sottoposto a valutazione clinico-funzionale e strumentale, all'ingresso (tempo T0), ad 1 mese (T1), ed a distanza di 6 mesi (T2 follow-up).

Results. Le valutazione clinico-funzionali e strumentali ci hanno dato la possibilità di evidenziare al tempo T1 la riduzione della sintomatologia dolorosa nel I gruppo e l'esacerbazione nel II gruppo (conseguenza della chinesiterapia); il miglioramento dell'escursione articolare in entrambi i gruppi maggiore nel II. Al tempo T2 invece si evidenzia una riduzione del dolore e un miglioramento dell'articolarità in entrambi i gruppi ma maggiore nel II.

Conclusions. I dati relativi alle valutazioni clinico-funzionali e strumentali effettuati sul campione di pazienti evidenziano l'efficacia della viscosupplementazione nel trattamento dell'artrosi coxofemorale. I benefici sono maggiori e duraturi nel tempo se alla viscosupplementazione si associa un adeguato programma riabilitativo.

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EFFICACIA DI UN CIRCUITO RIABILITATIVO TASK-ORIENTED IN PAZIENTI AFFETTI DA SCLEROSI MULTIPLA. UNO STUDIO PILOTA.

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Introduzione. I disturbi della deambulazione colpiscono fino all'80% dei soggetti con sclerosi multipla (SM), incidendo in maniera significativa sulla loro qualità di vita [1]. Il circuito riabilitativo task-oriented (TOCT) rappresenta un insieme di esercizi che rispecchiano attività motorie quotidiane (i.e. camminare, fare le scale) e, rispetto ad un approccio di terapia convenzionale, ha un'intensità d'esercizio utile a favorirne il ri-apprendimento motorio. Tale tecnica riabilitativa è stata sufficientemente validata in soggetti con esiti di ictus cerebrale [2], mentre non vi sono dati esaustivi per i pazienti con SM. Gli obiettivi di questo studio pilota sono stati: (i) valutare l'efficacia di un protocollo riabilitativo task-oriented di elevata intensità in un campione di soggetti affetti da sclerosi multipla sulla funzionalità del cammino, fatica e qualità di vita; (ii) valutare la fattibilità e l'adesione ad un successivo programma di esercizi task-oriented in auto trattamento al domicilio della durata di 3 mesi.

Materiali e metodi. Sono stati arruolati 36 soggetti con diagnosi di SM (EDSS 4-5.5) e assegnati a 2 gruppi di trattamento: il gruppo TOCT (24 soggetti) ha ricevuto 10 sedute di trattamento per 2 settimane (2 ore/seduta), il gruppo di controllo (UC), composto da 12 soggetti, non ha ricevuto alcun trattamento riabilitativo specifico. Misure di outcome utilizzate: resistenza deambulatoria (6MWT), velocità (test dei 10m), mobilità (TUG), fatica percepita (FSS) e percezione di malattia (MSIS-29, MSWS-12). Un operatore in cieco ha valutato i pazienti all'inizio della terapia (T0), al termine (T1) e a 3 mesi dalla fine del trattamento (T3). L'analisi statistica è stata eseguita con programma SPSS 16.0, considerando una significatività pari a $p<0.05$.

Risultati. Il campione di soggetti analizzato non ha mostrato differenze statisticamente significative nei valori basali. Il TOCT è risultato efficace per migliorare sia la resistenza deambulatoria ($p=0.001$) che la velocità del cammino ($p=0.01$). La fatica percepita è risultata ridotta ($p=0.04$) dopo il trattamento intensivo. I soggetti sottoposti a TOCT hanno riportato una miglior percezione di malattia sia per quanto riguarda lo stato di salute generale, MSIS-29 (-$p=0.003$), che il cammino, MSWS-12 ($p=0.001$). Dopo i 3 mesi di programma di esercizi al domicilio, i pazienti hanno mantenuto solo i risultati relativi alla resistenza deambulatoria ($p=0.01$). Il gruppo UC non ha mostrato miglioramenti significativi in nessuna delle variabili analizzate.

Conclusioni. Il TOCT si è dimostrato efficace e ben tollerato ottenendo miglioramenti in termini di competenza deambulatoria e di percezione della qualità di vita in un campione di soggetti affetti da sclerosi multipla e disabilità deambulatoria di grado lieve o moderato (EDSS 4-5.5). Il programma di esercizi task-oriented da eseguire al domicilio in autotrattamento della durata di 3 mesi, non ha permesso di incrementare ulteriormente i risultati ottenuti.

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A VIRTUAL REALITY-BASED TREADMILL TRAINING FOR MULTIPLE SCLEROSIS SUBJECTS: GAIT PARAMETERS AND LOWER LIMB JOINT KINEMATICS

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Introduction. Common motor symptoms of multiple sclerosis (MS), such as muscle weakness, stiffness, balance disturbances, tremor and spasticity, often lead to gait disturbances and difficulty in ambulation. MS patients frequently show reduced gait speed and stride length compared to healthy individuals [1]. Although locomotor training with treadmill (TM) and virtual reality (VR) has shown promising results in improving walking ability in individuals with neurological disorders [2], the efficacy of the latter rehabilitation approach on MS patients has been scarcely investigated [3]. In the present study, we hypothesized that a VR-TM based gait training protocol for individuals with MS, would improve stride length, gait speed and lower limb kinematics in everyday life.

Materials and methods. Eight patients with MS (mean age 44.4 ± 8.1 years, 7 females, mean disease duration 13.6 ± 5.9), recruited from the Neurology Unit at the Sassari University Hospital, were enrolled in this pilot study. The patients had an EDSS score between 3 and 5.5 and an Ambulation Index between 3 and 6. Three patients reported more pronounced motor symptoms on the right leg. Each patient underwent a 12 sessions training program consisting of walking on a TM while immersed in a VR environment, which included decision-making and obstacle negotiation. A repeated measures design was adopted. Gait evaluations were performed while the patients were walking over-ground: before the training (pre), immediately after (post), one month after (1M) and three months after (3M), in order to assess retention effects. Selected gait and joint kinematics parameters were determined using a stereo-photogrammetric system (six-cameras Vicon T20, 100 frames/s) and two force platforms (AMTI, 1000 frames/s) and the Vicon Plug-in Gait marker set. Patients were asked to walk with and without a concurrent cognitive task (*dual* and *single task*, respectively). Three trials were evaluated for each condition. Only data regarding the most affected side was processed.

Results. All patients completed the training and the assessment, except one who did not participate in the last evaluation. Selected gait parameters (*gait speed, stride length*) and joint (*ankle, knee and hip*) sagittal kinematics were estimated. Patients showed an overall increase in *gait speed* (pre: 0.79; post:

0.87; 1M: 0.88; 3M: 0.86 [m/s]) and in *stride length* (pre: 0.97; post: 1.04; 1M: 1.08; 3M: 1.04 [m]) during the *single task*. Similarly in the *dual task*, both *gait speed* (pre: 0.65; post: 0.77; 1M: 0.82; 3M: 0.74 [m/s]) and *stride length* (pre: 0.91; post: 1.00; 1M: 1.07; 3M: 0.99 [m]) improved.

Results. relative to the joint kinematics showed, for all patients, an increase of the *knee* flexion/extension range of motion (ROM) both in *single* (pre: 43.5; post: 41.89; 1M: 41.3; 3M: 54.4 [deg]) and *dual task* (pre: 44.4; post: 42.0; 1M: 42.9; 3M: 50.6 [deg]). The *ankle* dorsi/plantar flexion ROM showed a slight increase in *single task* (pre: 20.5; post: 21.2; 1M: 21.3; 3M: 21.6 [deg]) and in *dual task* (pre: 18.7; post: 21.0; 1M: 24.2; 3M: 21.0 [deg]). The *hip* flexion/extension ROM did not change neither in *single* task (pre: 41.4; post: 41.1; 1M: 45.1; 3M: 41.2 [deg]) nor in *dual task* (pre: 39.8; post: 38.9; 1M: 42.9; 3M: 40.8 [deg]).

Conclusions. The results from this study demonstrated improvements in *gait speed* and *stride length* and a general increase in *knee* and *ankle* flexion/extension ROMs, both in *single* and *dual tasks*. These changes were consistent across the evaluation sessions thus confirming transfer and retention effects resulting from the rehabilitation intervention. This study suggests that motor training TM and VR may be beneficial for improving gait in patients with MS.

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THE PERIMEDULLARY ARTERIOVENOUS FISTULA: A RARE CAUSE OF ACUTE SPINAL PAIN

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Introduction. The arteriovenous fistula (AVF) represents 3-4% of spinal masses. The sudden onset of symptoms is unusual. Early diagnosis, treatment and rehabilitation can ensure a favorable outcome.

Materials and methods. Mr FS, 41 years old without medical history, presented in February 2008 an array of spinal cord compression with acute flaccid paraplegia, a sensory level D10 and urinary retention.

Results. MRI showed marrow edema associated with a hyperintense intramedullary up to D9-D10 with visualization of multiple perimedullary vascular and serpiginous structures. The spinal arteriography confirmed the presence of an AVF fed by the anterior spinal artery beginning from the fourth right intercostal artery. The patient received an embolization of feeder vessels and an appropriate rehabilitation. After falling of 10 months, the patient regained walking with a simple canna and complete autonomy. However, in vesicosphincteric terms, he kept a retentioniste bladder treated with intermittent self-catheterization.

Conclusions. The FAV is infrequent; the venous hyper pressure is the essential mechanism of the myelopathy. The onset of symptoms is usually gradual. Arteriography specifies the exact location of the lesion. The treatment is based on the endovascular embolization or direct surgical ligation. Motor and bladder Rehabilitation is an indispensable complement of the therapeutic management.

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MANAGEMENT OF POSTERIOR HEEL PAIN ASSOCIATED WITH CALCANEAL APOPHYSITIS (SEVER'S DISEASE)

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Introduction. Calcaneal apophysitis is a painful inflammation of the calcaneal apophysis believed to be caused by repetitive microtrauma from the pull of the Achilles tendon on the unossified apophysis. Doctors should be aware of the clinical symptoms of Sever disease so that early protective and proactive measures and appropriate treatment can be instituted.

Materials and methods. We report the case of an 11 year old boy without medical history, presented with right ankle pain lasting for six months.

Results. The patient was obese. In the physical examination the calcaneal area appeared non edematous with no visible deformity or ecchymosis present. There was moderate tenderness to palpation over the medial calcaneous. Active range of motion in plantar and dorsi flexion was complete as was inversion and eversion. The anterior talo-fibular ligaments. and Ashille tendon was intact. The podiatric examination found a hollow foot. Radiological assessment revealed a mildly sclerotic irregular calcaneal apophysis typical of calcaneal apophysitis. She showed also an osteodystrophy of growth at the 5 th metatarsal with a supernumerary scaphoid. The patient received symptomatic treatment, ortheses and an exemption from the sport. At the age of 15 years the child was completely asymptomatic, allowing a resumption of his sport.

Conclusions. Posterior Heel pain can present in children of 8 to 14 years, associated with or clinically diagnosed as Sever's disease, or calcaneal apophysitis. It is more commonly in young man (1, 2). This condition is characterised by pain experienced near the lower posterior aspect of the calcaneus in close proximity to the attachment of the Achilles tendon into the secondary growth plate of the calcaneus (3). Treatment recommendations have included: rest or cessation of sport, use of heel lifts, use of mobilization, orthoses, stretching or strengthening, padding for shock absorption, strapping of heel, ultrasound, pharmaceutical prescriptions, ice, immobilisation casting or crutches or removal of apophysis (2,3,4). This case illustrate that it is important to consider and recognize early calcaneal apophysitis in the adolescent and prompt conservative treatment generally produces excellent result.

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BILATERAL TRANSFER FROM HEALTHY HAND TO THE PARETIC ONE IN STROKE PATIENTS: ANALYSIS WITH RCT AND FMRI STUDIES OF THE PHENOMENON.

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Introduction. Bilateral transfer of a motor skill is a particular phenomenon according to which, the skill performance with a hand can "teach" the same skill to the other hand. In this research, controlled and randomized, we tested the ability of bilateral transfer to facilitate the motor skill of the paretic hand in patients that suffered a stroke, and we analyzed the differences among sexes and left or right hemyparesis.

Materials and methods. 34 right-handed patients, at the end of the rehabilitation period, were randomly divided into two groups: test and control. They all had a stroke in a single hemisphere in the previous six months and they were selected by a physical examination the time elapsed from the stroke and cognitive requirements. The experiment consisted in training the healthy hand of each patient from the test group to execute the nine hole peg test 10 times a day, for 3 consecutive days, and than test the paretic hand with the same test and with bimanual tasks. The control group was not trained but went through the same analysis. Normal subjects left and right handed were studied with fMRI, during the execution of the nine hole peg test with the dominant and the non dominant hand, following the same test procedures utylized in the trial in order to obtain the phenomenon of bilateral transfer during the scan and tha visualization of brain activity.

Results. In the test group we found that the execution speed of the nine hole peg test with the paretic hand, after training the healthy hand, was on average 22.6 % faster than the value recorded at baseline. Meanwhile, no significant difference was found in the control group. We further divided the groups with other stratification like sex and the paretic side of body. It was demonstrated a bigger impact of BT among male patients, who were in average 31% faster than

the not-trained ones, and the non dominant paretic hands, that were 30 % faster after training. The reduction is present in each patient, confirming the phenomenon's reproducibility. The results of the fMRI studies are currently under analysis and will be communicated.

Conclusions. With this research we evidenced the BT phenomenon is present in hemiparethic patients with moderate stroke and is more evident among male subjects, and from the dominant hand to the non-dominant one. These findings could open the way to new approaches to stroke rehabilitation.

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SPONDYLOEPIPHYSEAL DYSPLASIA: PROGNOSIS IN AN ADULT. CASE REPORT.

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Introduction. Spondyloepiphyseal dysplasia (SED) is an unfrequent genetic disease affecting the vertebrae and epiphsea. It is often diagnosed at a young age. It can cause deformities, polyarthrosis and an important functional handicap.

Materials and methods. We report a case of a 31-year-old woman with SED diagnosed since the young age, consulted for lumbar radicluar pain.

Results. Physical examination revealed Heberden and Bouchard's nodes, limited hips with especially 50° flessum, 50° Knee flessum, exaggerated lumbar lordosis with pelvis anteversion, gait with triple flexion and a FIM score 116/126. Simple X rays showed platyspondyly, epiphyseal involvement and bilateral coxa plana. In Lumbar CT scan, we found lumbar spinal stenosis and radicular conflict. The patient benefited from a medical treatment, one infiltration by the coxygien hiatus and an adapted reeducation but she is always algetic.

Conclusions. SED is an unfrequent cause of arthrosis. In this case; SED caused polyarthosis with an important functional handicap. Treatment is difficult and prognosis is serious.

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ESITI "MINORI" IN PAZIENTI SOTTOPOSTE AD INTERVENTO DI MASTECTOMIA E RICOSTRUZIONE CON PROTESI/ ESPANSORE PER CARCINOMA DELLA MAMMELLA

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Introduction. La ricostruzione immediata della mammella con protesi è parte integrante della chirurgia oncologica mammaria, è la metodica ricostruttiva più frequente ed è la tecnica meno traumatica per le pazienti. Dal punto di vista chirurgico gli esiti maggiormente riportati riguardano la contrattura periprotesica e il malposizionamento della protesi, potenziali responsabili di scorretto atteggiamento e di limitazioni articolari sia del cingolo che dell'arto superiore. Dal punto di vista riabilitativo spesso riscontriamo alterazioni dell'articolazione scapolo-toracica e retrazioni della fascia muscolare lungo la regione volare dell'arto che, pur non essendo tra quelli maggiormente descritti, potrebbero produrre movimenti e posture impropri. Obiettivo dell0 studio è stabilire l'incidenza della rigidità della scapolo-toracica e della retrazione fasciale all'arto superiore e se esistono correlazioni tra queste e la contrattura periprotesica e/o il posizionamento della protesi.

Materials and methods. In questo studio preliminare sono state valutate retrospettivamente 49 pazienti sottoposte ad interventi di mastectomia e dissezione ascellare o biopsia del linfonodo sentinella, suddivise in tre gruppi: A) contemporaneo inserimento di protesi definitiva (11 pz). B) inserimento della protesi ad espansione e conclusione del riempimento (19 pz). C) inserimento della protesi ad espansione e successiva protesi definitiva (19 pz). Tra i criteri di esclusione: linfedema, precedenti patologie a carico del rachide e della spalla, trattamento radioterapico, ematomi o infezioni post-chirurgiche. Sono state ricercate la presenza di rigidità della scapolo-toracica, di retrazioni fasciali a carico dell'arto superiore, di posizionamento della protesi e di contratture periprotesiche.

Results. 32 pazienti presentano gli esiti descritti, in particolare sono stati riscontrate: -a carico della scapolo-toracica 15 modeste rigidità e 3 immobilità complete; -6 retrazioni fasciali al III° prossimale del braccio, fra queste 3 pazienti presentavano anche l'immobilità della scapola; 5 retrazioni fasciali al braccio e 3 lungo tutto l'arto. Dal confronto emerge che i dati maggiormente significativi sono rappresentati nei gruppi B e C ed in particolare si sono verificati durante i rifornimenti delle protesi ad espansione.

Conclusions. Non sono state osservate strette correlazioni tra l'incapsulamento o la lateralizzazione della protesi, che peraltro non sono condizioni suscettibili di miglioramento con trattamenti riabilitativi, con gli altri due parametri. Emerge invece la necessità di ricercare esiti fino ad ora trascurati e che invece potrebbero essere responsabili di alterazioni posturali e scorretti compensi della cinematica articolare del cingolo superiore. Per progettare tempestivamente e accuratamente il percorso riabilitativo, le pazienti dovrebbero essere monitorate nel tempo e soprattutto durante i rifornimenti delle protesi ad espansione. Non bisogna inoltre dimenticare che la radioterapia, conclusivo trattamento oncologico, potrebbe sovraccaricare e vincolare condizioni già precarie.

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LA RIABILITAZIONE NEI DISTURBI DI MEMORIA NELLE CEREBROLESIONI ACQUISITE. UN CASE REPORT

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Introduction. Esistono diversi tipi di memoria: Memoria a Breve Termine (MBT) caratterizzata da un determinato numero di *span* che ogni soggetto è in grado di registrare e da una *memoria di lavoro che* consiste nel mantenere attive le informazioni provenienti dalla MLT; la Memoria a Lungo Termine (MLT), anch'essa caratterizzata da sottocomponenti: la *memoria procedurale* (memoria delle abilità acquisite in modo implicito la cui rievocazione si manifesta in modo implicito-guidare), la memoria *dichiarativa semantica ed episodica (*ricordi che emergono con partecipazione volontaria); la Memoria Prospettica (MP) che provvede alla programmazione di azioni che dovranno essere compiute a distanza di tempo e quindi anche alla rievocazione, nel momento programmato. Essa quindi implica il buon funzionamento dei meccanismi mentali che presiedono e controllano il funzionamento cognitivo (funzioni esecutive) e quindi la verifica periodica delle attività già svolte e di quelle ancora da svolgere. Implica inoltre la flessibilità nel modificare il programma predisposto in funzione di variazioni impreviste che si presentano. Tali abilità suppongono un corretto funzionamento sia della working memory che della MLT. Clinicamente si è notato che pur essendoci una diversa vulnerabilità dei vari tipi di memoria, agli agenti lesivi, la memoria procedurale è solitamente risparmiata in seguito a lesioni cerebrali, anche in caso di Sindrome Amnesica Globale. Tale risparmio viene sfruttato nell'ambito della neuroriabilitazione per poter addestrare i pazienti in attività routinarie tipo nelle ADL strumentali (attività di cucina, acquisti,.). Dall'esperienza clinica, è noto che nelle gravi cerebrolesioni acquisite l'Amnesia Globale è uno degli esiti più invalidanti rispetto al recupero delle autonomie. Ruolo e sfida del Neuroriabilitatore è proprio quello di implementare le residue abilità cognitive del paziente con danno in esiti cerebropatia acquisita, individuando le "strategie" più corrette per ogni singolo paziente a partire dalla sua specifica tipologia di menomazione. Nell'approccio al paziente affetto da grave cerebrolesione acquisita, nella fase subacuta, dopo un iniziale periodo all'Orientamento alla Realtà (ROT) necessario per uscire dalla PTA (Post Traumatic Amnesia), sono state descritte diverse metodologie di esercizio per affrontare i residui deficit di memoria:

– mnemotecniche (strategie mentali nate come utilizzo nella persona sana per facilitare la memorizzazione) che però si è visto non essere efficacirispetto alle attività della vita quotidiana, in quanto non vengono generalizzate in altri contesti.

– Ausili mnesici esterni il cui addestramento è stato protocollato ed applicato sin dall'inizio dagli anni '90. Nonostante i promettenti risultati ottenuti, si è

però constatato che i pazienti sottoposti a tali procedure spesso abbandonavano l'utilizzo dell'agenda, una volta dimessi dall'ospedale, conducendo allo stesso risultato insoddisfacente in termini di funzionalità pratica nel quotidiano, della strategia appresa.

– In alternativa, in un recente studio è stato suggerito l'utilizzo di "Google Calendar" come ausilio. Si tratta di un calendario elettronico con accesso gratuito via Internet, che può essere utilizzato come ausilio esterno sia attivo che passivo.

Materials and methods. Il nostro lavoro si è svolto nell'utilizzo di tale strumentazione applicandola nello specifico, con un paziente: uomo I.A. di 39 anni, scolarità medio inferiore affetto Encefalopatia post anossica del 29.06.2011 da arresto cardiocircolatorio per Fibrillazione Ventricolare. Ricoverato c/o AOU Riabilitazione Intensiva Percoce SMM dall'evento acuto al 12.11.11. Trasferito c/o Centro MFR Unità Gravi Cerebrolesioni Ospedale Gervasutta UD su posto letto ad elevata assistenza, il 13.07.11 Il paziente all'ingresso presentava apertura occhi su stimolo verbale, capo e sguardo deviati a sinistra, grimmage per stimolo doloroso, NE per SNG, tracheotomia, CV. Alla dimissione dal nostro reparto presentava: "Sdr Amnesica Globale con gravi deficit dell'attenzione e della memoria... compromissione dell'orientamento persino nello spazio domestico conosciuto..." il setting alla dimissione era di convivenza con la madre, pur mantenendo in affitto il domicilio precedente all'evento acuto, utilizzato a scopo riabilitativo con l'obiettivo di un reinserimento domiciliare in massima autonomia possibile. Dal punto di vista riabilitativo post-acuto alla dimissione dall'MFR il paziente aveva recuperato l'autonomia nel cammino ed in parte nelle ADL primarie, necessitava comunque di assistenza e supervisione sulle 24 ore per il rischio di incidenti domestici a causa dei disturbi neuropsicologici di memoria, attenzione e dell'organizzazione dell'azione finalizzata. Dalla data di dimissione dal ricovero ordinario dall'IMFR, il sig. I.A. È stato in carico per l'attività riabilitativa neuropsicologica (delle funzione cognitive, emotive e relazionali) in regime ambulatoriale c/o Unità di Riabilitazione delle Turbe Neuropsicologiche Acquisite (SOS URNA) dello stesso IMFR Gervasutta. Tale Programma Riabilitativo fino al 18.04.12 a favore del sig I.A. si è svolto con 3 ingressi settimanali all'IMFR SOS URNA, per ina/due ore al giorno con obiettivi di recupero dselle funzioni cognitive collegate alle *attività strumentali* della vita quotidiana (fare acquisti, preparazione del cibo, mezzi di trasporto...). in più per due giorni alla settimana il sig I.A. Veniva riabilitato a domicilio sia dalla Terapista Occupazionale dell' IMFR che da un'educatrice laureata in Psicologia esperta di riabilitazione Neuropsicologica all'uopo addestrata e supervisionata del dott. Lindaver, finanziata dalla famiglia dell'utente. Dopo 4 mesi di intervento alla valutazione di controllo del 8.03.12 si osservavano i seguenti risultati: "permane grave rallentamento psicomotorio, disturbo grave dell'attenzione e del comportamento finalizzato; permane disturbo grave dell'attenzione e del comportamento finalizzato; permane grave sindrome amnesica globale". Stante l'esperienza e supportati dalla letteratura scientifica internazionale in materia di cerebrolesioni acquisite, dove si evince che anche diversi mesi dopo l'evento patologico, se guideti da intervento di riabilitazione neuropsicologica specifica come quello offerto dalla nostra unità di riabilitazione, abbiano deciso di proseguire il programma riabilitaitvo individualizzato intensivo con finalità di un *reinserimento lavorativo* chiamato progetto AIRONI (già finanziato ex lege 41/96) il quale si è svolto in parte c/o le sedi SOS URNA del Gervasutta ed in parte c/o la Cooperativa Sociale Hattiva, a partire dell' 8.05.12. Si è contemporaneamente attivato da parte degli enti competenti del Comune di appartenenza, un *Progetto di Vita Indipendente* della durata di 4 mesi, che prevedeva l'intervento a domicilio di una figura educativa, esperta nella riabilitazione neuropsicologica, individuata e coordinata dal nostro centro, che ha proseguito le attività riabilitative domiciliari già avviate. Gli obiettivi nello specifico erano:

– raggiungimento di completa autonomia (100% prestazioni) nel riassetto e pulizia di casa, delle stoviglie e dei propri indumenti.

– parziale autonomia (85% prestazioni) nell'esecuzione della spesa e preparazione di pasti semplici.

Ad una valutazione Neuropsicoligica del 30.05.12: si sono evidenziate sempre evidenti difficoltà di memoria, attenzione e funzioni esecutive. Il tono dell'umore appariva depresso per l'incapacità ad essere autonomo nell'ambiente di vita (viveva ancora con madre e sorella) e perché non era ancora tornato a lavorare. Il Progetto Riabilitatovo si è dunque focalizzato ad un miglioramento di consapevolezza di malattia, aumento delle autonomie, miglioramento del tono dell'umore e capacità di riconoscere i propri stati emotivi per utilizzare al meglio adeguate strategie di compenso, possibile riqualifica lavorativa cinutilizzo di eventuali ausili. Tutto ciò per una successiva durata di altri 6 mesi. (Google Calendar), aumento dell'autonomia nelle ADL ed IADL, autonomia negli spostamenti (utilizzo mezzi pubblici) miglioramento del tono dell'umore (con colloqui psicologici e valutazione ai punteggi con colloqui psicologici), capacità di mantenere un' attività lavorativa (inizialmente protetta) per almeno 3 mesi. Indicatori utilizzati sono stati: miglioramento delle prestazioni ai test neuropsicologici, capacità di lettura critica dei propri deficit neurocognitivi e successivo utilizzo funzionale di ausili.

Results. Indicatori utilizzati sono stati: miglioramento delle prestazioni ai test neuropsicologici, capacità di lettura critica dei propri deficit neurocognitivi e successivo utilizzo funzionale di ausili. Dati sperimantali (Functional Task Baseline) si allegheranno istogrammi sui punteggi testistici all'inizio della presa in carico ed attuali.

Conclusions. Il paziente ha raggiunto l'obiwettivo di migliorare funzionalmente le prestazioni delle IADL con utilizzo prima assistito e poi in autonomia dell'ausilio esterno del Google Calendar, arrivando ad una trascrizione del compito da eseguire nel 100% dei casi ed ad una esecuzione del compito trascritto nel 70% dei casi.

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POST SURGICAL ARNOLD CHIARI SYNDROME: INTENSIVE REHABILITATION AND POSTURAL STABILITY MONITORED WITH "DIGITAL BIOMETRY", A CASE REPORT.

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Introduction. Chiari Malformations are regarded as a pathological continuum of hindbrain maldevelopments characterized by downward herniation of the cerebellar tonsils. CM is a syndrome embodied in heterogeneous groups of malformations, spanning from the more benign and known, the CM1, to more complex syndromes such as the rare association with the tethered cord, as spinal lipomas, and the CM2, associated to open spina bifida. The Chiari I malformation (CMI) is defined as tonsillar herniation of at least 3 to 5 mm below the foramen magnum (Milhorat TH, 1999). Tethered cord syndrome (TCS) may be associated to CM; it is a stretch-induced disorder of the spinal cord due to an inelastic structure anchoring the caudal end of the spinal cord as a short and thick filum terminale, the etiological relationship between these disorders remains unclear (Hüttmann S, 2011). The diagnosis of these syndromes is driven by clinical examination and MRI, and it usually requires a multidisciplinary approach in order to plan the therapeutic strategies, such as surgery (Vidmer S., 2011).

Materials and methods. In this study we present the case of a 56 years old patient, suffering from Arnold Chiari syndrome type I, who came to Physical Medicine and Rehabilitation "Policlinico General Hospital" Bari, after undergoing neurosurgical intervention of sacrotomia and section of the filum terminale, performed at the Institut Chiari and Syringomyelia and Escoliosis de Barcelona, to carry out rehabilitation treatment aimed at containing the results of that surgery. The patient presented to our observation complaining, as main criticism, instability in the maintenance of upright position with eyes open and especially with eyes closed. This phenomenon was also appearing during gait on uneven ground and during directional deviations. These symptoms were associated with episodes of neck pain, dorsal back pain, bilateral extremities hypoesthesia. As a consequence of these symptoms, of the anamnesis and neurophysical evaluation, we set up an intensive rehabilitation program lasting 15 days. The aim of the program was to limit disability-related postural instability and ataxia of the march, and to obtain some improvements for the painful symptoms of trigger points. The evaluation of the stability parameters improvement was performed by monitoring with "Digital Biometry" (baropodometry and posturography examination) at time T0 (at admission), T1 (after 7 days), T2 (at discharge): Both static and stabilometric parameters were taken into account. Rehabilitation program included sessions lasting 2 hours/day, taken on a daily basis, consisting of postural exercises, proprioceptive exercises, mirror visual biofeedback, gait training, active and passive upper/lower limbs mobilization, dorsal and cervical spine segmental rehabilitation, respiratory exercises, proprioceptive biofeedback by electronic tilting platform.

Results. Optimization of stabilometric parameters was detected through data gathering, resulting in an improvement of postural stability with either opened or closed eyes, associated with a good recovery of joints ROM, especially on the right shoulder.

Conclusions. These improvements were subjectively perceived by the patient too, who reported greater static and dynamic postural stability, along with tension-type headache, neck pain and dorsal back pain alleviation.

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COSTO - EFFICACIA DELLA DIATERMIA NEL TRATTAMENTO DELLA GONARTROSI SINTOMATICA: STUDIO RANDOMIZZATO CONTROLLATO IN SINGOLO CIECO

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Introduction. L'obiettivo dello studio è stata la valutazione del rapporto costo – efficacia, dell'uso della diatermia rispetto alla TENS nel trattamento della gonartrosi sintomatica, analizzando i costi sia in termini di spesa sanitaria, che di costi per il paziente.

Materials and methods. Soggetti con gonartrosi (Kellegren and Lawrence II-III grado) sintomatica da almeno tre mesi con età compresa tra i 65 e i 75 anni e BMI tra 18.5 e 32 che non presentavano controindicazioni all'esecuzione della diatermia e della TENS e che non avevano effettuato, nei tre mesi precedenti, infiltrazioni e/o interventi chirurgici a carico del ginocchio da trattare. Sono stati selezionati 30 soggetti e randomizzati in due gruppi da 15: il gruppo sperimentale (A) è stato sottoposto a 6 sedute da 30 minuti a giorni alterni di diatermia utilizzando per 15 minuti l'elettrodo capacitivo trattando a sedute alterne i muscoli della loggia anteriore e posteriore della coscia per effetto decontratturante e per 15 minuti l'elettrodo resistivo sul ginocchio. Il gruppo di controllo (B) è stato sottoposto a 10 sedute di TENS da 30 minuti con frequenza quotidiana per due settimane utilizzando il programma gonartrosi. Le misure di outcome (ROM, Timed Get Up and Go Test, WOMAC e SF-36) sono state somministrate in condizioni basali (T0), alla fine del ciclo (T1) e ad un mese (T2) dal termine del trattamento. Per la valutazione dei costi sono stati calcolati sia i costi diretti sia per il paziente che per la struttura sanitaria (apparecchiature, risorse umane e materiali) che indiretti del paziente (impegno di tempo, perdita di ore lavorative, necessità di accompagnatore).

Results. L'analisi della misurazione del ROM ha evidenziato l'efficacia della diatermia nell'aumentare l'escursione articolare sia nel post trattamento che al follow-up, mentre nel gruppo B l'escursione articolare è rimasta pressoché costante nelle tre valutazioni. L'analisi dei risultati del TGUGT non ha mostrato modificazioni longitudinali significative della velocità nella locomozione, sebbene i due gruppi partissero da un punteggio leggermente diverso, il comportamento è stato analogo. I risultati della scala WOMAC analizzati per aree separate: dolore, rigidità e disabilità hanno mostrato una riduzione significativa del dolore e della rigidità e un miglioramento dell'autonomia sia al T1 che al T2 per il gruppo A, mentre per il gruppo B si è registrato solo una lieve riduzione del dolore al T1. Dall'analisi del punteggio totale della SF-36 non emergono differenze significative tra i due gruppi al T0 e al T1 mentre al T2 il gruppo sperimentale continuava a migliorare, il gruppo B rimaneva stabile. L'analisi dei costi diretti per l'azienda è risultata inferiore per l'erogazione della diatermia, mentre per il paziente il costo della terapia è stato inferiore per la TENS; l'analisi dei costi indiretti per il paziente è risulta inferiore per la diatermia.

Conclusions. I risultati sono stati nel complesso positivi confermando l'efficacia della diatermia nella gestione del dolore e della limitazione articolare anche a lungo termine, migliorate risultano anche le autonomie e solamente nel lungo termine si osserva una tendenza al miglioramento della qualità di vita. La convenienza della diatermia si è evidenziata per l'azienda sanitaria soprattutto per il minor numero di sedute necessarie, mentre i costi per il paziente sono risultati lievemente superiori rispetto alla TENS ma giustificabili in virtù dei benefici ottenuti.

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THE USE OF WARTENBERG TEST IN ADOLESCENTS AND ADULTS WITH DOWN SYNDROME: AN ANALYSIS OF KNEE EXTENSOR MUSCLE ACTIVATION PATTERNS

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Introduction. In a previous work [1] we used the Wartenberg test [2] to assess knee joint mobility in adults with Down syndrome (DS). This test allows to evaluate the kinematics of knee joint during passive pendular motion of the leg under the influence of gravity. The EMG of muscle rectus femoris (RF), during the first swing of the leg, exhibited large phasic activity in DS group, whereas the EMG of persons without DS was characterized by low tonic activity. We hypothesized that these phasic muscular activations could be preprogrammed strategies to increase joint stability and optimize the leg dropping. Here, in order to identify the nature of these muscle reactions we further elaborated the set of data obtained by adults sample and compared with a new set collected from a group of younger people with DS. This comparison should provide insights on whether these strategies have been acquired during development or, rather, they are part of congenital characteristics of the DS person.

Methods. This study involved 20 persons with DS, 10 adults aged between 20-32 years, and 10 adolescents aged between 10-17 years. Each subject was seated in a semi-reclined position and received extensive explanation and demonstration of the procedure. The test was repeated 10 times and for each trial the leg fell down from the horizontal position and swung liberally between flexions and extensions until it stopped to the gravitational resting position. The angular displacements, recorded at the knee joint, were captured with an electrogoniometer and the surface EMG of RF was obtained from a bioelectric amplifier connected to 2 of surface electrodes. Measurements from each kinematic trajectory were elaborated to obtain parameters regarding the first swing: maximum flexion angle; mean value and peak of angular velocity; mean value, first and second peak of angular acceleration. In order to identify the latencies from the movement onset and to compute the EMG area during the first flexion, we filtered EMG traces by 2nd order Butterworth low-pass filter with a cutoff of 10 Hz. In addition, to describe the patterns of muscle activation for each group, the entire datasets of EMG traces were reduced to few representative waveforms by using the Principal Component Analysis (PCA).

Results. Except for the second peak of acceleration, there was no difference among the kinematic parameters considered in the two groups of participants. Instead, we found differences between the two groups in the basic waveforms representing EMG activity and in the distribution of latencies of the responses. The dataset of the adult subjects can be represented by 6 principal components (PCs) explaining the 87% of the variance whereas the EMG activity of the adolescents group can be summarized by 5 PCs explaining the 82% of the variance. The most important difference between the two set of PCs was the temporal distribution of the waveforms over the interval of the first swing: the basic EMG responses of young DS people fell on the first third of the leg dropping whereas in the adults the responses occurred in almost all the time interval of the first swing. Consistently, the 72% of the original EMG activity in the adolescents group occurred below 50 ms from the movement onset while the 60% of EMG responses of adult people took place between 50 and 150 ms. Thus, with respect to the adults, the younger persons with DS showed a temporal shift of muscle reactions toward the beginning of the leg movement.

Conclusions. The earlier reactions showed by adolescent people with DS are compatible with the time course of spinal stretch reflex while the delayed components, more represented in adults, should involve transcortical loops. The muscle activity observed in the first swing should evolve during the development from a simple reflex reactions to more complex and flexible pre-programmed patterns. This adaptation should optimize the process of stabilizing joint when rapid changes in the environment occur.

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UTILIZZO DI CORRENTI F.R.E.M.S. IN PAZIENTI CON SINTOMATOLOGIA DOLOROSA IN PATOLOGIE OSTEO-ARTICOLARI

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Introduction. Le cellule scambiano informazioni tramite un complesso sistema di comunicazione basato sulla trasduzione di segnali elettrici e biochimici attraverso canali ionici voltaggio-dipendenti della membrana cellulare. Ogni cellula possiede un certo potenziale di membrana a riposo. La capacità di produrre un evento di depolarizzazione fasica in un tempo relativamente breve è detta "eccitabilità" e dipende dai dispositivi biologici che regolano i flussi di ioni transmembrana, dalla loro varietà e dalla loro densità. In generale l'eccitabilità di un tessuto/cellula viene valutata in termini di curva intensità/durata e le cellule eccitabili possiedono la capacità di produrre un evento ripetitivo, detto potenziale d'azione o "spike" che corrisponde ad un evento sempre "identico". A questo potenziale d'azione segue sempre un periodo refrattario, durante il quale la cellula non si eccita nonostante la medesima intensità somministrata (inward rectification), ne consegue che esiste una frequenza mas-

sima caratteristica di ogni classe di cellula o tessuto. Per esempio, il muscolo liscio si eccita con stimoli immediatamente "sottosoglia" di percezione a frequenze di circa 10 Hz, il muscolo striato a frequenze maggiori di 30 Hz, le fibre amieliniche a frequenze > 150 Hz, ect. La stimolazione elettrica, poiché agisce direttamente sul sistema dei canali ionici transmembrana, può indurre modificazioni funzionali di qualsiasi sistema cellulare/tessutale attraverso la modulazione della sua soglia di risposta. Questa, secondo la Bibliografia riportata, è potenzialmente in grado di interagire con:

- recettori cutanei (tatto, pressione, temperatura, dolore puntorio, chemocettori), connessi a fibre ad alta velocità di conduzione.
- fibre nervose cutanee libere amieliniche (temperatura, dolore diffuso, mediatori dell'infiammazione e del metabolismo).
- fibre muscolari lisce (vasi e cellule mioepiteliali degli annessi ghiandolari).
- fibre muscolari striate sottostanti al dipolo creato da una coppia di elettrodi.

Nell'ambito delle correnti alternate di bassa frequenza ed alto voltaggio, sono reperibili ed utilizzabili una serie di protocolli di durata variabile studiati e validati (Lorenz Copyright 1/1/12) che prevedono cicli da 5 sedute ognuna con un programma specifico, studiato al fine di rispettare la logica dei periodi refrattari per evitare saturazione desensibilizzazione o ipersensibilizzazione di recettori.

Comportando i seguenti effetti terapeutici:

- Azione Vasomotoria.
- Rilascio di VEGF e b-FGF.
- Azione Anti – infiammatoria.
- Riparazione del tessuto.
- Modulazione del tono muscolare.
- Modulazione del dolore.

Materials and methods. A partire da Aprile 2012 abbiamo aperto uno studio su più patologie con diversa origine ezio-fisio-patologica, ma caratterizzate da forte sintomatologia dolorosa: Spalla dolorosa; cervicalgie; gonartrosi; spondilosi; Tutti i pazienti (15) con differenti quadri eziopatogenetici, tutti accompagnati da sintomatologia dolorosa, sono stati sottoposti a trattamento, secondo i seguenti criteri generali:

- 5 sedute a cadenza quotidiana.
- Utilizzo di elettrodi monouso e transcutanei a ridotta superficie di contatto (stimolazione puntiforme) testati e collaudati dalla stessa casa Lorenz.
- Firma del consenso informato.
- Verifica dei criteri Inclusione/esclusione:

Abbiamo sottoposto a visita i pz ad inizio a fine Trattamento (ad alcuni abbiamo associato ried motoria e/o tecar terapia). I pazienti sono stati sottoposti a valutazione quotidiana con VAS (Visual Analogic Scale) e McGill Pain Questionnaire SF per l'intera durata del trattamento.

Results. I dati relativi alla nostra casistica presentano un interessante riduzione del sintomo doloroso in tutti i pazienti (in particolare nella Spalla dolorosa), ad eccezione di un singolo caso dove il sintomo doloroso è rimasto invariato.

Conclusions. Questi primi risultati ci hanno permesso di comprendere la reale utilità della metodica terapeutica e di prendere atto di alcuni errori metodologici relativi alla raccolta dei dati che abbiamo già provveduto a modificare per il prosieguo più sistematico di questa esperienza.

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FUNCTIONAL VALORATION OF BACK SCHOOL PROGRAM

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Introduction. Low back pain is a common health problem due to its high frequency in the population. Worldwide, 65-80% of the population experience low back pain at some stage of their lives. It is the main cause of disability for people in their work years. Lower back pain involves a large number of professional consultations and a high use of health services so it has a great socioeconomic impact. The Back School relies on informing and educating people both healthy and suffering from back pain and its effectiveness has been proven in secondary and tertiary prevention. The aim of this study was to evaluate the effectiveness of a back school program in patients with low back pain, as well as their satisfaction.

Materials and methods. Prospective observational study carried out from October 2011 to February 2012 involving 51 outpatients with low back pain referred from our Rehabilitation Unit who attended the back school program in October 2011. Right after the end of the Back School and three months later the evolution of the disability, pain and the influence of psycho-social factors involved in low back pain were measured with the Visual Analogic Scale (VAS), Oswestry's disability index and Fear Avoidance Beliefs Questionnaire (FABQ), respectively. A linear regression statistical analysis was then performed on the data. Variables: age, type of low back pain (duration), previous treatment and previous employment status. The Back School Program consisted on three one and a half-hour sessions on alternate days for a week, lectured by a physician with the help of slides.

Results. The median age was 62.5 years (53;68.5). 72.5% people had chronic low back pain, 27.5% acute, 76% were taking analgesics, 80% had rehabilitation, 13.7% underwent surgery. 47% worked, 35% were retired, 14% sick leave and 3.9% were unemployed. After back school program statistically significant results ($p < 0.01$) were found in reducing disability assessed by Oswestry's scale (initial: 24%> 40; final: 16%> 40) and pain relief (Initial VAS = 7; final = 5). A decline in the influence of psychosocial factors in pain and disability measured by FABQ (initial = 38, end = 28) was observed. 98% of patients were satisfied with back school program, 86% decreased analgesic consumption, 63% modified physical activity, 78.4% reported that they have decreased the number of visits and 64% of sick-leave patients returned to work.

Conclusions. Back School program is a common method included in the rehabilitation treatment of back pain which statistically significantly reduces Oswestry's disability index and the VAS index. It also reduces the result of the FABQ scale without significancy. This intervention will reduce drug use and the number of doctor consultations. 98% of patients said they were satisfied or very satisfied. The back school programs allow early return to work, less pain and disability in the short term.

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FUNCTIONAL OUTCOME AFTER HIP FRACTURE IN ELDERLY

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Introduction. Hip fracture is still up to now considered one of the most fatal fractures for elderly people, resulting in impaired function, increased morbidity and mortality with familial, social and economic repercussions. The objective of this study was to analyse the functional outcome and its impact on the pathway followed by patients after discharge when an efficient, accurate and early rehabilitation approach responding to NICE guidelines during acute phase after hip fracture was adopted.

Materials and methods. 255 patients with age >= 65 admitted to 1st and 2nd Orthopaedic Surgery clinics of our institution from July 1st 2010 to June 30th 2011 were enrolled in this study. Of these, 231 patients were eligible for the study. Patients were evaluated with Barthel Index at baseline and at 1, 3, 6 and 12 months follow up (fu) after surgery. At the beginning of rehabilitation treatment the team, based on the abilities of the patients before fracture, comorbility, cognitve status and the allowed loading on the hip, established the functional goal (sitting, standing, walking with/without aids) before discharge. Moreover data on LOS and discharge setting were recorded. Statistical analysis was performed using Contingency Tables for the frequency analysis of non continuous variables and analyzed with Spearman test. Univaried ANOVA with post hoc Sudack test were used for multiple comparison among variables. All the tests wee considered significant for $p<0.05$.

Results. All the patients started the rehabilitation program within 24 hours from surgery. Mean long of stay was 2 (1,5) days before surgery and 8 (4) days after surgery, with 10 (3,47) days as average days of stay from admission to discharge. Full weight bearing on injured hip was allowed in 46,8% of patients, while 51.9% of patients had no weight bearing. The proposed goal was reached by 84% of patients independenlty on age, sex and limb loading. Functional recovery, intended as the best patient's performance before discharge, was

walking short distances in 37,2 % without aids, 18,6% with aids of patients, standing in 22,9% and sitting in 16,9% of enrolled patients. Among walking patients 22,1% walked less than 10 meters, 22,1% more than 10 meters and 4,8% more than 20 meters. Barthel Index mean score was 87,06 at baseline, 56,15 at 1 month, 67,63 at 3 months and 68,08 at 6 months and 67,01 at 12 months fu ($p<0.0001$ up to 3 months, then it is steady). Setting individuated at hospital discharge was home in 16,5%, extended long-term care in 40,3%, extensive rehabilitation care in 30,7%, intensive rehab care in 8,7%. Extensive or intensive rehab care was positively correlated with the goal atteinment. Mortality rate was 16,9% (4,8% < 1 month, 4,8% < 3 months, 4,3% <6 months, 3% < 12 months). It was related to the fail of goal atteinment, and to a low Barthel score at baseline.

Conclusions. NICE guidelines enhance the importance of a correct patient's pain assessment followed by a correct analgesia, surgery on the day or day after surgery with correct surgical procedures, mobilization, with fully weight bear when possible, from the day after surgery with daily physiotherapy, multidisciplinary management of patients in team in all stages of the pathway of care and rehabilitation, early identification of individual goals, early supported discharge. The rehabilitation strategy addressed to elderly patients with hip fracture in our hospital allowed to determine the level of recovery to the autonomy with respect to the pre traumatic event level. A low rate of mortality and a setting distribution consistent with that recommended on guidelines was evidenced. Better outcome in the hip fracture management depends also on timing of surgery and early pain management. These aspects still need to be enhanced in our hospital in order to further improve the rehabilitative outcome.

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ROBOTIC REHABILITATION OF THE UPPER LIMB IN POST-ACUTE STROKE: A STUDY ON THE EFFECTS OF THERAPY SUBSTITUTION

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Introduction. Stroke is a very important cause of disability: the recovery is partial in 85% of stroke survivors, in 35% of whom remains a serious disability. The number of people who require rehabilitation after a stroke is increasing for the aging of population. One of the most innovative approach of the problem is the use of robotic devices in stroke rehabilitation. The robotic systems can offer an high intensive, ripetitive, task specific, interactive treatment (passive and/or active assisted exercises) of the paretic limb and can give an objective evaluation of the motor progress in monitoring patients, measuring changes in kinematics movement and forces. A recent Cochrane review shows that patients who receive electromechanical and robot-assisted arm training after stroke are more likely to improve their generic ADL; paretic arm function may also improve, but not arm muscle strength. Our first study showed that additional NeReBot training in the acute phase post-stroke brings higher recovery gains both in motor and in functional evaluation scales with respect to traditional therapy. In this new trial the same device has been used in substitution of standard proximal upper limb rehabilitation.

Materials and methods. This RCT tested a protocol which involved the use of robotics as an alternative to the conventional treatment of the paretic proximal upper extremity, for a period of 35% of the total daily treatment time. Thirty-one (23 males and 11 females) subacute subjects after a first, single, ischemic or hemorrhagic cerebrovascular accident (within 15 days) with upper limb impairment were included in the study and randomly divided in two groups: the Experimental Group (EG) which received partly conventional and partly substitutive robotic treatment, and the Control Group (CG) which received conventional treatment only. The study was approved by the Ethics Committee for clinical trials of the Provincial Agency for Health Services of Trento (Italy). Each patient was clinically evaluated before, at the end of the treatment and after 3 and 7 months.

Results. The EG patients achieved similar reductions in motor impairment and enhancements in paretic upper limb function to those gained by the CG patients. In both groups, all or most muscles tested were stronger at the end of therapy and at follow-up, motor impairment, fatigue and abnormal hypertonia were reduced (FM and MAS results), and basic ADLs and dexterity were improved (FIM-mot, FA-T and Box and Block Test results). The between-groups comparison revealed no significant difference between EG and CG patients improvements at the end of robot therapy and at follow-up. In addiction the robotic treatment was well accepted and tolerated by patients and all EG patients approved the inclusion of the NeReBot training in the post-stroke rehabilitation program confirming that an important part of motor and functional result is correlate to robot therapy.

Conclusions. By comparing these results with those of previous studies, we can summarize that robot-assisted rehabilitation of the upper limb in the acute and subacute phases may be successfully used (1) in substitution of conventional mobilization of the upper limb, because it can be at least as effective as conventional therapy, and (2) in addition to nonrobotic techniques.

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DISABILITY AND QUALITY OF LIFE ASSESMENT OF STROKE PATIENTS TREATED IN STROKE CARE UNIT

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Introduction. Cerebrovascular diseases are the third cause of death in the western countries and the first cause of physical disability in adults. Most publications highlight the effectiveness of stroke care units and their beneficial effects on patient survival, independence and early discharge. The aim of our study is to determine stroke's impact, on patients who were admitted to stroke care units and who underwent rehabilitation treatment, by measuring disability and quality of life.

Materials and methods. This prospective observational study involved 61 patients over 18 years with a diagnosis of ischemic stroke between March 2011 and June 2012, who were treated and followed by our rehabilitation unit for six months. Data was retrieved on admission, discharge, first and third month after discharge. Scales used: NIHSS (National Institute of Health Stroke Scale), SIS-16 (Stroke Impact Scale), OCSP (Oxfordshire Community Stroke Project Classification), mRS (modified Rankin Scale), EQ-5D (Euroquol 5D), Hamilton's depression scale. Variables: sex, age, localization (OCSP), affected side, etiology, social and family support, risk factors (RF), complications, neurological deficit, general/specific disability, quality of life, depression. Statistical analysis: SPSS (Friedman test).

Results. Mean age: 78 years. 55.7% male, 44.3% female. 67.2% had family support. Risk factors: hypertension (62.3%), body mass index ≥25 (56.6%), auricular fibrillation (34.4%), smoking (32.8%), diabetes (21.3%), dyslipemia (21.3%), previous stroke (14.8%), ischemic heart disease (13.1%), heart failure (6.6%), alcoholism (6.6%). Etiology: 35% atherothrombotic, 33% cardioembolic, 5% indetermined, 10% unusual, 16.7% lacunar. Both sides were affected similarly. Anterior circulation was affected in 93% of the cases. Complications (55.7%): fever (18%), stroke progression (13.1%), vascular (14.8%). Half of the patients received a specific home rehabilitation program and the other half at medium-stay hospital. Statistically significant results ($p<0.001$) appeared in:

- Improvement of neurological deficit as measured by the NIHSS: admission=14.5 (severe), discharge=5 (moderate), third month=1 (light).
- Improvement in stroke-related specific disability as measured by the SIS-16: discharge= 29 (disability), first month=41 (no disability), third month=51 (no disability).
- Improvement of general disability as measured by the mRS: admission=5 (severe), first month=4, third month=3 (moderate).
- Decreased depression severity as measured by Hamilton's scale: first month=10 (light), third month=4 (no depression).
- EQ-5D=0.5442 (1=best health state, 0=death, -0,0757=worse than death).

Conclusions. Rehabilitation, when carried out from the first stage in Stroke Care Units, helps decrease the ischemic stroke affected patient's general and specific disability, as measured by the SIS-16 and mRS scales.

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A 2-MONTH-OLD GIRL WITH BILATERAL PERISYLVIAN SYNDROME AND ARTHROGRYPOSIS MULTIPLEX

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Introduction. The term congenital bilateral perisylvian syndrome describes a structural malformation of the brain in which the underlying anomaly is polymicrogyria, a malformation of the outer layer of the cerebral cortex. Polymicrogyria may have a focal or regional distribution or involve the whole cortical mantle. There are consequently wide spectrums of clinical manifestations, which include children with severe encephalopathies and intractable epilepsy or normal individuals with selective impairment of cognitive functions in whom the mild cortical abnormality is only detected on pathological brain study. The anomaly usually occurs as a result of post-migration insult during fifth or sixth months of pregnancy.

Materials and methods. This is a 2-month-old girl, preterm, with a clinical onset of apnea, bradycardia and she was unable to swallow. Due to the situation of the patient, she was admitted in Intensive Care Unit. Due to the existence of arthrogryposis multiplex and respiratory distress she was valued for our Pediatric Rehabilitation Unit. On examination the child showed unusual facies, retrognathia, hypotonia, flexion contractures of both hands, bilateral equinovarus and delayed milestones. The patient was on anti epileptics because of the EEG showed focal activity in the form of sharp waves of temporal and rolandic region of the right cerebral hemisphere. The esophagogastroduodenal study showed swallowing incoordination and because of that she required parenteral nutrition. MRI of brain revealed a congenital abnormality in the neuronal organization of the cortical mantle. It showed bilateral sylvian polymicrogyria.

Results. The treatment includes those aspects for the rehabilitation of oropharyngoglossal dysfunction and motor deficits in addition to the antiepileptic therapy. We decide to include the patient in physiotherapy respiratory to improve handling of secretions and improve breathing capacity and she was treated with passive mobilization techniques. We decided to put plaster splints on her lower extremities with periodic changes to treat equinovarus deformity. After rehabilitation treatment her respiratory capacity improved considerably and her deformities have not progressed any more.

Conclusions. Polymicrogyria refers to abnormal appearance of the cortex with multiple abnormally small convolutions and too few sulci. It is basically an organization anomaly in which the neurons reach their final destination in the cortex but are distributed abnormally. Gross assessment of the thickness of the cortical surface is due to fusion of the adjacent miniature gyri piled upon one another (1). Essential criteria (present in 100% of the cases) for diagnosis of this syndrome are oropharyngoglossal dysfunction, moderate to severe dysarthria and bilateral perisylvian malformations on imaging. Additional criteria include delayed milestones, epilepsy, mental retardation and abnormal EEG. Other criteria for diagnosis are arthrogryposis multiplex, other limb malformations and infantile spasms (2). Prenatal diagnosis using fetal ultrasound and MRI may be particularly difficult as the regions of the brain that are involved in this malformation may not have reached the final folding until birth. However there have been studies in which patients with bilateral polymicrogyria were identified by prenatal MR imaging and genetic analysis was performed (3).

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RIPETIBILITÀ INTEROPERATORE DELLA VALUTAZIONE MANUALE DEL R.O.M. CERVICALE NEL NEONATO CON TORCICOLLO MIOGENO E PLAGIOCEFALIA POSIZIONALE

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La plagiocefalia posizionale è un'entità nosologica che negli ultimi anni ha destato un'attenzione crescente sia in ambito clinico che scientifico a causa di un aumento esponenziale della sua prevalenza nella popolazione dei nuovi nati in relazione, come ormai è stato chiarito da numerosi studi, alla pubblicazione nel 1992 delle linee guida dell'American Accademy of Pediatrics sulla prevenzione della SIDS, che raccomandano la posizione supina durante il sonno per tutti i neonati. La malleabilità del cranio nel neonato può predisporre all'insorgenza di una deformità causata da forze di pressione gravitazionali cui è sottoposto se concentrate in un'unica direzione; infatti oltre alla tendenza a volte osservata alla brachicefalia nei neonati che riposano per la maggior parte del tempo in posizione supina anche durante il giorno, eventuali limitazioni del tratto cervicale o semplici "preferenze" di posizione, possono condurre a delle asimmetrie oblique del cranio inizialmente posteriori dell'occipite ma che possono poi trasmettersi alle ossa temporali e frontali provocando asimmetrie del massiccio facciale. La plagiocefalia posizionale posteriore (PPO) è una deformità unilaterale del cranio del neonato causata da forze esterne prenatali o postnatali che agiscono sul cranio ancora malleabile nei primi mesi di vita causando un'appiattimento occipitale unilaterale, e nei casi più gravi anche disallineamento delle orecchie sul piano assiale e asimmetria del volto. Attualmente, negli studi più recenti, si evidenzia una prevalenza nella popolazione età dipendente con valori tra il 6.1% e il 13% alla nascita 16-22.1% a 6-7 settimane, del 19.7% a 4 mesi, del 9.2% a 8 mesi e del 6.8% a 12 mesi. [] L'eziologia della PPO è riconducibile a molteplici fattori che agiscono sin dalle prime epoche di vita: prenatali, intrapartum e postnatali spesso concomitanti tra loro. Nel nostro studio **s**ono stati visitati 19 neonati di età compresa tra 2 e 8 mesi, che giungevano a visita con diagnosi di PPO e un gruppo di controllo di 20 bambini sani di età tra i 2 e i 8 mesi. L' 89,47% dei nostri pazienti mostrava in associazione un torcicollo miogeno valutato attraverso vari gradi di riduzione del R.O.M, mentre l'entità della plagiocefalia è stata valutata secondo la classificazione di Argenta. Si è visto che tutti i pazienti alla prima osservazione presentavano una posizione preferenziale del capo e una limitazione del ROM cervicale di vario grado associato alla presenza di PPO. Nel gruppo di controllo nessun bambino presentava queste caratteristiche. Rispetto agli studi precedenti in letteratura è stato comparato un campione di bambini affetti da plagiocefalia e preferenza posizionale del capo con un campione di bambini sani, e in entrambi è stato valutato il ROM cervicale attivo e passivo. In questa analisi si è evidenziata una associazione più elevata del torcicollo miogeno e della preferenza posizionale con la plagiocefalia posizionale.

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ANTI-OSTEOPOROTIC TREATMENT COMPLIANCE: OUR EXPERIENCE

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Introduction. Osteoporosis is a systemic skeletal disease characterized by low bone mass and deterioration of bone quality, associated with an increased fracture risk. Osteoporosis is a social relevant diseas and it is estimated that in Italy there are, approximately, 3.54 million women and 1 million men suffer from this disorder. Because of in the next 20 years Italian people over 65 years will increase by 25%, we will have to wait for a proportional increase in the incidence of osteoporosis. The aim of the study is to evaluate the compliance of osteoporotic patients to drug treatment and the comorbidities impact on the fracture risk.

Materials and methods. At the O.U.C. of "Rehabilitation" of the U.H.C. Polyclinic "Paolo Giaccone" in Palermo, between January 2009 and January 2012, we recruited 700 patients, 667 women and 33 men, aged between 21 and 91 years (mean age, at the first visit, of 63.2 ± 10.8), examined with DXA or calcaneal QUS. These subjects were evaluated according to these risk factors: age (≥ 75 years), BMI (<20 kg/m2), history of previous fragility fracture, family history of osteoporosis, smoking (> 20 cigarettes / day), use of corticosteroids for 3 months or more, poor diet from milk and dairy foods, sedentary lifestyles and poor exposure to sunlight. All were administered the scale CIRS, to calculate the comorbidity index and the severity index. As needed, according to anamnesis, clinical evaluation, the values of T-Score, radiographic examination of the column with Genant morphometric count and blood tests related to bone metabolism, was set to an appropriate drug therapy: were prescribed Calcium Carbonate to 40 subjects, Calcium Carbonate/Cholecalciferol to 119, Cholecalciferol to 89; Alendronate was prescribed to 49 patients, Alendronate/Cholecalciferol to 38, Clodronate to 23, Clodronate / Lidocaine to 21, Risedronate to 29, Ibandronate Sodium to 14, Calcitonin to 3, Strontium Ranelate to 42, PTH to 15, Teriparatide to 5, all these in combination whith Calcium and Vitamin D. No drug was prescribed to 213 patients because there was no indication. All subjects were evaluated at baseline (T0) and then they come

back after 18 months (T1) to be reassessed and questioned about adherence to drug therapy.

Results. At T1, only 45% of patients continued to follow the therapy, in particular assumed regularly Calcium Carbonate 62.3% of the patient, Calcium Carbonate/Cholecalciferol 59.7%, Cholecalciferol 68.5%, Alendronate 53.3 %, Alendronate/Cholecalciferol 60.5%, Clodronate 47.8%, Clodronate / Lidocaine 38.1%, Risedronate 51,7%, Ibandronate Sodium 57.1%, Calcitonin 33,3%, Strontium Ranelate 64.2%, Parathormone 60%, Teriparatide 40%. For each patient there was the reason for discontinuation of therapy prescribed. Only 19 subjects reported new fractures during pharmacological treatment: of these, 18 had at least 2 risk factors for osteoporosis. Moreover, in women with 55 years or less, were found risk factors for fragility fracture reduced physical activity and an index of comorbidity CIRS ≥ 2, whereas in women older than 55 years are associated with increased risk of fracture CIRS comorbidity index ≥ 3 and a T-score ≤ -1 (assessed with ultrasound method).

Conclusions. Analysis of the results of the study shows that prevention and treatment of osteoporosis risk factors are crucial in reducing the incidence of fractures. Since a little more than half of the patients was not compliante to the prescribed treatment and because of the most frequent cause of discontinuation of drug treatment (81.6%) is represented by a separate decision of the patient, it requires an extensive campaign public awareness on the problem of osteoporosis and its debilitating complications.

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LOW BONE MINERAL DENSITY AND RISK FRACTURE IN DUCHENNE MUSCULAR DYSTROPHY IN ADULTHOOD

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Introduction. The reduction of mobility and muscle weakness increases the risk of falls in Duchenne muscular dystrophy. The quality of bone tissue is therefore important to consider in these patients. Among the factors that influence bone mineral density (BMD), mobility is probably the most important. Pediatric osteoporosis has been described in various neuromuscular disorders, but there is no corresponding information in adults. We report a case.

Case report. Mrs HS, aged 32 years with a family history of myopathy, having Duchenne muscular dystrophy since the age of 20 years, under vitamin therapy and calcium supplementation. The patient is confined to a wheelchair for two years. However walking remained possible at home by using a cane. She was sent for bimalleolaire fracture and the right tibia, occurring after a fall at home. Treatment was orthopedic cast immobilization. The review found muscle weakness predominant belts, bimalleolaire edema with a stiffness of the ankle. The patient underwent 15 sessions of physical therapy. The program included: an analgesic therapy, manual lymphatic drainage, gentle mobilization of the ankle, muscle strengthening and proprioceptive work. The evolution was good. Because of the low trauma and the presence of risk factors for osteoporosis in this patient a record was made. The calcium and phosphate and thyroid record were normal. BMD was in favor of lumbar and femoral osteoporosis. Bisphosphonate therapy was introduced.

Conclusion. Several studies confirm the reduction of BMD in adults with muscular dystrophy. In addition to the problems with walking disability, the risk of falls and fractures is increased for these patients. Motor handicap limits outings and outdoor activities, reduces sun exposure and thus the synthesis of vitamin D. The administration of bisphosphonates to treat the decrease in BMD has been evaluated in children and should be studied in adults.

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IPERTENSIONE POLMONARE E NT-PROBNP IN PAZIENTI AFFETTI DA J-TALASSEMIA

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Introductions. Le β-talassemie sono malattie autosomiche recessive caratterizzate da anemia cronica dovute a un difetto quantitativo nella produzione delle catene β-globiniche dell'emoglobina. Si distinguono due forme di β-talassemie: *Major* (TM) –dove si assiste alla mancata sintesi delle catene globiche – e *Intemedia* (TI) dove si ha una riduzione della sintesi. Le complicanze cardiache, e tra queste l'ipertensione polmonare (IP), rappresentano uno dei principali fattori nella prognosi e nella sopravvivenza in pazienti affetti da β-talassemia. La patofisiologia della IP è differente nelle due forme di β-talassemia: nei pazienti *major* concorrono in modo rilevante le conseguenze del sovraccarico di ferro e lo stress ossidativo mentre l'emolisi sembra rappresentare il fattore scatenante l'IP nei pazienti *intermedi* poco o non trasfusi [1].

Materials and methods. Nell'ambito del progetto *ECHO-TALAS*, nato dalla sinergia tra ISBEM (Istituto Scientifico Biomedico Euro Mediteranneo) e l'ASL Taranto - S.S. di Microcitemia, sono stati valutati i parametri standard di funzionalità cardiaca in 131 pazienti (95 major e 36 intermedi) mediante tecnica ecocardiografica. In particolare, per ciascun soggetto è stata valutata la presenza di IP mediante il valore ecocardiografico di pressione arteriosa polmonare sistolica (PAPs, espresso in mmHg). Sono state identificate tre classi: IP lieve (26 ≤ PAPs ≤ 35), IP moderata (36 ≤ PAPs ≤ 45) e IP severa (PAPs > 45) [2]. Sono stati inoltre valutati i valori di NT-proBNP (Brain Natriutretic Peptide N-terminal) nell'ottica di poter considerarli come indice predittivo di IP.

Results. I pazienti affetti da TI (36.6 ±9.6 ys) mostrano una maggiore prevalenza di IP rispetto ai pazienti affetti da TM (33.2 ±8.3 ys). In particolare, IP è stata rilevata nel 41.7% dei TI (30.6% lieve; 8.3% moderata; 2.8% severa) e nel 40.0% dei TM (33.7% lieve; 5.3% moderata; 1.0% severa) senza però alcuna differenza statisticamente significativa tra i due gruppi (P=0.86). I valori di NT-proBNP sono risultati più alti nei pazienti affetti da IP (133,11 pg/ml) piuttosto che nei pazienti con valori di PAPs nella norma (96,15 pg/ml) senza mostrare, anche in questo caso, differenze statisticamente significative (P=0,21). È stata osservata una correlazione statisticamente significativa (r=0.32; P=0.02) tra i valori di NT-proBNP e i valori di PAPs nei pazienti affetti da TI, che non è stata invece riscontrata nei pazienti *major* (r=0.08, P=0.48).

Conclusions. Dal nostro studio emerge come l'IP sia un'importante comorbilità ampiamente diffusa nei soggetti affetti da β-talassemia. Una maggiore prevalenza nei soggetti *Intermedi* -come già descritto [3]- permette di avanzare l'ipotesi che una corretta terapia trasfusionale rappresenti un fattore protettivo verso l'insorgenza di IP, che colpisce in maniera minore i pazienti *major* sottoposti a continue e regolari trasfusioni di sangue. Dall'analisi dei risultati ottenuti emerge la possibilità di poter considerare il dosaggio dell' NT-proBNP come indice predittivo di ipertensione polmonare nei soli pazienti affetti da TI.

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BOTULINUMTOXIN A (XEOMIN®) NUOVA OPZIONE TERAPEUTICA PER IL TRATTAMENTO RIPETUTO DEI PAZIENTI CON EMISPASMO FACCIALE

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Introduction. Sebbene il trattamento con le neurotossine botuliniche ha mostrato buoni risultati nei pazienti affetti da emispasmo facciale, il principale potenziale effetto collaterale a lungo termine, dopo ripetute iniezioni, è lo sviluppo di resistenza immunologica, dovuta alla produzione di anticorpi neutralizzanti per la neurotossina che ne riducono l'efficacia e la sicurezza del trattamento e che richiedono dosaggi sempre più alti. L'utilizzo di preparati privi di proteine accessorie può risolvere il problema. **Caso clinico:** Paziente maschio di 62 anni con diagnosi di emispasmo facciale sinistro da circa 10 anni sottoposto ad inoculazione di tossina botulinica, di tipo A alla dose totale di 100 U (Botox®) e B con dosaggio imprecisato, con progressiva perdita dell'efficacia terapeutica (durata) ridotta ad un mese dall'infiltrazione.

Materials and methods. Il paziente è stato sottoposto a trattamento con Tossina Botulinica tipo A priva di complessi proteici (Xeomin®) infiltrando i muscoli orbicolare dell'occhio (30U), grande zigomatico (25U) e orbicolare della bocca (10U) con dosaggio complessivo di 65U. Il paziente è stato moni-

torato con *misurazione miometrica* (tono, elasticità e stiffness) e con la *Scala degli spasmi*.

Results. I valori del tono dei muscoli infiltrati apparivano migliorati a 15 giorni (T1) e a 2 mesi (T2), (*orbicolare occhio T0* 22.5; *T1* 17.1; *T2* 15.1; *grande zigomatico T0* 21.1; *T1* 18.3; *T2* 17.7; *orbicolare bocca T0* 21.5; *T1* 17.6; *T2* 16.3). Stesso andamento presentavano i valori della scala degli spasmi (*orbicolare dell'occhio T0* 3; *T1* 1; *T2* 0; *grande zigomatico T0* 2; *T1* 1; *T2* 0; *orbicolare della bocca* ***T0*** *3;* ***T1*** *1;* ***T2*** *0*).

Conclusions. Sebbene il significato clinico dello sviluppo di anticorpi non sia stato ben determinato, studi in vivo e in vitro ne hanno dimostrato la presenza neutralizzante in parte l'attività dopo somministrazioni ripetute. il nostro studio evidenzia la possibilità di utilizzare formulazioni prive di componete proteica in alternativa a preparati farmacologici aventi lo stesso principio attivo ma con carico proteico rilevante, ottenendo una buona efficacia clinica con assenza di eventi avversi e un potenziale basso rischio di reazione anticorpale.

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THE EFFECTS OF THE DEVICE FREE-ASPIRE IN PATIENTS WITH MILDLY IMPAIRED COUGH EFFECTIVENESS.

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Introduction. Impaired cough is a very frequent problem in airway management and in patient's pulmonary rehabilitation. There are some mechanical devices in the market to improve secretions clearance, each one with some contraindications and potential adverse effects.

Objectives of the study. To evaluate the effects of the treatment with the device Free-Aspire on dyspnea and airway symptoms and some respiratory function parameters in patients with bronchial hypersecretion and/or difficulty of expectoration with mildly impaired cough effectiveness.

Materials and methods. Physiological, experimental, randomized, prospective, multicenter, single-blinded study.

Population studied. Hospitalized subjects with impaired bronchial clearance due to restrictive respiratory diseases and/or mildly impaired cough effectiveness.

Materials.

– Free Aspire device.
– Supplies for Free-Aspire.

Methods.

Run-in

Enrolled subjects will receive training in treatment techniques that will be applied during the study period.

Program of chest physiotherapy (CPT) Patients enrolled will perform a CPT program, which includes 2 daily sessions of 1 hour of conventional chest physiotherapy CPT using techniques (like manual-assisted (MABT), for example) for five days.

The experimental group will include CPT and also a 30-minute session with Free-Aspire. The placebo group will include CPT and also a 30-minute session with a modified (sham) Free-Aspire device.

Ratings provided

– Baseline assessment (before the first treatment session-T0).
– Daily evaluations (before and after each CPT session).
– Final assessment (within 24 hours after the end of the last treatment session).

Statistical tests: ANOVA for repeated measures with post-hoc analysis (Bonferroni). Other statistical tests will be used according to the needs of the analysis.

Study procedures. Evaluation of changes in:

– subjective sensation of dyspnea and bronchial encumbrance, (assessed by Visual Analogic Scale (VAS)) induced by treatment (Free-Aspire added or not to conventional CPT).
– PEF-PCEF and other parameters of lung function induced by treatment (lung volumes, pulmonary gas exchange and respiratory muscle strength MIP-MEP).
– perceived Quality of life (QoL) by administering the questionnaires MRF-28 and SGRQ.
– quality (clinical semi-quantitative scale) and total volume of secretions.

Results. Study still in progress.

Conclusions. Our aim is to verify if Free Aspire could have a role to play in the pulmonary rehabilitation of patients with impaired cough, as an adjunct to the usual CPT, to improve the clearance of secretion without serious adverse effects in a physiological way of action.

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CLINICAL EFFECTS OF EXERCISE THERAPY AND ACUPUNCTURE IN TREATMENT OF FROZEN SHOULDER AFTER BREAST CARCINOMA SURGERY

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Introduction. Frozen shoulder (adhesive capsulitis) is used to denote a limitation of shoulder motion, without abnormalities of the joint surface, fracture, or dislocation. It is a complication that occurs in over 50% of patients after breast cancer surgery and axillary lymph node dissection. Exercise therapy has been clinically observed to improve treatment of these patients. Acupuncture has been reported to be effective for the treatment of frozen shoulder or shoulder arthritis. However, there are no data of needle acupuncture in the treatment of frozen shoulder in patients after surgical treatment of breast carcinoma. Objective of this study was to investigate the effects of acupuncture and exercise therapy on shoulder function, pain and quality of life in patients after breast cancer surgery and axillary lymph node dissection.

Materials and methods. Fourty women, age 42-75 yrs, 2-6 mounts following breast cancer surgery and axillary lymph node dissection with clinical signs of frozen shoulder and no other complications or significant illnesses, were divided in two equal groups: group A, treated by acupuncture (AP) and exercise therapy and group B, with exercise therapy alone. The primary outcome measures were amount of pain (VAS), and range of shoulder movement. Secondary outcome was health-related quality of life (Shoulder Disability Questionnaire – SDQ score). Assessments were made at baseline and 2 and 4 weeks after the beginning of the therapy. Patients were treated by needle acupuncture at traditional acupuncture points used for frozen shoulder: GB 21, LI 1, LI 4, LI 11, LI 14, LI 15, SI 9, SJ 5, St 38, GB 34. Treatments were provided 5 times per week, 20 minutes per day, for 4 weeks. Both groups of patients have had exercise therapy 5 times per week, 30 minutes per day, for 4 weeks. Exercise therapy consisted of passive, active-assisted and active progressive range-of-motion exercises.

Results. There were no differences between groups regarding the age (58.2±1.75 vs 57.9±2.64) and average time of beginning of therapy after surgery (68.9±1.29 vs 67.9±1.97 days). The groups also did not differ in values for ROM, pain degree or SDQ score. Significant improvement both in reduction of pain and shoulder mobility was established after 4 weeks of therapy in bouth groups. Quality of life also improved significantly in bouth groups. Compared with the exercise group, the exercise plus acupuncture group experienced significantly greater improvement with treatment (in all cases $P<0.01$).

Conclusions. We conclude that the combination of acupuncture with shoulder exercise may offer effective treatment for frozen shoulder after surgical treatment of breast cancer. This is even more important considering the limitations we are facing using other physical therapy procedures in patients with malignant diseases. However, given the small patient population, further studies are needed to verify these results.

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MYELITIS AND SYSTEMIC SCLEROSIS: CASE REPORT

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Introduction. Systemic sclerosis (SS) is a chronic and systemic disease of unknown etiology, characterized by microvascular abnormalities and diffuse tissue fibrosis affecting predominantly the skin, gastrointestinal tract, lungs, heart and kidneys and, less frequently, the nervous system. Peripheral nervous system manifestations are the most common and include: myopathy, cranial nerve palsies, carpal tunnel syndrome, sensoriomotor polineuropathy and mononeuritis multiplex. The involvement of the central nervous system is rare ad consists of isolated cases of cerebral hemorragic and ischemic events, optic

atrophy, intracerebral calcifications and myelopaphy, with only a few cases of acute transverse myelitis (ATM) reported to the date. We intent to report a case of ATM in a SS patient, pointing out the role of Physical and Rehabilitation Medicine in such cases.

Materials and methods. We present a case of a 61 years old Portuguese women, with known SS for 16 years (with skin and esophageal involvement) and Raynauld Syndrome, who presented to the hospital after 1 month and a half of progressive motor and sensory loss and paresthesias of the inferior limbs, sphincter disturbance and back pain. It was performed a detailed diagnostic evaluation, with laboratory and imaging tests favourable to myelitis however, none specific etiology was identified.

Results. Besides careful testing, distinguishing idiopathic myelitis from other possible causes of ATM is sometimes difficult, in particular if there is some disease that may be associated with ATM, as it is the case of SS and other connective tissue diseases. With disregard of the fact that ATM is a manifestation of SS or an isolated case, treatment should be initiated as soon as possible. In this case, the therapeutic strategy included pharmacologic treatment with glucocorticoids, a rehabilitation program with physiotherapy and occupational therapy and psychotherapy. The initial clinical response to drugs was modest, however, during the course of the rehabilitation program in the subacute phase, she achieved a better clinical and functional outcome. According to that, she was referred to a Rehabilitation Centre to optimize recovery.

Conclusions. Prognosis in ATM is difficult to ascertain; recovery may range from almost none to complete recovery. The etiology of myelitis and the delay in beginning treatment, together with the extent of the medullar lesion, may have contributed to a worse clinical response and prognosis. Our experience is that patients with ATM benefit from rehabilitation, either to accomplish nearly complete recovery, or to improve functional status in those cases with partial recovery.

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ASSESSMENT OF FUNCTIONAL STATUS, QUALITY OF LIFE, AND COGNITIVE FUNCTION IN AN ELDERLY POPULATION SAMPLE IN TURKEY: A CROSS-SECTIONAL STUDY

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Introduction. The number of elderly people is growing rapidly in many countries as a consequence of reduction in chronic disease death rates and prolonged life expectancy. The disability among elderly people is a major social and health problem in many countries. However, there are a few epidemiological studies investigating functional status, quality of life (QoL), and cognitive function in the elderly (1,2,3). The aim of this study was to evaluate demographic characteristics and health condition of elderly people as well as to assess the impact of these factors on functional status, QoL, and cognitive functions in a Turkish elderly population sample.

Materials and methods. A total of 200 individuals who lived in Silivri, a small town in Istanbul, Turkey and aged between 65 and 85 years were randomly selected for the study. Data were collected from participants through a face-to-face interview at home visits. Barthel Index (BI), Short Form-36 (SF-36) and Mini Mental State Examination (MMSE) were used to examine the functional status, health related QoL, and cognitive status, respectively.

Results. The mean age of the participants was 72.3±5.3 years. While there was a negative correlation between the age of participants and the MMSE scores (r=-0.167, p=0.018), there was no significant correlation between the age of participants and the BI scores. Twenty-eight percent of the participants had diabetes mellitus (DM). There was no significant difference between the participants with DM and those without DM in terms of the MMSE scores (p=0.527) and the BI scores (p=0.451). In participants who had DM, the physical function, emotional role, vitality, social functioning and general health subscales of the SF-36 scores were significantly (p<0.05) lower than those without DM. Sixty-seven percent of the total number of participants was living alone and 33% were not (living with spouse, children, etc). In participants who reported living alone, the MMSE and BI scores were lower than those who did not; however, these differences were significant only at the MMSE scores (p=0.005). In participants who were living alone, only the physical function (p=0.013) and bodily pain (p=0.028) subscales of the SF-36 scores were significantly lower than those who were not. In continuation of the research, the participants were divided into two groups based on the age of participants: Young elderly group (aged between 65-74 years, 62%) and old elderly group (aged between 75-84 years, 38%). The bodily pain subscale of SF-36 scores were significantly lower in the old elderly group compared with the young elderly group (p=0.025).

Conclusions. These data suggested that living alone might cause more deterioration in cognitive functions and QoL in addition to the deterioration caused by increasing age in the elderly. While the presence of DM appeared to worsen the QoL, the cognitive functions and functional status appeared not to have been affected by the presence of DM in this population sample of the elderly.

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TRATTAMENTO DELLA SPASTICITÀ MUSCOLARE DI GRADO SEVERO CON ALTE DOSI DI TOSSINA BOTULINICA A

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Introduction. Al fine di garantire un risultato migliore e duraturo nei pazienti che traggono scarso beneficio con dosi standard di tossina botulinica di tipo A (BTX-A) per il trattamento della spasticità di grado severo, è possibile ricorrere con sicurezza ed efficacia all'utilizzo di alti dosaggi del medesimo farmaco.

Materials and methods. È stato reclutato un gruppo selezionato di 20 pazienti (12 maschi e 8 femmine), affetti da spasticità muscolare di grado severo a carico dell'arto superiore, esito di ictus ischemico. I soggetti mostravano risultati stazionari nei controlli a 1, 3 e 4 mesi dopo l'inoculazione di BTX-A (*Dysport®* 400±50 Unità). Tale andamento è stato valutato con la classica *Scala Ashworth Modificata (MAS)* (*BB* T1 3, T2 3, T3 3, T4 3; *BR* T1 3, T2 2, T3 3 T4 3; *FSD* T1 2, T2 2, T3 2, T4 2; *PL* T1 2, T2 1+, T3 2, T4 2) e in modo quantitativo mediante la ***misurazione miometrica*** (valutazione che discrimina modificazioni anche minime del tono muscolare *Bicipite Brachiale (BB)* T1 19.8±0.7, T2 19.2±0.3, T3 19.7±0.6, T4 19.5±0.4; *Brachioradiale (BR)* T1 20.5±0.9, T2 18.7±0.6, T3 21.3±0.5, T4 21.7±0.3; *Flessore Superficiale Dita (FSD)* T1 18.7±0.6, T2 17.8±0.9, T3 18.2±0.7, T4 18.6±0.6; *Palmare Lungo (PL)* T1 18.5±1.2, T2 16.2±0.7, T3 18.7±0.9, T3 18.9±0.7). Dopo aver escluso, mediante la valutazione ecografica, la presenza di degenerazione fibroadiposica a carico dei vari distretti muscolari maggiormente colpiti dalla spasticità, si procedeva all'inoculazione di BTX-A (*Dysport®*) con un dosaggio medio di 900±30U. L'effetto della terapia con alte dosi di BTX-A è stato valutato con entrambe le metodiche e negli stessi tempi di osservazione; inoltre, i pazienti hanno eseguito trattamento fisiokinesiterapico a cadenza giornaliera per il primo mese dopo la terapia con tossina botulinica e successivamente a giorni alterni.

Results. Con la miometria si è apprezzata una riduzione statisticamente significativa dei dati del tono muscolare per oltre 3 mesi (*BB*: T1 21.3±0.5, T2 18.6±0.6, T3 18.8±0.3, T4 20.3±0.7; *BR*: T1 20.4±1.1, T2 17.5±0.4, T3 17.9±0.6, T4 19.6±0.5; *FSD*: T1 18.4±0.6, T2 16.2±0.5, T3 16.5±0.5, T4 18.0±0.4; *PL*: T1 20.4±0.5, T2 16.4±0.6, T3 17.7±0.5, T3 19.9±0.6; p<0.05). Stesso andamento presentavano i dati ottenuti con la MAS (*BB*: T1 3, T2 2, T3 2, T4 3; *BR*: T1 3, T2 2, T3 2, T4 3; *FSD*: T1 2, T2 1+, T3 1+, T4 2; *PL*: T1 3, T2 1+, T3 2, T4 3; p<0.05).

Conclusions. I risultati dimostrano che l'utilizzo di alti dosaggi di BTX-A nei pazienti scarsamente responsivi alle dosi standard, consente un miglioramento della sintomatologia spastica per oltre 3 mesi, senza comparsa di effetti collaterali significativi quali astenia marcata o botulismo. Attraverso la quantificazione numerica delle variazioni, anche minime, del tono muscolare tramite la miometria è possibile avere un quadro più ampio delle condizioni fisiopatologiche del muscolo spastico.

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ALGODYSTROPHY OF THE HAND: INNOVATIVE THERAPEUTICAL, PHARMACOLOGICAL AND REHABILITATIVE STRATEGIES

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Introduction. Algodystrophy, or "complex regional pain syndrome" (CRPS), can develop following a traumatic event regarding skeletal structures or periarticular soft tissues, with clinical manifestations disproportionate in relation to the pathogenic noxa. The symptomatology is characterized by pain, swelling, numbness, trophic changes and impaired motility. Colles' fracture is the most common traumatic event. The American Pain Society defines it as Reflex sympathetic dystrophy type I, in the absence of a known nerve injury, and type II with the peripheral nervous system insult ever found. It is relatively frequent (5.5 / 100,000/year), occurs properly in the adult, between 40 and 60 years, with a prevalence in females (M: F = 1:3). Diagnosis is mainly clinical, but relies on imaging studies. The standard radiography shows, after months of onset, distrectual bone demineralization (Sudeck's atrophy). In early stage can be used the RM and bone scintigraphy. The aim of the study is to demonstrate the antalgic and anti-edema effect of the pharmacological treatment associated with the Nd-YAG laser in patients with CRPS of the hand.

Materials and methods. We recruited 11 patients (8 women and 3 men), aged between 44 and 66 years (mean 52.5 years), with CRPS type I, comed to our O.U.C. of "rehabilitation" of the U.H.C. Polyclinic "Paolo Giaccone" in Palermo, between January and June 2012. All had a previous trauma and / or surgery of the hand and the presence of bone edema on MRI. 5 subjects had diabetes, probably a predisposing factor. We used the VAS scale and the Duruoz scale for the functional impairment of the hand. Patients were assessed at baseline (T0), then at 2 months (T1) and after 6 months (T2) and randomized into 2 groups: A (4 women + 2 men) and B (4 women + 1 man). This was the treatment for patients in group A: drug therapy consisting of disodium clodronate and lidocaine (200 mg / 4 ml im) on alternate days for 15 doses and then every 15 days to 1 year, in association with daily sessions of treatment rehabilitation (functional rehabilitation, physical therapy and manual lymph drainage with PEMF) for 2 months. In group B drug therapy was reduced to 10 doses on alternate days, then continuing with the weekly dose; also were added to the rehabilitation protocol 10 sessions of Nd-Yag laser in pulsed mode.

Results. Data analysis showed a reduction of the pain and edema in the short to medium term, and a recovery of the hand's fine movements greater in the group B. Although it is a preliminary study and despite the small number of patients, it appears evident the tolerability and efficacy of the Nd-YAG laser for its analgesic, anti-inflammatory and anti-edema actions. This allowed to reduce disodium clodronate in the group B and get more specific and selective early movements of the hand.

Conclusions. An early rehabilitation program, in combination with proper medication, can prevent the worsen of the hand algodystrophy towards a permanent framework characterized by muscle-tendon stiffness, contractures and ankylosis of the distal small joints. We can assert, consequently, that synergy between functional rehabilitation, treatment with disodium clodronate, PEMF and Laser Nd-Yag is a main point for therapeutic efficacy.

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EFFECTS ON HAND PERFORMANCE FOR ANODIC, BILATERAL AND CATHODIC MONTAGES OF TRANSCRANIAL DIRECT CURRENT STIMULATION IN PATIENTS WITH STROKE

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Introduction. Transcranial direct current stimulation (tDCS) is a noninvasive technique that is emerging as a prospective therapy for different neurologic disorders. Use of tDCS is increasing in patients with stroke for its modulatory effects on cognitive and motor functions. In particular for the motor domain, the cortical target of tDCS' application has been showed to enhance execution and skills, producing interest for the improve of rehabilitative stroke's course. The aim of this study was to evaluate the effects on manual dexterity and pinch and grasp force of a tDCS single stimulation, respect than Sham stimulation, and if this improvement was different among the three possible electrode's montages (anodic, cathodic or bipolar). Secondary outcome was to evaluate the satisfaction of patients in using these advanced rehabilitative technology.

Materials and methods. Nine patients with stroke in subacute phase were enrolled in this study and randomly divided in three groups. Stimulation was delivered for 15 minutes, both in real and sham condition, in two consecutive days, randomized for sham/tDCS and Anodic/Bipolar/Cathodic stimulation. Positioning of active electrode varied according to randomized different montage: for anodic stimulation, the active electrode was placed on the projection of the hand knob area of the primary motor cortex of the affected hemisphere; for cathodic stimulation, the electrode was placed on unaffected hemisphere in an analogue position of the anodic stimulation. For these electrode's set-up, referent electrode was positioned on the skin overlying the contralateral supraorbital region. In bilateral montage, cathode and anode were positioned as active electrode in the same way above described. In both sessions, the stimulation was preceded by 60 seconds where the current was gradually increased until to intensity of 1,5 mA, eliciting transient sensations that disappeared over seconds, consistently with previous reports. Patients were asked to perform the 9 hole peg test (9HPT) pre- and post- tDCS or Sham. As other outcome's measure, for each participant, the maximum pinch force and the maximum grasp force were measured by means of specific dynamometers. Finally, four questions about the satisfaction for the tool by patient's perspective.

Results. Our results showed as tDCS is an effective treatment if compared to sham stimulation (p=0.022). In particular, anodic stimulation provided the higher improvement in terms of manual dexterity. Cathodical stimulation seemed to be a little effect in terms of force improvement not observed with other setups. Bipolar stimulation seemed to be the less effective. No significant differences have been noted as different set-ups.

Conclusions. Our results suggest that tDCS-treatment were more effective respect than Sham-treatment on manual dexterity, while no significant differences were recorded in terms of manual force, even if a slight improvement were noted after cathodic stimulation. These findings is consistent with previous reports. Furthermore, no difficulties in performing treatment were complained by the patients. The present study contributes to the panel of the evidences that strengthen the role of tDCS inside the rehabilitative stroke's course, in particular for the more complex activities of daily living as add-on technique.

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PERCUTANEOUS TIBIAL NERVE STIMULATION FOR TREATMENT OF FECAL INCONTINENCE

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Introduction. Fecal incontinence (FI) is an highly incapacitating medical problem that affects 2,2% of adult general population. It can have a number of underlying causes affecting either the anatomy or function of the anal sphincter. Conventional treatments including diet modifications, drugs, pelvic floor muscle training, biofeedback or surgery have frequently unsatisfactory results. Sacral neuromodulation is a more recent treatment option with established efficacy. Peripheral neuromodulation by electrical percutaneous tibial nerve stimulation (PTNS) is an alternative, more economic and minimally invasive. The objectives of this study are to evaluate the clinical efficacy of PTNS for FI and its correlation with physiological parameters.

Materials and methods. Prospective study beginning in October/2009, still ongoing, which included 10 patients, female, average age 53,4 +/- 12,7 years, with moderate to severe FI from different etiologies (8 after anal surgeries, 1 after anterior rectal resection and radiotherapy, 1 after nephrectomy), persistent after conventional treatments (including sphincter repair in 6). External anal electromyography was normal in all. Anal ultrasound excluded sphincter defects. Initial treatment protocol consisted of 12 weekly sessions of PTNS; maintenance treatment was considered if there was recurrence after initial good results. Outcomes were evaluated with Wexner score and anorectal manometry performed at baseline and at the end of treatment. Wexner score was repeated one and three months after, to evaluate the need of maintenance treatment.

Results. Sixty percent, 6 out of 10 patients, improved after the initial treatment. Wexner score improved from an initial average of 15,3+/-3,16 to 10+/-4,08. Within the 3 months after treatment, only one patient with good response worsened and started a maintenance treatment. There were no significant changes in mean resting pressure or mean squeeze pressure values in anorectal manometry (both subnormal in 9 of the 10 patients). Two patients had minor complications (abdominal pain within the two hours after the initial treatment sessions and leg pain with the need of medication).

Conclusions. These study preliminary results suggest that PTNS is a well-tolerated, promising treatment for FI. Other studies, mostly small case series, with variable treatment protocols, also reported high success rates (62,5 to 78%), with different recurrence rates. De La Portilla (2009) (N=16) repor-

ted associated improvement in maximum squeeze pressure values, while Boyle (2010) (N=31) did not find correlation between clinical improvement and physiological parameters including manometry results. Larger randomized controlled studies are needed to establish which patients have more probability of positively respond and which are the better treatment protocols, including the need for maintenance treatment.

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THE INFLUENCE OF CHRONIC PROSTATITIS IN SPINAL CORD INJURED IN SEMINAL PLASMA CHARACTERISTICS: DOUBTS AND PROOVED TRUTHS.

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Introduction. Functional ejaculation depends on the preservation of thoracolumbar segments T11-L2, sacral S2-S4, and their afferences and efferences. In spinal cord injury (SCI), ejaculatory dysfunction is most likely the cause of azoospermia. There are several factors that can change the quality of semen, being seminal plasma the major contributor to the alterations seen in this group of patients. The prostate and seminal vesicles are the main producers of seminal fluid, and its secretory function is altered in SCI.

Materials and methods. PubMed research using the MeSH terms: Spinal Cord Injuries, Prostatitis, Semen Analysis, articles in English, Spanish and Portuguese, no publication date limits, related citations added.

Results. Several studies have shown that men with chronic prostatitis have significant alterations in sperm quality. The leucocitospermia in SCI is not due to acute or chronic inflammation of the prostate gland.

Conclusions. The cause of the abnormal sperm function in patients with SCI remains unclear, it is thought to be multifactorial. More research is needed to establish the causal relationship between prostatitis and decreased sperm quality in patients with SCI.

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EFFICACIA DEL TRATTAMENTO CON TOSSINA BOTULINICA DI TIPO A DELLE RACHIALGIE POST TRAUMATICHE

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Introduction. Le rachialgie post-traumatiche presentano una dolorosa e marcata contrattura muscolare che può inficiare la normale biomeccanica del rachide. La terapia comunemente utilizzata con farmaci decontratturanti (Tiocolchioside) e antiinfiammatori (Diclofenac) per via orale o per via intradermica, spesso non da alcun beneficio. Una alternativa può essere rappresentata dalla somministrazione intramuscolare di tossina botulinica di tipo A (BTX-A).

Materials and methods. 20 pazienti di sesso femminile (età media 41,5±7,6 anni) con cervicobrachialgia cronica refrattaria a qualsiasi trattamento che presentavano marcata contrattura a carico dei muscoli trapezio (TPZ) e sternocleidomastoideo (SCM) bilateralmente. Le pazienti sono state divise in due gruppi; il primo gruppo (*gruppo A,10 pazienti)* trattato con tossina botulinica Botox diluita all'1% di soluzione fisiologica (50U al *muscolo trapezio,* 40U al *muscolo sternocleidomastoideo*), il secondo gruppo (*gruppo B,10 pazienti*) trattato con mesoterapia con decontratturante, antinfiammatorio e lidocaina. Le pazienti sono state valutate con la *scala VAS* e con la *misurazione miometrica* (mediante l'utilizzo del Myoton, strumento che quantifica le modificazioni dei valori di tono, elasticità e stiffness muscolare) all'inizio dello studio (t0), dopo 1 (t1), 3 (t2), 4 (t3), 5 (t4) e 6 (t5) mesi.

Results. la media del tono muscolare di ciascun muscolo misurata con la miometria si è ridotta in maniera statisticamente significativa fino al tempo *t4* nel gruppo A(*TPZdx*:*t0*=22,94±1,5, *t1*=16,04±0,6,*t2*=16,38±0,7,*t3*=16,9±0,5,*t4*=17,81±0,7,*t5*=22,38±1,6. *TPZ sn: t0*=22,98±1,3,*t1*=16,03±0,6,*t2*=16,41±0,5,*t3*=17,06±0,4,*t4*=18,17±0,5,*t5*=22,67±1,6. *SCM dx*:*t0*=20,89±0,7,*t1*=15,74±0,4,*t2*=16,08±0,4,*t3*=16,69±0,3,*t4*=17,61±0,7, *t5*=20,34±0,6. *SCM sn*: *t0*=20,78±0,5,*t1*=15,83±0,4,*t2*=16,24±0,4,*t3*=17,03±0,4, *t4*=17,88±0,5,*t5*=20,29±0,3), con p<0,005. Anche i valori medi della VAS hanno seguito lo stesso andamento (*t0*=8,8±1,1, *t1*=3,4±0,5, *t2*=3,7±0,6, *t3*=4,4±0,6, *t4*=5±0,8, *t5*=8,3±0,6), p<0,005. Nel gruppo B invece non si è apprezzato alcun cambiamento statisticamente significativo dei dati di tono (*TPZdx*: *t0*=23,4±1,5,*t1*=21,1±0,2, *t2*=21,8±0,4, *t3*=22,±0,5, *t4*=22,1±0,2,*t5*=22,3±1,3. *TPZ sn: t0*=21,4±1,1,*t1*=20,6±0,3, *t2*=20,8±0,2,*t3*=20,8±0,4,*t4*=21,1±0,5,*t5*=21,7±1,3. *SCM dx*: *t0*=20,2±0,3,*t1*=20,7±0,8, *t2*=21,2±0,1,*t3*=21,6±0,3,*t4*=21,1±0,4,*t5*=21,3±0,6. *SCM sn*: *t0*=22,7±0,5,*t1*=21,8±0,2, *t2*=21,9±0,5,*t3*=22,1±0,4,*t4*=22,8±0,1,*t5*=22,9±0,7), con p<0,5. e di VAS (*t0*=8,5±1,1, *t1*=5,8±0,5,*t2*=6,3±0,6,*t3*=6,9±0,8,*t4*=7,2±0,8,*t5*=8,4±0,6),p<0,05. Nessuna paziente del gruppo A ha presentato effetti collaterali quali debolezza dei muscoli infiltrati, disfagia e dispnea.

Conclusions. Il nostro studio ha dimostrato che il trattamento con BTX-A nella cervicobrachialgia post traumatica è efficace per più di 5 mesi; la riduzione della contrazione muscolare interrompe il circolo vizioso che si instaura tra contrattura post traumatica, rilascio di sostanze pro infiammatorie e ulteriore contrattura. L'approccio terapeutico con BTX-A ha dimostrato un' ottimale compliance delle pazienti del gruppo A, le quali hanno avuto benefici clinici per un periodo maggiore rispetto alle pazienti dell'altro gruppo con un trattamento poco invasivo e poco doloroso.

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SEVERE SENILE OSTEOPOROSIS: SYNERGISM OF ACTION BETWEEN PTH 1-34 AND REHABILITATION

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Introduction. Senile Osteoporosis is a systemic disease characterized by low bone mass and deterioration of skeletal microarchitecture, leading to increased fragility and increased fracture risk. It especially affects the female, its prevalence is 33% in women between 60 and 70 aa and increases with age. It may remain clinically silent and appear in advanced stages, with vertebral fractures (100,000 cases / year) and femoral (80,000 cases / year) representing a major cause of morbidity and mortality. The risk of fracture can be calculated using the algorithm DEFRA, reliable predictive index, which estimates the probability of incurring an osteoporotic fracture over 10 years. Treatment options include antiresorptive drugs, dual-action, osteoanabolics, monoclonal antibody, in combination with calcium and vitamin D. The administration of teriparatide (PTH 1-34) stimulates osteogenesis, improves the architecture (trabecular and cortical), increasing the resistance and consequently reducing the risk refracturing. Our study evaluated the synergy of action between the daily administration of PTH 1-34 and the implementation of a project / program specifically regarding the rehabilitation for patients with severe osteoporosis with vertebral and / or femoral fractures.

Materials and methods. At the U.O.C. of "Rehabilitation" of the A.O.U.P. "P. Giaccone "of Palermo, between May 2010-2012, 30 women were enrolled, aged between the age of 56 and 86 years (mean age 76.3 y) suffering from severe senile osteoporosis with multiple symptomatic vertebral fractures and/or femoral fractures. Exclusion criteria included: cancer, renal and hepatic impairment and high levels of alkaline phosphatase. The subjects were divided randomly

into two groups, A and B consisting of 15 each. The first "A" consisted of 13 patients suffering by three severe vertebral fractures and 2 women who had in addition also a fracture of the femur. The second "B" consisted of 8 subjects with more than three severe vertebral collapses, 1 reported that in history, also, a fracture of the femur and 6 with a new vertebral fracture > 4 mm after a year of therapy with bisphosphonates. The group A has performed in medical treatment with PTH 1-34 for 24 months, while group B was associated with a rehabilitative treatment that consisted of 3 weekly sessions of therapeutic exercise and PEMF for 2 months. The patients underwent, at baseline (T0) and after treatment (T4), for Rx-graphic examination dorsolumbar spine with Genant morphometric counts in femoral and lumbar DXA and blood tests. The clinical response to treatment was assessed by: VAS Scale, Barthel Index for disability and mini-Osteoporosis Quality Life Questionnaire (OQLQ) for the quality of life at T0, T1 (6 months), T2 (12 months), T3 (18 months) and T4 (24 months).

Results. The assessment, by VAS found in group B, a significant reduction of pain symptoms from the first clinical control (T1); a result also reached by the group A patients, but more gradually. The OQLQ showed an improvement in the performance of ADL, social life, physical activity and emotional state to a greater extent in subjects of group B. Radiographs of the dorsolumbar spine, repeated at 24 months, showed a new vertebral fracture fragility in a patient of group A. Furthermore, it was reported a pertrochanteric fracture of right femur, treated surgically with intramedullary nail, in the same group.

Conclusions. An analysis of the data shows that the PTH 1-34 in association with specific rehabilitation treatment is effective in reducing early pain borne by the dorsal-lumbar spine, to avoid the risk of new fractures, improve balance and gait to correct a good quality of life. Even taking into account the small number of patients, we emphasize the absence of new osteoporotic fractures in women who have also physical therapy and therapeutic exercise.

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JUVENILE RHEUMATOID ARTHRITIS AND EXERCISE

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Introduction. Juvenile Rheumatoid Arthritis (JRA) is the most common connective tissue disease in children. The incidence is reported as 13,9 per 100000 per year, and the onset in childhood accounts for about 5% of rheumatoid arthritis cases. It is defined by the American Rheumatism Association as the presence of arthritis lasting 6 weeks or longer with onset in children under the age of 16 years. Exclusion of other diseases is necessary for diagnosis. The exact cause of JRA is unknown. Functional capacity in J.R.A. is classified using the functional status from the American College of Rheumatology, into 4 classes. Being the class I of those completely able to perform usual activities of daily living and the class IV for those who are limited in ability to perform usual self-care, vocational and avocational activities. The Department of PMR in Hospital Geral de Santo António, Oporto has a specific consultation for children with joint disease, since 2003. It gives assistance to children with a great variety of pathology, particularly with J.R.A. Several scientific studies in recente years have pointed out the importance of exercise in the treatment of JRA. The Department of PMR in Hospital Geral de Santo António, Oporto has created a specific exercise protocol for children with JRA. The objective of this study is to present an exercise protocol in a JRA population and the preliminary results of its application.

Materials and methods. A group of JRA patients was selected based on geographic criteria from among the JRA population followed in the PMR department for integration in a supervised exercise protocol. The group was evaluated prior to the beginning of the exercise protocol including physical examination, functional status and functional capacity for exercise. The patients underwent an exercise protocol in the PMR department for 1 month, three times a week and were then revaluated. Statistical analysis was carried in SPSS.

Results. This study included 5 children with JRA with age 8-17 years. We observed an improvement in the mean results in functional capacity and exercise tolerance – mean borg scale score 15,25 (before exercise) to 14,25 (after- exercise); 1RM was 20,35Kg before exercise and 26Kg after exercise.

Conclusions. In JRA, the rehabilitation takes an important role. Its main goals are the pain relief, preserve and regain joint mobility and flexibility, muscular strengthening, physical fitness and to help the children to perform efficiently the activities of the daily life (providing assistive devices or environmental modifications if necessary). Recently new scientific studies have been noticing the importance of exercise in JRA treatment. Though this study had a small and heterogeneous sample, all patients improved functional capacity after the exercise protocol. New studies with a larger number of patients and with a control group are needed to help confirm the important role of exercise in JRA.

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ACUOSTIC BIOFEEDBACK EFFECTIVENESS IN TREATMENT OF A BLIND PATIENT WITH MIXED URINARY INCONTINENCE

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Introduction. Urinary incontinence affects daily life either at the work or the recreational activities. Mixed urinary incontinence is a combination of both urge and stress incontinence. Women who have a mixture of stress and urge incontinence may be at especially high risk for experiencing functional limitations or decreased well-being as a result of urinary symptoms regardless of comorbid factors. Several conservative treatments are available for the management of urinary incontinence as: pelvic floor muscle training (PFMT), and biofeedback. Multimodalities approach seems to be more effective than single modalities[2]; regarding biofeedback modalities there are two approaches, visual and acoustic. Most of the scientific publications are focused on visual biofeedback[3]. Unfortunately this modality is not feasible for visual impairment patients; moreover few evidences on using of acoustic biofeedback are reported. The aim of our work is to describe the effectiveness and feasibility of multimodality approach using acoustic biofeedback in blind patient affected by mixed urinary incontinence. The authors reported the preliminary data of the first patient.

Materials and methods. 61-years-old woman, blind since she was 20 due to multiple retinal detachments. The first involuntary leakage was detected after hysterectomy at 40 years old. During this twenty-one years the patient experienced a worsening of the urinary incontinence, but she never referred to any physician for her condition until her disability affected severely her quality of life. She was admitted to our department for evaluation, in collaboration with the Gynaecology department, through functional assessment such as urodynamic, uretero-cystografy x ray, that have shown a mixed urinary incontinence. PRM evaluation focused on the posture, pelvic floor evaluation in static and dynamic conditions. We used the multimodality approach in our treatment plan which was ten sessions, twice a week, through pelvic floor muscle training (PFMT) and acoustic biofeedback. A daily Kegel workout program and modifications of the wrong daily behaviour were also provided.

Outcome measures. Pubococcigeus (PC) test, number of pads per day (PAD), number of involuntary leakage per month; Short Form-36 Questionnaire (SF-36), Incontinence Impact Questionnaire (Short Form IIQ-7) and King's Health Questionnaire (KHQ) where assessed at the admission and at discharge.

Results. All the outcome measures have shown an improvement of the quality of life (QOL) and a reduction of the disability.

Conclusions. The multimodality approach is confirmed to be effective for the treatment of the mixed urinary incontinence. The improvement of pelvic floor muscles control**,** results in great comfort in social life and less restriction in the patient's relationships. The acoustic biofeedback seems to play a fundamental role during the application of PMFT and daily Kegel workout program for blind patients with mixed urinary incontinence. This modality should be deepened through further studies to assess the real efficacy and accuracy of this tool on urinary incontinence in patients with visual impairment.

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FRM AND SPEECH THERAPY IN A PATIENT WITH FOREIGN ACCENT SYNDROME

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Introduction. Foreign accent syndrome is a rare language output disorder characterized by changes in *various speech features* leading to a perceived foreign accent. There are few cases reported in the literature. Due to the rarity of this condition, information regarding the functional neuroanatomy of FAS is lacking. FAS is often caused by a stroke, although traumatic brain injury or multiple lesions can also lead to this disorder. FAS can be of unknown etiology, and multiple sclerosis has been listed as a possible factor in a reported case. Stroke-related damage usually occurs within a network of brain structures associated with speech production, including the left-hemisphere Broca's area, pre-motor and motor areas, and the basal ganglia.

Materials and methods. We present the case of a 49-year-oldwoman admitted to our Unit of Neurorehabilitation with a left hemisphere brain stroke who developed foreign accent syndrome (FAS). Brain magnetic resonance (MR) imaging showed the presence of three acute ischemic lesions in the left hemisphere in the frontal insular, precentral baseline, and parietal-occipital. Neurological examination revealed right upper extremity weakness, facial weakness, and altered speech: the patient's speech to be dysarthric and French accented, but otherwise appropriate. During hospitalization the patient underwent speech therapy evaluation of language and cognitive functions by administration of the Italian version of the protocol Aachener Aphasie Test (AAT), a series of tests to highlight any deficiencies praxis, calculation, non-verbal intelligence (Progressive Matrices Raven, standard version) and access to the lexicon (Testing Production of Words, words of Free Association Test). The patient was submitted to speech therapy during hospitalization and after discharge; has been visited at the end of hospitalization and at the end of the treatments, about one year after the acute event. To better understand the neurophysiological basis of the disorder, we have studied the patient with the fRM of the brain.

Results. Is evident from studies performed in our patient, the presence of ischemic injury in left-hemisphere Broca's area, pre-motor and motor areas, similar to literature. Speech therapy assessment showed impaired respiratory dynamics, mild dysarthria, speaking rate decreased, husky timbre; has been shown in over left chord paralysis. At the end of the treatment, one year after the acute, parameters previously been progress in deficit. Is not yet automated proper respiratory dynamics in spontaneous speech.

Conclusions. FAS is a rare disorder of speech expression for which a linguistic mechanism is not fully understood. In this report we describe the case of FAS, studied with brain magnetic resonance and Functional magnetic resonance imaging., that was submitted to speech therapy during and after hospitalization. Similar to literature, neuroimaging studies showed presence of ischemic injury in left-hemisphere Broca's area, pre-motor and motor areas. The fRM showed the involvement of both broca's areas. The evaluation at a year after the acute event presented important improvement as a result of the treatments carried out, except for the respiratory dynamics.

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LUMBAR SPINAL STENOSIS: REHABILITATION AFTER SURGERY TREATMENT

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Introduction. Lumbar spinal stenosis is a disease that produces a narrowing of spinal canal diameter with compression of the dural sac and/or spinal roots. It affects mainly females (M:F=1:6) older than 50 years, it can be congenital or acquired. The acquired form recognizes many etiologies but degenerative cause is the most common. It is characterized by insidious beginning and slow progression: low back and leg pain, then neurogenic claudication with limited movement until the loss of autonomy in walking; the most serious cases may be present sphincterial incontinence. Diagnosis is clinical but CT and MRI lumbosacral spine are important for the differential diagnosis. In addition, EMG can show alterations compatible with pheripheral radiculopathy. The aim of the study is to demonstrate the effectiveness of postoperative rehabilitation that consists of therapeutic exercise and educational booklet based on evidence-based messages and advices.

Materials and methods. In our U.O.C. of "Rehabilitation" of U.H.C. Polyclinic "P.Giaccone" in Palermo, were recruited 30 patients (18 women and 12 men) aged between 50-75 years (mean 67.3 years), from July 2011 to June 2012, with diagnosis of spinal stenosis who refered low back pain and neurogenic claudication and who are candidated for surgical decompression of the spinal canal. The study excluded patients with cognitive impairment, metabolic neuropathies, previous surgical spinal infections, tumors and pacemakers. The patients were subjected to preoperative clinical assessment (T0), at 4 weeks after surgical decompression (T1) and after 3 months (T2) using the Visual Analogic Scale (VAS) for pain, the Roland Morris Disability Questionnaire (RMDQ) and the Swiss Spinal Questionnaire for the disability, the Short Form Health Survey (SF-36) for the health and quality of life and Six minutes walking test (6-MWT) to exercise tolerance. Patients were randomized into two groups A (14 subjects) and B (16 subjects). The treatment for patients in group A included, one month after surgery, a rehabilitation program and a educational booklet with advices and exercises to do at home. The rehabilitation program included daily sessions of therapeutic exercise lasting 45 minutes given for 8 weeks consisting of paravertebral and lower limbs muscles stretching, back exercises, spinal stabilization, proprioceptive and respiratory exercises. Patients in group B were advised to walk wearing a lumbar corset with back slats.

Results. The treatment performed in group A demonstrated a decrease / remission of painful symptoms and joint limitation of the lumbar spine, improvement of muscles flexibility and strength, greater recovery of daily activities and work, compared to control group.

Conclusions. After the preliminary outcomes obtained, we can assert that a post-operative rehabilitation program supplemented by an educational booklet, such as visual and mnemonic support, improves results of surgery of the spine, quality of life and maintains over time the well-being.

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VARIATIONS OF CLINICAL-INSTRUMENTAL PARAMETERS IN VEGETATIVE AND MINIMALLY CONSCIOUS STATES TREATED BY OLFACTORY STIMULATIONS IN POST-ACUTE PHASE

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Introduction. The theoretical and experimental basis of utilization of sensory stimulation find evidences in the absence of these type of treatment can lead to significant cognitive and behavioral changes even in healthy individuals or disrupt the smooth development of the individual (1). In minimally conscious patients, although caused by brain damage, this would generate a state of deprivation that could lead to environmental damage of the broader intellectual and perceptual processes (2). In light of this the use of sensory stimulation for comatose patients or vegetative state has gained popularity in the Western world despite the lack of scientific evidence that ensure the effectiveness (3). Compared to other sensory systems, the olfactory system is characterized by certain features. It's the only neural way that goes directly to the sensory thalamus and it connects directly to some areas of the cerebral cortex that are part of the limbic system also it has not connections with the telencephalon (4). The olfactory memory demonstrates a particular characteristic: the passage of time dims the visual and verbal memories, but not olfactory because the holistic and multisensory encoding makes them particularly resistant, although they are stored in a form for the most random (5).

Materials and methods. This study aimed to observe and monitor vital signs and any autonomic responses in patients in VS or SMC subjected to olfactory stimulation during intensive rehabilitation. From Octorber 10th 2012 to June 6th 2012, 8 patients were subjected to olfactory stimulation through the use of certain essences. 4 subjects were in S.M.C. results from TCE; 4 patients in S.V. by subarachnoid hemorrhage deriving to GCA. Each patient was tracheal cannula at weaning phase (good ventilation with closed cannula) and he/she passed the adaptation stage of orthostatic state in a rocking chair. The subjects were suspended by treatment with clinical symptoms and laboratory findings of sepsis. There were patients waiting for surgery of reposition of skull vault. During the period of stimulation all the pieces were evaluated with GCS, LCF, DRS, CRS-R. Before a delivery of the olfactory stimulus were recorded the following instrumental parameters (which were considered "basal"): PA, Fc, Fr and the Sat.O2 and then they were monitored during the all treatment period; during the stimulation period were controlled the following clinical neurovegetative parameters: sweating, breathing characteristics, vasomotor reactions, triggering of archaic reflexes, such as adaptive or open eyes, facial expressions or vocalizations changes. To do olfactory stimulation we identified 3 perfumers: camphor, cinnamon and aroma preferred by the patient before the brain damage. The stimuli were delivered in the Sensory Laboratory by a team of dedicated physiotherapists and speech therapists, for a maximum of 5 minutes or until appearance of a clinical or instrumental change. Between a stimulus and the other elapsed 5 minutes. The stimulation period lasted, on average, 30-40 min. The session stimulation provide were 15,3 times a week.

Results. In both groups of patients (SV and SMC) were observed variation of Fc and Fr parameters (in increments of 5-10%) following stimulation with camphor. There were no changes in the SAT. O2 and PA. Stimulation with individualized essence and the cinnamon oil was causing a weaker response (in SMC) or absent (group SV) compared to camphor essence. The autonomic responses more frequent were sweating (face and hands) and the characteristic of the breath (in terms of variations of the Ti/Ttot), their appearance was earlier than instrumental, and their intensity was greater in the SMC group than SV group. The clinical and instrumental responses tended to end up back in the parameters to baseline after 2-5 min after cessation of stimulation. Vital signs and neuro-vegetative reactions show significant changes during the administration of the olfactory stimuli (P <0.01) compared to baseline parameters. The choice of three flavors used, entirely arbitrary, is derived from the need to categorize stimuli in some way, because it is not possible to identify basic and major categories (6). As regards the duration of stimulation, it was not possible to use a default time for all patients both because it is difficult to obtain homogeneous groups and because the stimulation was interrupted to the appearance of responses. The choice of the preferred aroma of the patient selected by family members confirmed the importance of family involvement in the process of relationship with the team rather than in its capacity increased elicitation of autonomic responses.

Conclusions. The study involved a limited number of patients in order to reach conclusions. Although smell is considered, for its penetrance direct brain regions that control the emotional functions (4) and the sense of the "emotion". The olfactory stimulation used in a standardized way in patients in SV and SMC seems, at the moment, only allow to stimulate the autonomic responses. This stimulation must be associated with the current protocols for monitoring and diagnosis of SV and SMC and within a framework of "sensory control". In fact it should be noted that too many intense stimuli could induce mechanisms of tolerance that would render them ineffective (7). For this reason we used a stimulus that is most like to "preferred" mode, intensity and duration at which the individual is under stress in daily life (8). The study, being in agreement with the literature, needs further study. It is emphasized that the clinical observation still play a relevant role than many of the information detected by imaging techniques and the importance of the sensory stimulation in a dedicated environment, by trained personnel who can manage the involvement of family members.

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EFFECTS OF HYALURONIC ACID INTRA-ARTICULAR INJECTION FOR THE TREATMENT OF TEMPOROMANDIBULAR JOINT OSTEOARTHRITIS: RELATIONSHIP WITH CERVICAL SPINE PAIN

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Introduction. Temporomandibular disorders (TMD) are musculoskeletal pain conditions characterized by pain and dysfunction in the face muscles and/or in the temporomandibular joint (TMJ). Several studies identified an association between TMD and cervical spine disorders (CSD) in terms of limited range of motion (ROM) (40% of cases) and neck pain (10% of cases). Actually the underlying cause of neck pain remains unclear. Chronic neck pain results common in the general adult population with prevalence of 48% for women and 38% for men, with persistent complaints in 22% of women and 16% of men. Multiple modalities of treatments, without certain evidence of efficacy, are now proposed for the management of chronic neck pain. When neck pain is observed in patient with temporomandibular disorder, treating the last problem, is frequent a regression of the neck symptomatology. Many studies show the efficacy of hyaluronic acid (HA) injections in TMJ related to the biological properties of this molecule on cartilage and synovial membrane. The aim of the present study was to assess whether a treatment protocol consisting in five weekly arthrocenteses plus HA injections, using medium-molecular weight HA, could be effective in reducing pain symptoms, both in TMD and CSD.

Materials and methods. A total of 12 patients with chronic pain and limited ROM in the neck of more than six months' duration (75% females; mean age 57.3 years) entered the study protocol. All patients underwent five weekly single-needle arthrocenteses plus medium-molecular weight HA. The outcome measures were muscular strength, intensity of neck pain at rest measured by a 10-point visual analogue scale (VAS) and active cervical ROM measured by a specific goniometer (Inclimed®). These outcomes were assessed before treatment, and 1 month after the intervention. The Neck Pain Disability Questionnaire (NPDS) was also employed to investigate neck functional disability.

Results. None of the 12 included subjects withdrew from the study. The non-parametric Wilcoxon signed-rank test was used to analyse our data. The decrease in post-treatment TMJ and neck pain at rest levels (VAS median value pre –treatment= 5.5; VAS median value post –treatment= 2.5) show statistically significant changes (p< 0,05), so it is in line with literature data supporting the effectiveness of HA injections for muscular diseases. Findings suggest also a trend toward an increase in some cervical ROM, especially in neck rotation (25th percentile pre-treatment= 62.5, 25th percentile post treatment= 70.0; 75th percentile pre-treatment= 80.0, 75th percentile post treatment= 80.0), these results support the hypothesis of neuroanatomical connections and nociceptive relationships between the orofacial area and cervical muscles.

Conclusions. Correlation between TMD and CSD has been reported early in literature. We performed a pilot study to explore whether TMJ hyaluronic acid injections was effective, not only for TMD, but also for related chronic neck pain treatment. Considering the limits of this investigation, it is necessary to extend the sample size, as well as the length of follow up period. We consider that such studies in the future will yield novel findings concerning the mechanisms of chronic pain occurring in patients with neck motility disorders. This data will contribute enormously to understand the relationship between TMJ and neck pain disorders and to identify the first site of therapy.

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HIP TUBERCULOSIS IN PHYSICAL REHABILITATION: CASE REPORT WITH LITERATURE REVIEW

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Introduction. With involvement of a third of world population and eight million new cases worldwide each year, tuberculosis remains an international

health problem. The osteo articular localization occurs in 1-3% of patients infected with Bacille of Koch and represents approximately 30% of extra pulmonary tuberculosis. Tuberculosis of the hip represents 50% of osteoarticular tuberculosis members. We report a case.

Materials and methods. It is about a man of 34 years, insufficient renal chronicle to the stage of hemodialysis that consults for inflammatory pain of left Knee dating since one year.

Results. The physical examination found a correct mobility of knee, hip extension of -40 °, a limitation of flexion to 90 °, of abduction to 15 ° and of internal rotation to zero. The muscle testing shows weakness of hip muscles to 3 + with unequal length of 2 members about 4 cm. walking is only possible with the help of 2 canes. The x-ray of basin revealed a pinch important of the femoral hip spacing with geodes opened in the joint and bone condensation of the articular edges. The scanning shows a pinch of the articular spacing with dissolves bony of the femoral head and the socket. The diagnosis of tubercular coxite is carried. The articular puncture, the synovial biopsy with culture on middle of Löwenstein and the anatomopathology exam confirmed the diagnosis. The patient is put under quadrithérapie and he benefitted from an adapted rehabilitation. After 6 months of rehabilitation, there was improvement in: the flexion deformity becomes to15 °, abduction to 20 °, internal rotation to 10 ° and muscle weakness (hip 4/5). Compensation by an orthese of 3 cm was also prescribed to him. Walking became possible without technical assistance, however, with a limp. A total Prosthesis of hip is considered after 5 years of stop tuberculosis antibiotics.

Conclusions. Tuberculosis is still endemic form in developing countries. The prognosis depends on early diagnosis, good adherence and terrain. Most experts recommend a minimum duration of tuberculosis antibiotics 9 to 12 months. The establishment of a hip prosthesis requires compliance with a sufficient period of quiescence and must be supervised by the resumption of tuberculosis antibiotics.

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A DIFFERENTIAL DIAGNOSIS OF CEREBRAL PALSY: THE BILATERAL OBSTETRIC BRACHIAL PLEXUS PALSY

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Introduction. The incidence of obstetric brachial plexus lesions is between 0.4 and 3 per 1000 births. They can occur on a cephalic presentation often secondary to shoulder dystocia, a breech presentation (the lesion is bilateral) and even during a cesarean delivery. When the lesion is bilateral and in the absence of a thorough clinical examination the diagnosis can be misleading and simulate a cerebral palsy (CP) especially in a context of suffering and perinatal asphyxia.

Materials and methods. This is a new-born male from a normal pregnancy with vaginal delivery in breech presentation. The birth weight was at 3300 grams. The Apgar score was 4 and 6/10 in relation to perinatal asphyxia requiring hospitalization in intensive care for 3 weeks. He was subsequently sent in our clinic at the age of 4 months for PC.

Results. The initial examination discovers a bilateral plexus palsy of C5-C6-C7 with a biceps and deltoid at 0/5. Functional rehabilitation was started. It was supplemented by an EMG performed at age 6 months showed a bilateral partial denervation in the motor territory of C5 C6 C7 and a bilateral brachial flexopathie without avulsion.

Conclusions. The brachial plexus palsy (BPP) occurring in breech presentation is 1 to 3% of cases [1,2]. The lesion in this case would be more severe and often bilateral. These elongations are due to difficulties in extracting the head last. The lesion produced by pulling the shoulders in hyperextension of the neck causing a tear of the proximal roots C5-C6 and sometimes C7 [2]. The management of the BPP is multidisciplinary. Treatment is based mainly on rehabilitation which must be supervised by a physiatrist. The prognosis depends on the severity of nerve injury. The rate of spontaneous recovery varies between 20% to 80%, this rate is higher in case of proximal lesion. In practice, the lack of recovery in the third month shows a rupture or a tear and calls for surgical exploration [3].

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SOCIO-VOCATIONAL REHABILITATION OF PATIENTS IN THE AFTERMATH OF SEVERE ACQUIRED BRAIN INJURY. PROPOSAL FOR ECOLOGICAL OBSERVATION DOSSIERS AS A TOOL IN THE NEURO-COGNITIVE LABORATORY.

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Introduction. A person with severe acquired brain injury (ABI) presents a complex set of impairments that often go over into severe disability (1). In particular, the presence of cognitive-behavioral disorders in the aftermath of severe acquired brain injury (ABI) is very high (70-90%) (2), and even more significant is the impact on social and vocational rehabilitation (3). Over the years, the approach to cognitive rehabilitation of severe brain-injured patients has undergone a profound change, from intervention models generally focused on treating specific motor or cognitive impairments to others directed towards rehabilitation and social reintegration. These are based on a bio-psychosocial model which focuses on the individuality of the person (4), where the disability is only considered as such if the structural/functional damage is inserted in a disadvantageous psycho-social context. In cognitive therapy, whether carried out singly or in small groups in an open space (5) the problem of subjectivity in evaluating the patient is recurs time and again, hence the need to find new, reliable and sensitive tools to give more objective and less operator-dependent feedback. The aim of this work is to present a neurocognitive assessment, training and reassessment protocol for staff working at the neurocognitive laboratory at the Borsalino ASO Clinic in Alessandria, capable of giving qualitative and quantitative information on the performance of the same activities in an ecological context.

Materials and methods. The activity is based on the introduction of non-specific work protocols regarding the individual aspects of the neuropsychological deficit emerging from specific neuropsychological assessment, and an assessment carried out in a non-specific ecological context designed to recreate possible situations/activities from everyday life, in order to qualitatively and quantitatively assess and justify therapy decisions and to minimize the impact of the disability on rehabilitation into society and family life. These protocols were designed to allow for the use of discretion in adapting the proposal to suit the needs of the patient and to adopt the patient-dependent variables that would make for a more individualized scheme of work for rehabilitation. For each aspect we identified situations of increasing difficulty, set in different ecological contexts so that they could be set up to take into account the individual patient's residual cognitive abilities and socio-cultural identity. These assessment-based observations are repeated during daily activities in the laboratory and monitored during neurocognitive rehabilitation treatment.

Results. The introduction of these assessment documents into the neurocognitive laboratory allowed for interventions to be tailored more flexibly to the needs of patients and facilitated the integration of individual programs. These protocols have the advantage of not requiring motor skills from the upper limbs, and facilitate metacognitive aspects of the task (6). They allow for an increase in the self-monitoring of deficits and care provided by the operator is individualized and developed according to the skills and needs of the patient.

Conclusions. This system of work proposals does not presume to meet the requirements defined by biomedical research for the term "evidencee-based", but it does act as a guide for any operator who, on entering a neurocognitive laboratory, may propose activities in an ecological context, either individually or in small groups in an open space, and serves to promote more effective/efficient interventions with a view to helping patients to achieve the highest possible level of independence following severe brain injury and subsequent associated neurocognitive deficits, in collaboration with other health professionals, particularly neuropsychologists (7.8).

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OCCIPITAL HEADACHES TO THINK ABOUT A MINOR INTER VERTEBRAL DISTURBANCE (DIM)

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Introduction. The relation between headache and cervical spine remained even subject of discussion whatever the term of cervical headache was introduced by Maigne since more of 50 years. The common headaches were a long time and remain again at some considered like headaches of psychological origin. Yet, the clinical, anatomical and therapeutic arguments that underline the ties between headaches and superior cervical spine don't miss. Returning us a case of a minor inter vertebral disturbance (DIM) cervical C2 revealed by occipital headaches.

Materials and methods. It is about patient N.S. aged of 37 years without particular pathological antecedents who presents occipital headaches since more of one year without associated other signs. These pains were rebel to the usual medical treatment what pushed the patient to present itself to our physical medicine consultation. The patient described a headache occipital one-sided right that radiates toward the right forehead and that exacerbates itself to the mobilization of the neck.

Results. The physical exam revealed a pain to the mobilization of the cervical spine without an articular limitation. The intensity of the pain according to the EVA was of 50mm. The exam palpatoire and segmental revealed a pain on to the palpation of the right posterior facets C2-C3, of the cellulalgies to the level known orbital right to the affected rolled and a positive shampooing sign on the right. The assessment according to the cervical inability scale (EIC) found a score of 40. The radiology of the cervical spine showed an osteoarthritis on the right posterior facets C2-C3. The carried diagnosis was a DIM cervical C2. A based rehabilitation protocol on the technical myotensives was instituted at this patient at the rate of a session per week during three weeks. The evolution was marked by the disappearance of the headaches and the improvement of the neck pain. The EVA pain passed to 10mm and the score of the EIC passed to 20. This effect was maintained 3 months after.

Conclusions. The existence of one-sided occipital headache that exaggerates itself to the mobilization of the neck orients toward the cervical origin of this one. The segmental exam as well as the x-ray of the cervical spine will help towards the diagnosis. The physical treatment rests on the technical myotensives where the principle of precaution and the assessment of the profit-risk report can be applied comfortably.

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SELF-AWARENESS IN TRAUMATIC BRAIN INJURY PATIENTS: INTERVENTION PROPOSAL

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Introduction. Self-awareness is defined as "the capacity to perceive the *self* in relatively *objective* terms, while maintaining a sense of subjectivity (Prigatano, 2005). It is defined clinically as an understanding of one's abilities and limitations and how this impacts on task performance in everyday living (Schlund, 1999). Disturbances in self-awareness have been noted in a wide variety of brain disorders, and are common in people with traumatic brain injury (TBI). The aim of this exploratory study is to propose a self-awareness rehabilitation intervention designed to. facilitate the development of self-awareness in people with TBI.

Methods. According to the literature review (see Fleming *et al.*, 2007) and a pilot study with a small group of patients, a self-awareness intervention program was defined. The program consists of two weekly 1h30min. group sessions (3-5 patients), for the duration of two months. Patients should meet the following inclusion criteria: (1) traumatic brain injury (2) executive functions and self-awareness deficits. The main exclusion criteria should be: (1) dementia, (2) psychiatric disorders (3) previous neurological disorders (4) sensory disorders. The program targets psycho-education training regarding brain, cognitive functions and emotions; self-evaluation exercises and group confrontation. Before and after the self-awareness intervention, patients should undergo a comprehensive neuropsychological evaluation, the Neurobehavioral Rating Scale and The Patient Competency Rating Scale (PCRS).

Results and discussions. An improvement of self-awareness will be expected by comparing PCRS and observational indicators before and after the treatment. Improving self-awareness in people with a brain injury is an important outcome for rehabilitation. Group interventions have the property to facilitate and increase self-awareness involving feedback from the neuropsychologist and peers and promoting awareness of patients' abilities and limitations. Translating knowledge arising from scientific research to clinical practice is one of the challenges of neuropsychological rehabilitation. Through this proposal of intervention, one tries to take a steps forward in this direction, with the purpose to include it in the rehabilitation program for TBI patients.

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PATIENTS' SATISFACTION REGARDING LOWER LIMB PROSTHESIS

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Introduction. Lower limb amputations significantly influence patients' body image, self-care activities, mobility, psychological health and vocational and recreational opportunities. A comfortable, cosmetic and functional prosthesis is a major goal in the rehabilitation process of lower limb amputees. The objective of the study was to assess the satisfaction of a lower limb amputee population regarding comfort, cosmetics and functionality of lower limb prosthesis, so we can identify aspects that can be ameliorated in order to improve their functioning and quality of life.

Materials and methods. Cross-sectional study of a population of patients with lower limb amputations who had lower limb prosthesis and were followed in a Physical and Rehabilitation Medicine Department of a central Portuguese hospital between 1stMay 2011 and 30thApril 2012. Data were collected through a structured questionnaire applied by telephone; the questionnaire included socio-demographic and clinical data as well as aspects concerning comfort, cosmetics and functionality of lower limb prosthesis. Statistical analysis was performed using SPSS Statistics 17.0.

Results. 132 patients were included in the study. They were mostly men 91 (68,9%). Mean age was 61 years. 37,1% were retired. In 80 patients (60,6%) amputation level was trans-tibial with dysvascular etiology in 51,5% and traumatic in 31,1%. The average time between amputation and first prosthesis fitting was 10,0 months. The majority of patients considered that the prosthesis was comfortable (53,2%), but 38,9% expressed dissatisfaction in this parameter. When asked about overall performance, 62,7% reported being satisfied. Finally, concerning cosmesis, 69,4% of all respondents were satisfied and 17,7% unsatisfied. Most persons (47,6%) used their prosthesis extensively (>12hours/day) but 6 patients didn't use it at all. 75,8% were able to don prosthesis alone, without help. 37,1% did not use any assistive devices; 28,2% required two crutches. Dysvascular lower-limb amputees were more likely to rely on assistive devices to ambulate than lower-limb amputees from other causes. We found a statistically significant correlation between functional satisfaction level and amputation etiology, level of amputation and hours of prosthesis use. Patients with dysvascular etiology and those with trans-femoral amputations are the most unsatisfied with prosthesis function. Most dissatisfied patients use their prosthesis for fewer hours than satisfied patients. Among unsatisfied patients concerning prosthesis comfort, the majority refers pain (41,3%) and dermatological problems (30,4%). We also found a statistically significant correlation between gender and number of comorbid conditions with amputation etiology. Males were more likely to have an amputation of dysvascular etiology whereas women of infectious etiology. Patients with more than three comorbid conditions have a strong association with dysvascular etiology.

Conclusions. This study showed that patients are generally satisfied with their prosthesis, including prosthesis comfort, function and cosmesis. Nevertheless, there are still problems related to prosthesis comfort, highlighting the need for improving communication between patients, doctors and prosthetists, in order to improve the quality of care provided to persons with limb loss. It is also important to find out what factors influence user satisfaction or use levels, so we can improve the quality of care. It's crucial that lower limb amputees have the most comfortable, cosmetic and functional prosthesis, so that they can achieve their highest level of functioning.

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COGNITIVE DISORDERS IN PEOPLE WITH SPINAL CORD INJURIES.

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Introduction. The Gisem study showed the incidence of spinal cord injury (SCI) and secondary complications but did not put an emphasis on co-morbidity of traumatic brain injury (TBI) and its main consequences such as cognitive disorders. In papers there are still just a few studies that investigate the prevalence of cognitive impairment in patients with SCI who, while deferring to the mode and timing of evaluation, are believed to be in the order of 40-50% of cases and that affect mainly the population of traumatic patients (1,2,3). The main cause seems to date back to a TBI, though, albeit in a smaller percentage, cognitive disorders are also present in people with non-traumatic spinal cord injuries, especially those secondary to cardiovascular causes. (4).

Materials and methods. Retrospective analysis of 5 years of activity conducted with the football team, US Alessandria, investigated the incidence of comorbidity of a mild-medium TBI, the incidence of cognitive disorders and their impact on the rehabilitation course and outcome. Of all patients, the cognitive and motor FIM scores and the Barthel scale of entry and discharge. Cognitive disorders were evaluated between, attention, concentration, memory and problem solving. The assessment of cognitive disorders was performed by a psychologist, an expert in neuropsychology, rehabilitation, or part of the team in the acute phase, when combined with a brain trauma or on joining the club, as observed by staff and / or family members, difficulty in remembering treatment or providing adequate sustained attention in the acquisition of new skills. The neuropsychological evaluation involves the use of a range of tests of the first and second level.

Results. The cognitive problems most frequently encountered are related to problem solving, attention, concentration and memory. The most frequent effects on the rehabilitation project have caused delays in carrying out rehabilitation programs: delay in learning new skills both in terms of quantity and speed, delay in understanding the prognosis; lengthening of recovery times.

Discussion. Cognitive disorders, as well as being secondary to traumatic causes, may be related to pre-existing factors such as abuse of alcohol and drugs or a history of TBI (1). They can also occur a while after the acute event, as a result of anxiety-depressive syndrome or following side effects of commonly used drugs such as antispasmodics, anticonvulsants, painkillers. The increased incidence of spinal cord injury in the elderly population has to focus attention on cognitive impairment, up to the event or borderline acute yet unknown, which occur or become more pronounced in the post-SCI. It also remains to be evaluated under the same conditions described in other specialized fields, the negative impact of a long period of hospitalization. The evolution of cognitive disorders, when they are secondary to medium to light TBI's, is a regression of symptoms within 12 months after the acute event (5) whilst in other cases itis related to the treatment of depressive disorders and the identification of iatrogenic causes. In the presence of TBI associated premorbid or severe disorders one shouldn't expect changes with respect to the specific data of the literature. The presence of neuropsychological disorders tends to increase the length of stay and affect the outcome (4.5).

Conclusions. The data is still scarce in papers concerning this co-morbidity that considerably affects the implementation of the rehabilitation project of the SCI patient. The screening of disorders is important; as is the constant cooperation of the football club health team with a trained psychologist in neuropsychology.

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MICTURITIONAL DISTURBANCE IN NEURO-BEHÇET'S DISEASE

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Introduction. Behçet´s Disease (BD) is a multisystem relapsing inflammatory disease of unknown aetiology, which affects the small and large vessels in both arterial and venous systems. Its hallmark is recurrent oral aphtae accompanied by at least two of the following: recurrent genital ulcers, skin lesions, eye lesions and a positive pathergy test. In Behçet´s Disease, neurological involvement occurs in less than one-fifth of patients - Neuro-Behçet's Disease (NBD). Micturitional disturbances are known to occur in NBD and can be manifested in the form of urinary urgency. One reason for high prevalence of frequency and urgency in BD patients with lower urinary tract symptoms could be involvement of the pontine micturition center by a vasculitic process. Direct involvement of bladder, however, is possible in the form of ulceration and nodules or recurrent cystitis. Storage symptoms in these patients, as a result, could be due to NBD, direct bladder wall involvement, or combination of both. In NBD, urodynamic findings can include: detrusor hyperactivity, bladder hypersensitivity, decreased bladder compliance or capacity, impaired contractility and increased postvoid residual urine. The most common urodynamic finding is detrusor hyperactivity.

Materials and methods. Case reports of two female patients (35 and 45 years) diagnosed with NBD who are followed in Physical and Rehabilitation Medicine (PRM) consultation because of micturitional disturbances.

Results. Both patients had urinary urgency in the context of NBD and one of them always had polaquiuria and nocturia (with micturitions every hour). Because of their neurogenic bladder, they performed urodynamic studies. These have demonstrated bladder hypersensitivity in one case and detrusor hyperactivity in the other case. This one initiated appropriate pharmacological treatment (oxybutynin) as well as behavioral measures and improved urinary urgency. A cystoscopy was requested to the patient with bladder hypersensitivity and micturition every hour, in order to exclude the possibility of having bladder ulcers.

Conclusions. In patients with NBD, incontinence or irritable bladder symptoms should not be considered innocuous clinical findings. Lower urinary tract function should be evaluated before instituting treatment and treatment plan should be tailored according to the specific type of bladder involvement. Periodic re-evaluation is required, in order to assure a good bladder functioning without urinary complications and improve patients' quality of life.

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UNUSUAL CAUSE OF SHOULDER PAIN AND DYSFUNCTION IN AN ATHLETE

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Introduction. Athletes engaged in overhead sports may experience shoulder pain as caused by several musculoskeletal and neurovascular injuries including rotator cuff injury, impingement syndromes, tendonitis, acromioclavicular arthritis or the less frequent quadrilateral space syndrome, thoracic outlet syndrome, effort thrombosis or suprascapular europathy (SN). SN is uncommon and frequently misdiagnosed resulting in inappropriate physical rehabilitation or surgical procedures. An unusual cause of shoulder pain and dysfunction secondary to SN associated with a spinoglenoid ganglion cyst is described.

Clinical case. A 46 year-old handball athlete had complaints of a long-duration, poorly localized, dull right shoulder pain, aggravated by overhead movements and associated with progressive shoulder muscle weakness. A rotator cuff injury was diagnosed aided by ultrasound examination and con-

servative treatment instituted without improvement. Magnetic resonance later demonstrated a SLAP labrum lesion and spinoglenoid ganglion cyst compressing the SN. Electromyography confirmed suprascapular nerve neuropathy. The patient underwent arthroscopic excision of the lesion with labrum repair followed by a physiotherapy program. Six months after surgery there was full symptomatic and functional recovery.

Discussion and conclusions. Diagnosis in shoulder pain secondary to SN is challenging, involving diverse differential diagnosis and specific tests. With appropriate treatment, SN secondary to spinoglenoid ganglion cyst impingement can be addressed with good results.

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PROGNOSI RIABILITATIVA NEL PAZIENTE CON GRAVE CEREBROLESIONE ACQUISITA: USO DELL'ANALISI NON LINEARE DEL SEGNALE BIOELETTRICO CEREBRALE NEI DISTURBI DI COSCIENZA. STUDIO PRELIMINARE

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Introduction. Scopo del seguente lavoro è quello di esporre i risultati preliminari di uno studio sperimentale, tutt'ora in corso presso la nostra azienda ospedaliera, avente come obiettivo quello di verificare l'utilizzo dell'analisi non lineare del segnale elettroencefalografico nel caratterizzare i cambiamenti delle funzioni cerebrali nei pazienti affetti da disturbo di coscienza e la possibilità di attribuire a tale strumento diagnostico un qualche valore prognostico predittivo nei soggetti con grave disturbo di coscienza.

Materials and methods. Lo studio sperimentale di tipo caso-controllo ha avuto inizio nel mese di Marzo 2011, i risultati successivamente esposti riguardano il periodo di studio compreso tra Marzo e Novembre 2011. A tale periodo risultano inclusi nello studio 16 soggetti: 9 soggetti sani e 7 soggetti affetti da GCA con alterazione di grado variabile dello stato di coscienza. Tutti i soggetti sono stati sottosti a registrazione EEG per 10 minuti ad occhi aperti e 10 ad occhi chiusi secondo il sistema 10/20, su cui è stata effettuata l'analisi della complessità mediante software OntoSpace presso la Società Ontonix. I casi sono stati inoltre sottoposti a valutazione clinica nel rispetto dei criteri del protocollo di valutazione riabilitativa di minima delle persone con GCA.

Results. Dall'elaborazione dell'analisi non lineare del segnale EEG sono stati ricavati sia il valore della complessità media che le curve dell'andamento temporale della complessità per ogni singolo caso studiato. I risultati ottenuti sembrano dimostrare che i valori della complessità media presentano un'estrema variabilità di distribuzione, senza riuscire a discriminare il soggetto sano dal paziente con disturbo di coscienza per la presenza di molti artefatti di natura non EEG. A nostro parere sembra avere più rilevanza, come si evidenzia dall'analisi visiva dei grafici, la valutazione del trend temporale della complessità. Tali risultati appaiono discordanti da quelli fino ad oggi presenti in letteratura che correlano il valore medio della complessità con la gravità del disturbo di coscienza. Tuttavia non contraddicono l'assunto di partenza circa una minore complessità del tracciato EEG in pazienti con disturbo di coscienza, in quanto essa varia molto meno nel corso del tempo nei pazienti con disturbo di coscienza che non nei sani.

Conclusions. La conclusione a cui è possibile giungere dall'analisi dei dati preliminari è che lo studio della variabilità della complessità nel tempo è promettente quale test ancillare nella valutazione del paziente affetto da disturbo di coscienza ma necessita di essere correlato sempre alla valutazione clinica con particolare riferimento alla presenza di disordini metabolici o assunzione di farmaci che possano ridurre lo stato di coscienza. Si rendono tuttavia necessarie analisi matematiche più complesse quali, per esempio, la valutazione dell'area sotto la curva dei grafici di variazione temporale della complessità per poter discriminare pazienti con disturbi dello stato di coscienza tipo "minimal responder" da soggetti pienamente coscienti e Locked in.

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INCIDENCE AND TYPES OF SPEECH DISORDERS IN STROKE PATIENTS: THE EXPERIENCE OF A STROKE UNIT

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Introduction. Stroke is the single greatest cause of disability in most Western countries. Aphasia and/or dysarthria are common symptoms post-stroke and impact on quality of life. The aim of the study was to determine the incidence and types of speech disorders in patients with acute stroke.

Materials and methods. The study was performed in 362 patients admitted to the Stroke Unit of the Centro Hospitalar de Vila Nova de Gaia/Espinho, in the period from January 1, 2011 through December 31, 2011. We retrospectively reviewed the medical records of the 362 patients and collected the clinical information of all the participants, including age, gender, diagnosis, type of stroke and presence of speech disorder at admission.

Results. Thirty two of the patients (8,8%) admitted to the Stroke Unit were diagnosed with disorders other than stroke, namely transitory ischemic accidents and brain tumors. Among the 330 stroke patients, 176 were male (53,3%) and 154 female (46,7%). Stroke occurred at a median age of 69 years. Two hundred and eighty four of the patients (86,1%) suffered an ischemic stroke and 46 (13,9%) a hemorrhagic stroke. Out of the 330 stroke patients, speech disorders were verified on admission in 228 (69,1%) patients. Dysarthria was present in 122 (36,9%), being the most common speech disorder, and aphasia in 106 (32,1%) patients. In the group with speech disturbances, dysarthria was present in 53,5% and aphasia in 46,5% of patients. During hospital stay, lethal outcome was recorded in 19 patients, 18 of witch had speech disorders. Among patients with aphasia at admission, global aphasia was most common (54,7%), followed by Broca's aphasia (28,3%) and nominal aphasia (6,6%).

Conclusions. The diagnosis of acute ischemic stroke is often straightforward but differential diagnostic problems remain because there are several disorders that may have strokelike clinical pictures. This study shows no gender differences among adult stroke patients. The ratio between ischemic and hemorrhagic strokes corresponded to the one described in the literature. Dysarthria was, as expected, the most common speech disorder following stroke. Among patients with aphasia, global aphasia was the most common, followed by Broca's aphasia and nominal aphasia.

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NEUROFIBROMATOSIS TYPE 1 – CLINICAL AND FUNCTIONAL HETEROGENEITY

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Introduction. Neurofibromatosis is the term given to two distinct neurocutaneous genetic conditions. Type 1 is an autosomal dominant genetic disorder with complete penetrance and highly variable expression, due to loss of tumor suppressor genes on chromosome 17, decreasing neurofibromin production. One of its main features is its systemic involvement, with nervous system commitment. There are two types of neurofibromatosis: type 1 and type 2. Neurofibromatosis Type 1 is the most common and accounts for approximately 90% of cases. Neurofibromatosis has a diversity of clinical manifestations and

degrees of severity and the diagnosis of Neurofibromatosis type 1 is established when two or more diagnostic criteria are present.

Materials and methods. The authors describe two clinical cases of Neurofibromatosis type 1, father (75-year-old) and daughter (47-year-old), who underwent treatment in Physical and Rehabilitation Medicine Department of *Centro Hospitalar do Porto* (a Portuguese central hospital).

Results. Both cases have serious clinical manifestations, with marked spinal cord compression, multiple and large neurofibromas in all spinal roots. The daughter even has large palpable cervical, dorsal and thoracic neurofibromas. As a result they are both tetraplegic confined to wheelchairs with significant functional limitations and high degree of dependence. They also have bladder and bowel dysfunction. However, our intervention and long term follow up has allowed both patients to extend their functional independence while dealing and managing their many complications with the ultimate objective of improving their quality of life.

Conclusions. The wide spectrum of different clinical phenotypes and their development, severity and prognosis makes early diagnosis of Neurofibromatosis essential and critical. A multidisciplinary approach and the intervention of Physical and Rehabilitation Medicine plays a major role in the clinical and functional improvement of patients. Treatment is therefore symptomatic or directed at complications, and its main objective is to extend functional independence and improve quality of life. It should include treatment of motor/sensory deficits, bladder or bowel dysfunction, and aids products prescription when necessary.

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SPONTANEUS OSTEONECROSIS OF THE KNEE

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Introduction. Osteonecrosis of the knee can be classified as spontaneous or secondary. The knee is, after the hip, the second most common localization for osteonecrosis (ON). Female patients are affected three times more often than men. The typical Spontaneus osteonecrosis of the knee (SONK) patient is a fifty-five years of age or older, with unilateral monoarticular pain, without history of trauma, and where it is involved mainly the medial femoral condyle. The important role of suchondral fractures is proven by histological findings. Diagnosis is based on clinical suspicion and radiographic confirmation. The destruction of bone and cartilage progresses in stages, and is defined by radiograph and/or magnetic resonance imaging (MRI). Radiography (RX) is an inexpensive modality for staging and monitoring disease progression. We selected Koshino´s stage classification, which classified SONK into 4 stages. Lesions can be detected earliest on MRI because of the ability to assess marrow viability and lesion distribution, and evaluate meniscal and chondral pathology. Several authors recommend that MRI is needed for early diagnosis of SONK.

Materials and methods. A 72-year-old woman without a recent trauma event, presented with acute exacerbation of her usual knee pain; it was localized on the medial aspect of her right knee. She had a medical history of osteoporosis and bilateral knee osteoarthritis. In our examination she had swelling of her both knees, free range of movement, and walked with a right limp. A corticosteroid infiltration was performed allowing partial remission of pain. RX showed severe signs of osteoarthritis. On MRI appeared osteonecrosis of the internal femoral condyle, degeneration of meniscus and degenerative arthropatia. Due to this situation, as she was in an early stage of SONK, we chose a conservative treatment. Partial discharge with crutches, Anti-inflammatory drugs (NSAIDs), bisphosphonates (BP), and therapeutic exercise was prescribed. Three months later, the patient had mild pain, walked with a cane, and control RX showed no change.

Conclusions. SONK´s etiology is still not fully understood, and it´s pathogenesis is considered to be multifactorial. MRI is essential to the suspicion of a medial process of early stage osteonecrosis, not being evidential pathology by plain radiography. SONK treatment has been a controversial issue. The severity of symptoms also have prognostic significance, that´s why an early diagnosis and treatment appear to be favourable. SONK in patients over 60 years with osteoporosis and osteoarthritis, without a clear history of trauma, should be suspected and treated early, in an attempt to postpone or avoid knee replacement. Treatment results and progression of SONK are still hard to predict. NSAIDs and partial weight bearing used to be the non-operative concept for many years. This unspecific and symptomatic treatment is unfortunately often characterized by a long-treatment period and unpredictable outcome and is, therefore, frustrating to patients and doctors in many cases. BP have recently become an attractive alternative for conservative treatment (due to their potential of regulating bone metabolism). Published results in using BP in these patients, are very promising in regards to pain reduction and improvement of MRI findings.

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CONGENITAL MUSCULAR TORTICOLLIS: A DESCRIPTIVE ANALYSIS

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Introduction. Congenital muscular torticollis (CMT) is a common musculoskeletal anomaly in infants, with the reported incidence being 0,3-1,9%. The characteristic major clinical feature is the thickening and shortening of the sternocleidomastoid (SCM) muscle, which leads to head tilt and limited head rotation. It is frequently associated to plagiocephaly and other concurrent deformities can be detected, namely the developmental dysplasia of the hip (DDH). Although the true etiology remains uncertain, CMT is best viewed as a group of clinical presentations caused by various prenatal or perinatal etiologies. Although diagnosis is clinical, ultrasonographic evaluation of CMT is the most widely employed method to obtain the primary diagnostic image. Through conservative treatment, the majority of children reach full recovery without complications, but some groups don't. Surgical treatment has traditionally been performed for these groups.

Materials and methods. The subjects in this study were infants who were diagnosed with CMT in the Department of Physical Medicine and Rehabilitation of the Centro Hospitalar de Vila Nova de Gaia/Espinho, from December 2009 to December 2011. We retrospectively reviewed the medical records of the 26 study participants and collected the clinical information for all the children, including the age at the first visit, the gender, the obstetric history, the method of child birth, the affected side, the clinical presence of tumor, thickness or plagiocephaly, the ultrasonographic findings and the coexistence of other deformities.

Results. Twenty six children with CMT were included in this study. Out of 17 male (65,4%) and 9 female (34,6%), 5 patients were seen within 3 months of life, 12 were between 3 and 6 months, 7 between 6 and 12 months and 2 were older than 12 months at presentation (mean age: 6, 52 months). Four patients (15,4%) had a history of oligohydramnios and 5 (19,2%) were premature. Eight of the participants (30,8%) were delivered by Cesarean section and 16 (61,6%) through vaginal delivery. The left-hand side was affected in 17 (65,4%) of the infants and the right-hand side in 9 (34,6%) of them. Plagiocephaly was identified in 21 of the participants (80,8%), a tumor was detected in 4 of them (15,4%) and an thickness was present in 2 (7,8%). The ultrasonographic study was normal in 10 of the cases (3,8%), presented a difference in the thickness of the SCMs in 15 of the children (57,7%) and a tumor in 1 of them (3,8%). Among the 26 study participants 2 (7,8%) were noted to have DDH, 2 had isolated renal ectasia and 1 had dorsal scoliosis. One of the children presented multiple associated deformities (dorsal scoliosis, multiple cervical spina bifida, planovalgus feet and renal ectasia). All the children were treated conservatively and the majority of them had a full recovery.

Conclusions. Considering the results of this study: There seems to be a male predominance with a relative ratio of approximately 2:1, slightly higher than described in the literature. Most of the children were diagnosed within the first 6 months of life. The left-hand side was more commonly affected, as opposed to what was expected. Plagiocephaly was present in most of the patients as expected (reported in 80-90% of children with CMT). Concurrent DDH was detected in 7,8% of the children with CMT, as is described in the literature (5-10%). Early detection and initiation of physical therapy is related to improved outcomes.

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LUMBAR MESOTHERAPY IN THE TREATMENT OF LOW BACK PAIN

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Introduction. Low Back Pain is a common musculoskeletal disorder affecting 80% of people and it is the first cause of missed work. Antalgic Lumbar Mesotherapy (ALM), used in rehabilitation clinical practice, could be an eligible treatment due to its many advantages and its low risk to induce local or general adverse reactions. This perspective study quantifies the efficacy of Mesotherapy with physiologic saline solution and Mesotherapy with lysine acetylsalicylate in reducing pain and improving frame of mind.

Material and methods. 84 patients, both gender, were divided in 2 groups: Group L (n=49) has been treated with lysine acetylsalicylate once a week for 5 weeks. Group P (n=35) has been treated with physiologic saline solution once a week for 5 weeks. VAS, McGill Pain Questionnaire and Beck Depression Scale were assessed at the beginning and at the end of the treatment. Multiple intradermal microinjections were administered on the painful area along the cutaneous projection of spinal apophysis, paravertebral lumbar muscles and on trigger points and tender zones. Intradermal "Lebel" needle was the fundamental device.

Results. The median, the effectiveness and the Wilcoxon test were performed for the intra-group analysis, of the pre and post treatment data. The trial shows a beneficial effect on pain and on frame of mind in both treatments in relation to time. Statistically significative results were obtained in both groups for VAS and McGill Pain Questionnaire. The results of Beck Depression Scale were statistically significative only in the group treated with lysine acetylsalicylate. Particularly group L, treated by Mesotherapy with NSAID, showed better results compared to group P in the reduction of pain.

Conclusions. ALM, thanks to its peculiar pharmacokinetic and pharmacodynamic way, has considerable advantages since the drugs act in the site where they are really needed in minimal doses, the therapeutical action is quick and prolonged and there is a decrease in iatrogenic side effects, systemic toxicity and liver and kidney work loading. Moreover the technique it is easily and quickly carried out and it is well tolerate by patients.

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SCHIENALE DINAMICO A CONTROLLO ELETTRONICO

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Introduction. Il SACE, Schienale Attivo a Controllo Elettronico, è finalizzato alla caratterizzazione cinematica e cinetica della distonia, essendo tali dati assenti in letteratura. Lo studio quantitativo condotto è utile alla definizione delle specifiche di progettazione di ausili personalizzati capaci di contenere in maniera dinamica i soggetti affetti da Paralisi Cerebrale Infantile (PCI) di tipo distonico. Questi bambini hanno contrazioni violente e imprevedibili che spesso causano danni a seguito dell'urto con la postura o la carrozzina. L'esigenza primaria di questi piccoli pazienti è quella di avere a disposizione un ausilio di contenimento capace di accompagnargli durante gli scatti distonici senza fargli perdere il contatto con il sistema di postura e sviluppando un cedimento controllato per riportarli nella posizione di partenza.

Materials and methods. Il sistema di postura dinamico è composto da una struttura meccanica costituita da cinque complessi articolari: uno schienale che abbia i gradi di libertà di flessione nei piani sagittale e frontale e torsione nel piano trasversale, tutti componibili tra loro; una seduta articolata allo schienale tramite giunti cilindrici e due segmenti di contenimento tibiale articolati indipendentemente alla seduta. Il sistema è attuato tramite un sistema di controllo elettronico che riceve i dati dai cinque sensori di pressione e di posizione installati sul sistema. Da oltre un anno, presso l'IRCCS Ospedale Pediatrico Bambino Gesù sede di Palidoro, si sta conducendo una sperimentazione clinica su sette pazienti con diagnosi di tetraparesi spastica (tutti di sesso maschile e hanno un range di età compreso tra i 10 e i 23 anni). Coerentemente al protocollo clinico definito, ciascun paziente ha eseguito periodicamente delle prove con il dispositivo, necessarie sia per configurare la dinamica del SACE più adatta a contenere le distonie sia e alla registrazione delle informazioni relative alle traiettorie seguite durante l'evento distonico, le sollecitazioni ad esso associate, la frequenza di accadimento, la durata del singolo evento, l'intervallo di tempo fra un evento ed il successivo, la compliance del paziente, l'eventuale resistenza opposta durante il ritorno alla posizione iniziale. Per una più completa analisi dell'atteggiamento distonico del paziente, la sperimentazione prevede l'applicazione del protocollo di videoregistrazione dei pazienti con PCI elaborato dal GIPCI. I pazienti sono sottoposti alla valutazione qualitativa delle distonie al momento dell'inclusione ed ai successivi controlli previsti in modo da valutare il followup del trattamento. La valutazione qualitativa è stata realizzata mediante la somministrazione di scale riconosciute dalla letteratura internazionale.

Results. La sperimentazione condotta finora con il SACE ha consentito di: valutare l'interazione tra il dispositivo ed il paziente in termini di accettazione della dinamicità della postura. apprendere le tecniche di configurazione dei parametri del sistema, i cui valori dipendono dal paziente in esame e risultano fondamentali per ottenere un efficace contenimento dell'atto distonico. registrare ed analizzare i dati al fine di ottimizzare le caratteristiche metrologiche della catena di misura.

Conclusions. Il lavoro fin ad oggi svolto ha avuto come obiettivo quello di raccogliere la maggiore quantità di dati relativi alle distonie in modo tale da rilevare la presenza o meno di particolari che possano caratterizzare la distonia di uno o più pazienti affetti da PCI, in modo da sviluppare protocolli clinici e riabilitativi sempre più specifici ed efficaci. Inoltre queste informazioni possono essere utilizzate nel follow-up di un trattamento chirurgico, farmacologico e fisioterapico determinando l'efficacia di un trattamento e aiutando il team riabilitativo nella scelta del percorso terapeutico. Un importante obiettivo della sperimentazione è stato la ricerca di un eventuale apprendimento di traiettorie di ritorno a posture variabili e spontanee, più funzionali agli scopi del paziente.

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THE EFFECT OF PROLONGED REHABILITATION OF STROKE

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Introduction. The aim of this study was to analyse the reliability of different tests used for evaluation of stroke in predicting outcome after prolonged rehabilitation program in stroke patients.

Materials and methods. This study included 43 stroke patients who were under rehabilitation program for one month in hospital conditions which was proloned for the next two months. They were divided into two groups; the first group consisted of 25 patients who were regularly treated and controlled in home environment, the other group included 18 stroke patients who were instructed to continue program individually. The results were evaluated on the start, at the end of hospitalization, and at the end of the analysed period. Motor assesment acale (MAS), the Berg balance scale (BBS), the Barthel index (BI), the timed up and go test (TUG), the 10 meter walking time (10mWT), and the 36 item short form survey on quality of life (SF-36) were used.

Results. Hospital rehabilitation resulted in significant improvement of all the analysed parameters. Prolonged home base rehabilitation program gave further improvement of parameters, and this was particularly significant in the first regularly treated group of the patients. The results were less for SF-36 survey, especially for emotional and mental health. The values of MAS, BBS, BI, TUG, and 10mWT were significantly better in both groups after prolonged rehabilitation program.

Conclusions. Prolonged rehabilitation after stroke is very important with significant results measured using different tests, particularly for MAS, BBS, BI, TUG, and 10mWT tests. Regular control and treatment protocol of rehabilitation regime are essential for obtaining maximal functional outcome after stroke.

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EVALUATION OF EXTRACORPORAL SHOCK WAVE THERAPY IN THE TREATMENT OF CHRONIC LATERAL EPICONDYLITIS

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Introduction. Lateral epicondilitys (LE) is a common cause of elbow pain in the adult population. It is an overuse type of injury pertaining to the common extensor tendon of the dominant upper extremity. Repetitive wrist dorsiflexion with supination and pronation causes overuse of the extensor tendons of the forearm and subsequent microtears, collagen degeneration and fibroblastic proliferation. The diagnosis is generally clinical. However, in patients with persistent findings despite treatment or in patients who are planned to undergo surgery, imaging might be necessary. The treatment is mainly conservative, including education and ergonomic advice of the workplace, antiinflamatory drugs, physiotherapy, orthoses and local corticosteroid injections. Extracorporeal shock wave therapy (ESWT) can be an alternative method for patients who don't benefit from conservative treatment, before using another treatment more invasive such as surgery. The aim of this study is to evaluate the effect of ESWT in the treatment of chronic LE.

Material and methods. A retrospective review of patients with LE who underwent consecutive ESWT between January 2007 and December 2011 was performed. The study included patients with clinical signs and symptoms of LE for at least 6 months before treatment. The exclusion criteria were: previous surgery, fractures, tumors, pregnancy and bleeding disorder. Nineteen patients were treated in the Department of Physical Medicine and Rehabilitation of the University Hospital Centre A Coruña in this period. All patients signed an informed consent form. A piezoelectric extracorporeal shock wave generator (Piezoson 100) was used. All patients were placed in the prone position, and ultrasound gel was used in the ultrasound transducer. The transducer was placed over the elbow, in the origin of the muscle, and the point of maximum pain was located by physical examination. The treatment protocol used in our department consists in course of 3 sessions. Once a week, 1500 shots (frequency 2Hz) were applied with an average energy intensity of 0.26 mJ/mm2. These patients were evaluated prospectively. Visual Analogue Scale (VAS) and Roles and Maudsley Score were used to compare pain and functional status respectively, before the therapy and at three months after completing treatment. Statistical analysis was performed using SPSS 19.0 for Windows.

Results. Nineteen patients completed the treatment. Of those, 13 were women (68.4%) and 6 men (31.6%). Mean age was 47 years (range, 38-60 years). The affected side was predominantly the right (78.9%). Six patients (31.6%) were diagnosed clinically. The rest of patients had some imaging test (52.6% ultrasound). Mean evolution time was 22.2±16.7 months (range, 6-60 months). Eighteen patients received some previous treatment: pharmacological treatment (97.7%), physiotherapy (73.7%), local corticosteroid injections (68.4%) or orthoses (21.1%). Only 2 patients presented some complications after the treatment with ESWT (1 patient presented a local hematoma, and another patient presented syncope). 4 patients needed a reduction of dosage because of intolerance. Mean VAS score before treatment was 6.7±2.2, and 3 months after treatment was 3.7±3.9. So 3 months after treatment, the percentage decrease of pain intensity was 46.7%. After treatment, according Roles and Maudsley Score, 44.4% of patients were rated excellent and 44.4% were rated poor.

Conclusions. ESWT has been shown to be a well tolerated and safe therapeutic option in patients with chronic epicondylitis refractory to conservative treatments. There are differences in results between different trials. This could be because there is no consensus on treatment parameters. Further work is needed.

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RIABILITAZIONE NEUROMOTORIA CON SISTEMA DI REALTÀ VIRTUALE (VRRS) DOPO STROKE: STUDIO PILOTA PER LA CREAZIONE DI PROTOCOLLI DI LAVORO

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Introduction. studi recenti hanno dimostrato l'efficacia della riabilitazione neuromotoria con tecniche di Realtà Virtuale, grazie al feedback aumentato che stimola il meccanismo di apprendimento fisiologico (reinforcement learning). Le evidenze riguardano soprattutto il recupero motorio dell'arto superiore in pazienti dopo stroke. Noi riportiamo i risultati di uno studio pilota di trattamento neuromotorio per arto superiore e inferiore con sistema di Realtà Virtuale (VRRS) in un paziente dopo stroke, utilizzando protocolli predefiniti. Il nostro scopo è quello di creare dei protocolli di lavoro con esercizi mirati a specifici deficit funzionali, riproponibili ad un'ampia popolazione di pazienti affetti da esiti di stroke.

Materials and methods. abbiamo reclutato, a un anno dall'evento acuto, un paziente di 56 anni con emiparesi destra da esiti di emorragia cerebrale e lo abbiamo sottoposto a riabilitazione con sistema di Realtà Virtuale, proseguendo nel contempo la riabilitazione neuromotoria tradizionale. Abbiamo creato 3 protocolli per arto inferiore e 3 per arto superiore a difficoltà crescente (1°-2°-3° livello); ogni protocollo è costituito da 5 esercizi che la macchina propone in sequenza con una durata e un numero di ripetizioni prestabilite. Il protocollo per arto superiore comprende esercizi di flessione e abduzione della spalla, estensione del gomito, reaching. Il protocollo per arto inferiore, che può essere eseguito al lettino, in posizione seduta o in stazione eretta, comprende esercizi di flessione, estensione e abduzione d'anca, allungamento e controllo del passo. Il paziente in studio è stato trattato con VRRS per 3 mesi, con 3 sedute a settimana di 45 minuti ciascuna; ha effettuato i protocolli sia per arto superiore che inferiore, partendo per ognuno dal 1° livello e aumentando progressivamente le difficoltà. L'efficacia del trattamento è stata valutata mediante i dati che la macchina registra ad ogni singolo esercizio: tempo e velocità di esecuzione, submovimenti, errore spaziale medio; all'inizio e alla fine del programma riabilitativo sono inoltre state effettuate le valutazioni funzionali del ROM, Motricity Index e Barthel Index.

Results. Analizzando i report numerici e grafici registrati dalla macchina si denotano già dopo le prime sedute dei miglioramenti. Dal 1° livello si è passati progressivamente ai protocolli successivi più complessi e, dopo 3 mesi, il paziente era in grado di eseguire il protocollo di 3° livello per arto inferiore e di 2° livello per arto superiore. I risultati raggiunti sono stati, relativamente al protocollo per arto inferiore: riduzione del tempo di esecuzione del 24%, aumento della velocità di esecuzione del 38%, riduzione dell'errore spaziale medio del 73% e riduzione dei sub movimenti del 19%. Relativamente all'arto superiore: riduzione del tempo di esecuzione del 25%, aumento della velocità di esecuzione dell'11%, riduzione dell'errore medio spaziale dell'80%, riduzione dei sub movimenti del 36%. Alla valutazione funzionale si è riscontrato un miglioramento generale: raggiungimento del ROM completo a livello di spalla, gomito, polso, anca, ginocchio e caviglia; Motricity Index da 64/100 a 76/100; Barthel Index da 94/100 a 100/100.

Conclusions. I risultati ottenuti non sono riconducibili al solo trattamento di Realtà Virtuale, ma suggeriscono che questa nuova tecnica di riabilitazione promuove ulteriormente il recupero neuromotorio dopo stroke. La procedura attraverso protocolli si è mostrata di semplice esecuzione e gestione sia per l'operatore che per il paziente, fornendo un'immediata proiezione del risultato raggiunto. L'obiettivo futuro è quello di applicare i protocolli descritti a un numero maggiore di pazienti in esiti di stroke, per confermare l'efficacia del trattamento e creare un percorso strutturato di riabilitazione con VRRS da affiancare alla riabilitazione tradizionale.

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SUMMARY OF THE RESULTS OF THE ISRAELI PRELIMINARY STUDY FOR DEVELOPING THE ICF CORE SETS FOR SPINAL CORD INJURY (SCI) TO SPECIFY FUNCTIONING.

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Introduction. Long-term functional outcomes after SCI result from a combination of acute neurological recovery and medical intervention, rehabilitation, and community integration. An important basis for the optimal acute and long-term management of SCI is an in-depth understanding, systematic consideration and sound measurement of its impacts on health and health-related domains. The International Classification of Functioning, Disability and Health (ICF) offer a framework for such a comprehensive understanding of the components of health.

Objectives 1) To describe functioning and health of individuals with SCI,(2) To identify the most common problems using the ICF classification.

Materials and methods. A multicenter cross-sectional study involved data collection at one time point. Consecutive patients with SCI admitted to both inpatient multidisciplinary team care neurological wards from the outpatient clinics in the Sheba Medical Center and the Loewenstein Hospital were included during a 10-month period from 10.2006 to 08.2007. The data collection included demographic population data, satisfaction of life questionnaires, and the comprehensive ICF checklist integrating all 4 components to the second level category.

Results. The data of 157 SCI patients in the early post-acute rehabilitation and in the chronic phase from Israel's two rehabilitation centers which were enrolled in the study will be presented.

Conclusions. In order to apply the ICF in clinical practice, the development of a core set with most relevant items in the four categories is mandatory. This development is performed by experts in a formal decision-making and consensus process by integrating evidence gathered from preliminary studies. The actual results of this preliminary study reflecting the patient's view served as important basis for the consensus process and are considered to be of central importance in the patient's care.

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THE EFFECTS OF ACUPUNCTURE ON CEREBRAL BLOOD FLOW IN POST CVA PATIENTS

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Introduction. Trans Cranial Doppler (TCD) is a unique method for the evaluation of intracranial blood flow velocity. Enhancement of blood flow velocity represents augmentation of blood delivery. Acupuncture is being used for centuries to treat stroke patients. The aim of this study is to evaluate the effect of acupuncture on cranial blood delivery in the sub-acute phase of stroke rehabilitation.

Materials and methods. A prospective, controlled, single blind with cross-over study of 20 ischemic stroke patients admitted for rehabilitation. Of this 13 patients were evaluated so far. TCD assessments were conducted six times for each patient, at baseline (T1) before treatments, at 15 minutes during the real or sham acupuncture (T2) and at 10 minutes after the secession of the 20 minutes treatments (T3). Than after a 30 minutes break another round of either real or sham acupuncture was conducted with assessments at 15 and 20 minutes (T4 T5 T6 respectively). All patients received either real acupuncture treatment followed by sham acupuncture needling or vice versa. We used TCD over the internal carotid, on both sides in order to evaluate blood flow velocity following either true or sham acupuncture needling.

Results. When total (left+ right hemispheres) blood flow after 15 minutes is compared by paired t-test the difference was not significant (t=1.72, df=12, p=0.11), the same was found after 25 minutes from baseline (t=1.37, df=12, p=0.19). When only the damaged hemisphere was compared between treated vs. sham groups (n=12) after 15 minutes, the treatment group showed higher blood flow (42.16± 18.98 vs. 37.33 ±17, respectively) but this difference did not reach significance (t=0.79, df=11, p=0.44). When the non-damaged hemisphere was compared between treated vs. sham groups (n=12) after 15 minutes, the treatment group showed higher blood flow (45.58 ± 18.59 vs. 38.08 ± 16.67, respectively) but this difference did not reach significance (t=1.2, df=11, p=0.23).

Conclusions. Acupuncture treatment for post stroke patient during the sub-acute phase of rehabilitation did not demonstrate a significant enhancement of cerebral blood velocity over the internal carotid artery as measured by using TCD relative to the sham acupuncture group.

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LE ALTERAZIONI POSTURALI E STABILOMETRICHE IN SOGGETTI CON DIABETE MELLITO

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Introduction. Il *diabete mellito* è una malattia cronica caratterizzata dall'aumento della concentrazione di glucosio nel sangue con complicanze micro e macro vascolari. Nell'ambito delle complicanze microvascolari un ruolo importante, nelle alterazioni della postura e dell'equilibrio, è ricoperto anche dalla Neuropatia Diabetica. L'obiettivo del nostro studio è quello di dimostrare le alterazioni della postura e dell'equilibrio nel paziente con patologia Diabetica. La letteratura sembrerebbe indicare una correlazione tra la neuropatia diabetica ed una relativa instabilità posturografica ed un notevole aumento delle oscillazioni sulla postural sway, valutando però i vari aspetti singolarmente e non in modo complessivo.

Materials and methods. Questo studio pilota, ancora in una fase preliminare, grazie alla collaborazione dell'U.O. di Malattie Cardiovascolari Geriatriche e l'U.O. di Malattie del Metabolismo, ha permesso di arruolare al momento 20 pazienti (secondo la prevalenza della patologia) di età compresa tra i 40 ed i 70 anni, secondo criteri di inclusione ed esclusione precedentemente stabiliti. Tutti i pazienti sono stati sottoposti ad un'accurata raccolta anamnestica ed un esame obiettivo completo e valutati con:

- Misurazione goniometrica per rilevare l'escursione articolare passiva (ROM);
- Scala MRC (forza muscolare);
- Scala FIM (somministrata per valutare la dipendenza nelle ADL ed il carico assistenziale del paziente);
- Analisi Baropodometrica e stabilometrica completa;
- Esame Posturale Completo;

Results. I risultati dello studio verranno analizzati ed integrati nel lavoro per esteso.

Conclusions. Questo studio pilota ci darà la possibilità di valutare in maniera obiettiva le correlazioni esistenti tra la patologia Diabetica e le alterazioni posturali e dell'equilibrio.

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STABILIZZAZIONE SPINALE CON DUE BIOFEEDBACK: UN NUOVO TRATTAMENTO RIABILITATIVO NELLA LOMBALGIA

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Introduction. Il dolore lombare nella fase acuta può essere dominato con farmaci o con le tecniche della Medicina Manuale. Il vero problema sono i pazienti che diventano cronici e che rappresentano un grave problema sociale

ed economico. Recenti studi (1) hanno messo in luce che deficit di attività propriocettiva e di forza muscolare nei muscoli del sistema locale o profondo paravertebrale e nel muscolo trasverso dell'addome, *i veri stabilizzatori del rachide*, sono strettamente correlati alla presenza di lombalgia (2). Il sistema locale è costituito dai muscoli intertrasversari e interspinosi dei primi strati a funzione prevalentemente propriocettiva, dal multifido lombare, lunghissimo del dorso, ileo-lombare, e parte mediale del quadrato dei lombi. Tra gli addominali solo il trasverso è stabilizzatore. Gli esercizi generalmente utilizzati nella rieducazione del dolore lombare sono rivolti soprattutto alla rieducazione del sistema muscolare globale deputato ai movimenti del rachide lombare sul bacino, ma questi potrebbero in alcuni casi essere inefficaci o perturbare il sistema locale. Per effettuare una valida rieducazione dei muscoli del sistema locale, non facilmente reclutabili a livello cosciente, è stato proposto (3) un modello di intervento basato sull'uso di due unità di biofeedback, una di elettromiografia di superficie, e una pressoria (Stabilizer). Questi strumenti permettono di informare il paziente in tempo reale dello stato della contrazione sia della muscolatura locale che di quella globale, nonché di eventuali movimenti indesiderati del rachide e quindi di assumere il controllo cosciente di questi fenomeni. Per non ostacolare l'azione del sistema locale è necessario che, durante l'esercizio, il sistema globale sia il più possibile rilasciato, anche per permettere una corretta respirazione.

Materials and methods. Lo studio è stato condotto su 29 pazienti successivi, di cui 27 femmine, di età compresa tra i 16 e i 79 anni, (media 26,3) e 2 maschi di età 20 e i 45 anni (media 32,5). Criteri di inclusione: lombalgia, con durata superiore ai sei mesi, causata da ernia del disco lombare, artrosi somatica e articolare, o semplicemente di natura disfunzionale (cosiddetto dolore non specifico). Criteri di esclusione: stenosi del canale lombare con franca sintomatologia clinica con i noti caratteri di dolore ingravescente con la deambulazione, ed esiti di intervento per ernia discale lombare. Per la valutazione è stato utilizzato il Roland and Morris Disability Questionnaire, che comprende anche una scala analogica del dolore, Pain Rating Scale, somministrato prima e alla fine del trattamento. La valutazione del follow-up a 1 e 3 mesi è ancora in corso. Le sedute, della durata di circa 45 minuti, sono state effettuate individualmente, per un numero variabile da cinque a otto, 2 volte la settimana. Una volta istruito, il paziente deve proseguire gli esercizi da solo; quando questi saranno ben eseguiti, si inizieranno esercizi per integrare le capacità acquisite con esercizi di movimento degli arti, poi globali e infine con i gesti della vita quotidiana: nel frattempo infatti, il reclutamento dei muscoli profondi sarà divenuto automatico.

Results. La media degli score rilevati mediante il Disability Questionnaire è variata da 10,00,SEM+-0.96 prima del trattamento, a 2,27, +-0.34, dopo; quella del Pain Rating Scale da 2.75, SEM+-0.18 prima a 0.62+-0.10, dopo.

Conclusions. Questo studio è preliminare a uno studio randomizzato e controllato, ma può considerarsi indicativo di una notevole efficacia ed efficienza di questo metodo riabilitativo, già alla fine dell'apprendimento, che, dovendo realizzarsi tenendo il rachide immobile, può essere applicato anche in caso di dolore grave, e precocemente nei postumi di intervento chirurgico.

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CASE REPORT. MULTILIGAMENTARY KNEE INJURY: SURGICAL TREATMENT AND PHYSICAL THERAPY

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Introduction. Multi ligament injury is a complicated and time consuming surgical treatment and rehabilitation. In the literature we find that frequency of such injuries is growing and the most frequent reason for that are very heavy traffic accidents which are provoked by strong and fast cars and dangerous sports.

Materials and methods. In our report we show a case of a young man 20 years old with a multi ligaments knee injury which was caused by a fall from a bicycle down a rock. On the same day of the accident he was delivered to our clinic where a fresh bone trauma was excluded by a radiological treatment. By anamnesis data, clinical examination and MRI the following injuries were stated: rupture of anterior and posterior cruciate ligament, sm lesions of the posteriorlateral complex with avulsion of lateral collateral ligament with rupture of postero lateral joint capsule, rupture of the back horn of medial meniscus with a medial shift and partial rupture of medial collateral ligament. The surgical treatment consisted of three parts: immediately after the injury an arthroscopic surgery was done by which the reconstruction of the postero medial and postero lateral part of the joint capsule was done, the reconstruction of lateral collateral ligament and tractus iliotibialis. Two months after the injury arthroscopic reconstruction of the posterior cruciate ligaments was done and after three months after the injury the reconstruction of the anterior cruciate ligaments.

Results. Multidisciplinary team approach, early surgical treatment at the right time, the reconstruction of the joint capsule and the ligament construction, appropriate immobilization, early rehabilitation, thromboprophylaxis have made possible a good achievement in anatomy and function.

Conclusions. The rehabilitation was essentially more rapid with a lower number of possible complications. It made a quick and efficacious come back of the patient to the activities and normal everyday life.

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EFFETTI DEL TRAINING FISICO SU CAPACITÀ FUNZIONALE, FORZA MUSCOLARE ED ASSETTO METABOLICO NEL PAZIENTE ANZIANO AFFETTO DA SCOMPENSO CARDIACO

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Introduction. Negli ultimi 10 anni le indicazioni alla Riabilitazione Cardiovascolare hanno subito importanti cambiamenti in rapporto all'evoluzione demografica e alle caratteristiche dei pazienti. I Programmi Riabilitativi strutturati e supervisionati ed in particolare il Training fisico, sono stati estesi con successo anche a quei pazienti in precedenza considerati non eleggibili a causa delle condizioni cliniche complicate o instabili, come ad esempio infarto miocardico esteso, aritmie minacciose, disfunzione ventricolare e valvulopatie. In particolare è aumentato considerevolmente il coinvolgimento del paziente cardiopatico anziano, spesso affetto da gravi comorbilità e disautonomie, all'interno dei Protocolli Riabilitativi Cardiovascolari con evidenti benefici sia in termini di recupero funzionale globale che di prevenzione secondaria a medio e lungo termine. Il Training Fisico rappresenta infatti una condizione in cui tutti i meccanismi di controllo delle funzioni dell'organismo umano entrano in gioco. Il sistema nervoso autonomo partecipa alla regolazione del respiro, della temperatura corporea, del trasporto dell'ossigeno dall'aria ambiente ai tessuti e del metabolismo muscolare. Nello Scompenso Cardiaco Cronico tali risposte sono profondamente alterate e contribuiscono a determinare il caratteristico quadro clinico di questa sindrome, ovvero la riduzione più o meno marcata della capacità lavorativa del paziente.

Materials and methods. Nel trimestre Aprile – Giugno 2012 sono stati arruolati 25 pazienti afferrenti al D.H. di riabilitazione cardiologica dell'I.R.C.S.S. San Raffaele Pisana di Roma, con diagnosi di scompenso cardiaco e frazione di eiezione (F.E.) sinistra minore del 40%. I pazienti sono stati valutati al momento del ricovero in D.H. (T0) e alla fine del ciclo di riabilitazione (T1) di 3 mesi tramite il "six minute walking test ",la rilevazione della pressione arteriosa a riposo (sistolica e diastolica) e la frequenza cardiaca basale, e durata del test cardioplmonare con misurazione del consumo massimale di ossigeno (VO2 picco) e efficienza ventilatorio (VE/VCO2).

Results. Tutte le variabili prese in considerazione ad eccezione del VO2 picco hanno mostrato un miglioramento statisticamente significativo al controllo.

Conclusions. Sulla base dei risultati evidenziati è stato possibile concludere anche nel nostro studio che la combinazione di Training Fisico ed interventi educazionali e psico-sociali è la forma più efficace di Riabilitazione Cardiovascolare. In particolare si è osservato che il Training Fisico favorisce la stabilità clinica, migliora il recupero funzionale e la tolleranza allo sforzo diminuendo, senza rischi aggiuntivi, le disabilità e la dipendenza conseguenti alla patologia.

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CORRELATIONS BETWEEN CHIARI II MALFORMATION AND BRAINSTEM AUDITORY EVOKED POTENTIALS (BAEPS) IN INFANTS WITH MYELOMENINGOCELE

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Introduction. Chiari II malformation is present in patients with myelomeningocele (Peach 1965, McLone *et al.* 1991), but newborn infants are usually asymptomatic. Infants who develop brainstem dysfunction most commonly do so between two weeks and three months of age; the symptoms that result are stridor, obstructive or central apnea, breath-holding spells and dysphagia. In older children and adolescents Chiari II malformation usually causes cervical cord and cerebellar symptoms. Brainstem auditory evoked potentials (BAEPs) precisely assess conduction in the auditory pathways through the brainstem.

Materials and methods. Fifty-six newborn infants with myelomeningocele, who had BAEPs at 31 days of age, comprised the study population: 28 were male and 33 were female. The median age at which the BAEPs were done was sixteen (range two to 31) days. The median follow-up for the 37 subjects was 36 months. BAEPs were obtained in accordance with the guidelines of the American Electroencephalographic Society (1993); they were elicited by 100ps clicks presented at a rate of 11.1/s. Both rarefaction- and condensation-phase clicks were used in separate runs. Gold-plated surface electrodes were attached by collodion technique to the scalp at the vertex of the head (Cz) and to the left and right ears (A1 and A2). Electrode impedances of < 2kΩ were achieved. The only IPL measured was I-V, since fusion of wave-forms III, IV, and seen frequently in the study population. The mean plus three standard deviations (99th centile) of the I-V IPLs of this group of newborn infants was 5.79ms, which matched that of the infants studied by Krumholz *et al.* (1985).

Results. 32 of the 56 infants had abnormal BAEPs; no subject had symptoms of brainstem dysfunction at the time the BAEPs were done; of the 112 acoustic pathways evaluated (right and left pathways for each of 56 infants), 56 had normal wave-form morphologies, 21 had fused III, IV and V wave-forms and 35 had some other wave-form morphological abnormality. Fused III-IV-V wave-forms were found in one or both ears of four of the 12 infants who developed symptoms, compared with four of 25 who remained asymptomatic. Subjects with thoracic-level spinal lesions did not have a significantly longer mean averaged I-V IPL than those with lower-level lesions. Of 19 infants who developed brainstem dysfunction at a median age of three months 17 had had abnormal neonatal BAEPs. In contrast 14 of 37 infants who did not develop brainstem dysfunction had abnormal BAEPs. The mean average I-V interpeak latencies was greater among those who developed brainstem dysfunction than among those who did not.

Conclusions. This study has emphasized:
– abnormal BAEPs are frequently found in newborn infants with myelomeningocele (57 %: 32/56);
– (2) BAEPs in asymptomatic newborn infants with myelomeningocele who subsequently develop Chiari II-related brainstem symptoms are more frequently abnormal than in those who do not, and newborn infants who later develop symptoms also have longer mean averaged right and left I-V IPLs;
– (6) there is a relationship between the duration of the averaged I-V IPLs and the level of lowest brainstem tissue descent of the Chiari II malformation.

Neonatal BAEPs can identify a group of asymptomatic infants with myelomeningocele who need close follow-up for the subsequent development of brainstem dysfunction.

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RECURRENCE OF PAIN IN SHOULDER PATHOLOGY

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Introduction. Shoulder pain secondary to periarticular pathology has a high prevalence, being one of the most common causes of musculoskeletal pain. Although there are several possible treatments, namely, periarticular injections with corticosteroids and rehabilitation treatment, there is scarce scientific evidence that supports their use. The objective of this study is to assess the risk of recurrence of shoulder pain at 12 and 18 months In patients with shoulder pain secondary to periarticular pathology that underwent periarticular corticosteroid injection only and to compare with the patients that made the periarticular corticosteroid injection followed by rehabilitation treatment.

Materials and methods. This study included 92 patients with shoulder pain who were assessed at Centro Hospitalar do Alto Minho (Portugal). 53 were submitted to subacromial/subdeltoid bursal injections and 39 were also submitted to subacromial/subdeltoid bursal injections followed by a rehabilitation program. A clinical and ultrasound assessment was made of all the patients before the local treatment. Clinical response was considered to be the complete absence of shoulder pain while recurrence was the reappearance of shoulder pain, in which there had been a prior clinical response. The patients were assessed clinically after 1 month of the treatment. Those with recurrence of pain in the 1st month were excluded. The remainder were assessed prospectively every month. The time (in months) between the local treatment and recurrence was recorded. In total, 85 patients were included, with an average age of 61.3 years (33-78).

Results. The average duration of shoulder pain before treatment was 17.5 months (3-36). The right shoulder was the most frequently involved (74%) and nocturnal pain was recorded among 68% of the patients. The risk of recurrence was 15.3% at 12 months and 25.9% at 18 months. The incidence rate of recurrence per year was 1.9 recurrences/10 person-years. The most frequently found ultrasound alterations were rotator cuff tendinopathy (n = 55; 65%) with subacromial/subdeltoid bursal distension (n=31; 36%), peri and intra-tendinous calcification (n=16; 19%), degenerative alterations of the acromioclavicular joint (n=14; 16%), incomplete rotator cuff tear (n=12; 14%) and strain of the long head of the biceps (n= 18; 21%). The risk of recurrence was higher in patients who underwent only periarticular corticosteroid injections ($p< 0.05$). The risk of recurrence was associated with a longer period of development of the shoulder pain before treatment, mostly among patients with shoulder pain for more than 6 months ($p< 0.05$) and with the presence of peri/intra-tendinous calcification in the ultrasound ($p<0.05$). In subgroup patients the recurrence was lower in patients receiving combination therapy (periarticular corticosteroid injection followed by rehabilitation program). The presence of nocturnal pain was associated with the best response to treatment in both groups ($p=0.06$). There appears to be a tendency for a lower risk of treatment recurrence among patients that presented subacromial/subdeltoid bursal distension ($p=0.07$), but it is not statistically significant.

Conclusions. Periarticular injection in association with a rehabilitation program for shoulder pain treatment was more effective than periarticular injection only. The shoulder pain recurrence rate was 25.9% at 18 months. The treatment was most effective in patients with nocturnal pain and subacromial/subdeltoid bursal distension. The risk of recurrence was greatest in the group of patients with an illness duration of more than 6 months and with the presence of peri/intra-tendinous calcification in the ultrasound.

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MONITORAGGIO IN DAY HOSPITAL RIABILITATIVO DEL DOLORE NELLE GRAVI CEREBROLESIONI ACQUISITE (GCA)

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Introduzione. La centralità del tema del dolore è un dato consolidato e codificato nel nostro Sistema Sanitario Nazionale costituisce un importante indice da valutare e considerare all'interno di un buon progetto riabilitativo multidisciplinare integrato ed è necessario verificare quali possono essere le soluzioni da adottare per migliorare la qualità di vita dei nostri pazienti. *Scopo* del lavoro è stato quello di verificare, nel corso di un anno, tra alcune tipologie di pazienti ricoverati in regime di Day Hospital, quale fosse la loro percezione del dolore nel tempo e quanto questo correlasse con le attività riabilitative proposte.

Materiali e metodi. È stato condotto uno studio osservazionale della durata di un anno, dal maggio 2011 al 2012; sono stati reclutati 70 pazienti ad almeno 1 anno dall'evento acuto con avvenuta stabilizzazione del quadro clinico, in esiti di grave cerebrolesione acquisita (16 ictus ischemico, 11 ictus emorragico, 35 trauma cranico, 4 postanossici, 4 neoplasie cerebrali) con età compresa tra i 17 e gli 88 anni (età media 47,5); 53 maschi e 17 donne. Sono state escluse patologie neurodegenerative, pazienti diabetici e neuropatie periferiche. I soggetti hanno lavorato circa 2 mesi effettuando 20 sedute riabilitative per 2 ore di trattamento (sempre neuromotorio in palestra, alternato a terapia occupazionale e idrokinesiterapia e 4 incontri di neuropsicologia). In ogni seduta veniva monitorato il dolore a riposo attraverso la somministrazione della NRS (Numeric Rating Scale); in 3 casi più compromessi esiti di GCA è stata utilizzata la PAINAID (Pain Assesment in Advanced Dementia). Si sono confrontati i valori della prima e ultima valutazione.

Risultati. Su 70 pazienti si sono verificate 25 variazioni alle scale somministrate All'inizio e alla fine pari al 35% della popolazione considerata. Nel 28 % (20 casi) si è osservato un miglioramento al punteggio finale. All'interno di questo sottogruppo 6 pazienti erano stati sottoposti a trattamento selettivo per la spasticità con tossina botulinica; 5 avevano assunto antiinfiammatori nei primi 7-10 giorni per meglio tollerare il trattamento fisico riabilitativo, 2 avevano intrapreso e proseguito terapia antidepressiva. Nel 7 % (5 casi) si è assistito a un peggioramento nonostante si fossero effettuate le sedute riabilitative come da protocollo e impiegate terapie fisiche specifiche (ultrasuoni, taping) e farmacologiche (antiinfiammatori steroidei e non, farmaci gabaergici, antidepressivi, morfinosimili anche in associazione). Tale popolazione era costituita principalmente da esiti di GCA vascolari cronicizzati nel tempo. Per quanto riguarda la scarsa sensibilità manifestata soprattutto dagli esiti di grave trauma cranico nei confronti della percezione del dolore si può imputare in parte alla ridotta capacità di critica, alla difficoltà di interpretare le proprie emozioni o a un innalzamento della soglia del dolore. Infatti sui 35 pazienti solo 4 hanno mostrato una variazione alla percezione del dolore; 2 attraverso la PAINAID dove la percezione di dolore è stata indiretta, interpretata dagli operatori; 1 pz ha espresso un peggioramento all'esterno non percepibile fisicamente ma possibile se considerato come disagio psicologico e difficoltà di integrazione sociale.

Conclusioni. La misurazione del dolore rimane difficile da interpretare perché vi sono numerose variabili che si intersecano nel corso di un percorso riabilitativo complesso. Per quanto riguarda gli esiti di grave trauma cranico, nonostante la ridotta numerosità del campione, pare che la scala NRS non sia sufficientemente sensibile perché mal sottolinea gli aspetti legati al disagio psicologico e sintomi di conversione in pazienti con LCF elevata. Più sensibile risulta essere la PAINAID per i casi meno collaborativi. Il dolore risulta mantenersi ed essere più rappresentato negli esiti di ictus cronici. Nei casi in cui è presente spasticità dolorosa localizzata il trattamento con tossina botulinica costituisce una corretta risposta terapeutica.

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EFFECTS OF ROBOT-ASSISTED GAIT TRAINING ON LOCOMOTOR FUNCTION AND MOTOR UNITS FIRING RATE IN MULTIPLE SCLEROSIS.

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Introduction. Locomotor disability in persons with MS can be considered as an emergent characteristic deriving from several mechanisms of functional impairments, including coordination of posture and gait. The functional impairment in multiple sclerosis is caused by muscle weakness. Modulation of motor unit firing rates can change muscle force production. Actually there is a limited amount of studies related to rehabilitative approaches using treadmill, body-weight-supported treadmill, and robot assisted treadmill in persons with MS. All of these methods showed to improve the walking speed and maximal walking distance in these patients. The aims of this randomized controlled study are to test the hypothesis that robot-assisted gait training could have higher benefit, compared with conventional therapy in improving locomotor function in subjects with multiple sclerosis and to investigate the effects of gait training on motor unit firing rate characteristics.

Materials and methods. We enrolled 37 MS subjects with no relapse during the last six months and gait impairments (EDSS) 6-7. Participants have been randomized to Robot assisted gait training (RAGT) or conventional therapy (CT). Patients in both groups received 12 treatment sessions over 6 weeks, 2 sessions a week. Primary outcomes measure were the six-minute walking test (6MWT), the Berg Balance Test (BBT), the Timed Up and Go test (TUG), the 10m test (10MWT), Barthel Index, Fugl-Meyer, these tests were repeated before treatment, at the third week of treatment, at the end of the treatment and 3 months after (follow-up). Motor unit firing rate analysis has been performed by recording the surface EMG signal of the vastus medialis, during isometric knee extension. Each patient performed two different types of exercise: a maximum voluntary contraction (MVC) and subsequent contractions at different force level: 20%, 50% and 75% of MVC lasting 6 sec. Self-reported questionnaire on motor fatigue and quality of life were administrated.

Results. 10 patients concluded the CT and 14 the RAGT program. The other patients are carrying out the rehabilitation program. After 3 weeks, the RAGT group improved mobility (TUG), walking endurance (6MWT, $p = 0.007$), balance (BBT) and gait speed. Clinical gains increased even further at the end of the training program: mobility (TUG), walking endurance (6MWT, p=0,03), balance (BBT, p=0,02) and gait speed (10MWT). They slightly improved their quality of life at the end of the training program. No clinical effects emerged on fatigue. At the end of the training program, the CT group improved mobility (TUG $p=0.03$) without any significant clinical changes in gait speed, walking endurance and balance. After the treatment, all the patients were able to deliver an isometric force, during knee extension (MVC) significantly ($p=0.0297$) greater than the baseline. At follow-up, there is not significant change in clinical trials, for both groups. According to the force, the amplitude of the EMG signals significantly increased after the treatment at the trial of 50% MVC ($p=0.096$), 75% MVC ($p=0.0734$) 100% MVC ($p=0.0845$) in the RAGT group, without any significant results in CT group. Also motor unit firing rates significantly increased in the RAGT group at PF 95, the frequency below which 95% of the total power of the signal is found ($p=0.0326$).

Conclusions. A specific robot-assisted gait training seems to be effective in improving walking endurance and balance control in MS subjects, after 3 weeks and at the end of the rehabilitation program. The treatment allows patients to increase the force of the knee extensors modulating both the amplitude (RMS increases) and the frequency. The recruitment of a growing number of motor units is responsible for the increase of strength. The analysis of EMG signal can detect a training effect on motor output optimization capabilities of central nervous system.

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ENERGY CONSUMPTION, FUNCTIONAL INDEPENDENCE MEASURE AND DISEASE SEVERITY IN HEREDITARY SPASTIC PARAPLEGIA

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Introduction. Hereditary spastic paraplegias (HSP) are a clinically and genetically determined group of conditions characterized by progressive motor disturbance due to retrograde degeneration of the corticospinal tracts. The progression is slow and affects various area. The most prominent symptom observed in the pure forms is the lower limb spasticity, accompanied by weakness, hyperreflexia, mild sensory impairments, pes cavus and mild cognitive decline; and there are also other complicated forms characterized by extrapyramidal signs, peripheral neuropathy and amyotrophy (1, 2). There is little evidence (or no evidence) concerning the energy consumption (EC) in patients with HSP. Moreover little is known about the impact of energetic expenditure in the patient's everyday independence and any probable correlation with the disease severity. The aim of our study was to measure the energy consumption in HSP patients, focussing on its impact on functional impairment and disease severity.

Materials and methods. We recruited 13 HSP patients for the study (9 males and 4 female; mean age 44.22 ± 4.71 years; range 16-68 years). Breath-by-breath oxygen uptake We measured the EC with a portable metabolimeter (K4b², Cosmed, Rome, Italy) during walking on a treadmill; each evaluation started with the subject standing at rest for 3 minutes on the treadmill. Subsequently, the patients were asked to walk on a motor-driven treadmill at selected speeds (0.6km/h, 1.2km/h, 1.8km/h, 3.0 km/h, 4.2km/h), since when they were able to maintain safely. The functional impairment was assessed by

the Functional Independence Measure (FIM). Disease severity was estimated by the Spastic Paraplegia Rating Scale (SPSS).

Results. The oxygen consumption measured during walking at 0.6 km/h is strongly significantly correlated with FIM and SPSS values (P=0.0000004 and P=0.00000001 respectively). We found similar correlations comparing EC at higher velocity such as 1.8 km/h to FIM and SPSS values (P=0.05959651 and P=0.00000047). The energy cost at different velocities such as 0.6 km/h, 1.2 km/h, 1.8 km/h, 3.0 km/h and 4.2 km/h showed significant correlation with functional independence measure (P<0.002).

Conclusions. These data demonstrate a correlation between the EC in patients with HSP and the functional impairment and disease severity. We, therefore, propose the EC parameters as promising indicators to better understand the gait impairment in HSP patients and to provide support in defining physical treatment and rehabilitative proposals. Further studies should be conducted in order to validate the results in larger cohorts and to fill the current gap of cut off values in healthy controls.

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A CURIOUS CASE OF TEMPOROMANDIBULAR DISORDER

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Introduction. Temporomandibular disorder (TMD) is the most common cause of facial pain after toothache. The American Academy of Oralfacial Pain classification divides this condition into two types: muscle-related TMD and joint-related TMD. It is widely recognized that orofacial structures are either involved in, or altered by, playing a musical instrument. Instruments whose playing leads to high impact on orofacial structures and to the temporomandibular joint (TMJ) include the violin and viola. This can be understood in terms of the direct physical contact and mechanical forces between these bodily regions and the instrument. Violin and viola playing can indeed contribute to mechanical stress on the temporomandibular joint by forcing the mandible toward the right TMJ.

Case report. A 13-year-old girl was sent to the pediatric immunology consultation on suspicion of TMJ arthritis. She had TMJ pain for 6 months associated with difficulty in opening the mouth. Physical examination revealed facial asymmetry, pain on palpation of the TMJ bilaterally, mouth opening of 18 mm and cervical movement limitation, with right predominance. The immunological study was negative. Magnetic Resonance Imaging (MRI) revealed right anterior dislocation and bilateral degenerative joint changes predominantly right. The patient plays violin for 4 years. She began a rehabilitation treatment.

Conclusions. Although there are few data about the prevalence of TMD in violin and viola players, the existing studies demonstrate that craniomandibular dysfunction symptoms occur in up to 74% of stringed instrument players. Two cases of premature degenerative TMJ disease on the right side in young violinists are described in the literature. The pressure that the violinists play to keep the position of their instruments between the chin and left shoulder requires an extended muscle activity that in most cases exceeds the normal physiological function, being able to generate pathology. In some cases, small repeated injuries can cause pathological remodeling of the right TMJ. The negative immunologic study, the joint component in the MRI, with some degenerative alterations and the predominance at the right side point to the association with the violin playing.

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HEREDITARY NEUROPATHY WITH LABILITY TO PRESSURE PALSIES: A PATHOLOGY OFTEN UNDERDIAGNOSED

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Introduction. Hereditary neuropathy with liability to pressure palsies (HNPP) is characterized by repeated focal pressure neuropathies especially of the median, ulnar and peroneal nerves. The first symptoms usually occur in the second or third decade of life. The diagnosis is established in a patient with recurrent focal compression neuropathies who has a family history consistent with autosomal dominant inheritance. PMP22 is the only gene known to be associated.

Case report. A eight-year-old male, when getting up from the bed tripped in a closet and remained with gait difficulties, with a right foot dropped and numbness in the dorsum of the right foot. On physical exam, he had palpation pain on popliteal fossa, decreased muscle strength on right ankle dorsiflexors and eversors (grade 0/5) and decreased sensitivity to pin-prick on the dorsum of the right foot. He had a maternal aunt with a similar history, with a neuropathy diagnosis. The electromyography revealed a severe axonal lesion on right peroneal nerve with compression probably at the level of the popliteal fossa. The ultrasound and MRI of the popliteal fossa were normal. Due to family history was request the genetic blood test that identified a deletion of peripheral myelin protein-22 gene (PMP22), confirming the HPNN diagnosis. He performed a rehabilitation program with complete resolution of the symptoms, muscle strength and functionality.

Conclusions. Hereditary neuropathy with liability to pressure palsies (HNPP) is a relatively common condition with an incidence that is estimated at 16/100000, although there may be more cases that are not diagnosed. It is important to take a complete medical history and in our case report the approach of the family history was crucial, making the diagnosis in the first event and in a very early age. Recovery from acute neuropathy is often complete and when recovery is not complete, the resulting disability is usually mild. The primary treatment is to prevent nerve injury by avoiding pressure or nerve stretch. It is very important to inform the patients about the risk factors and the activities that should be avoid. The rehabilitation program could be very helpful to maintain the muscle tropism, mobility and flexibility while avoiding overfatigue. A few sessions with an occupational therapist can help to identify ways to reduce the stress to the nerves and keep activity.

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PROTOCOLLI RIABILITATIVI DOPO LESIONE MENISCALE: REVISIONE DELLA LETTERATURA

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Introduzione. La lesione meniscale rappresenta uno degli infortuni più frequenti nella pratica sportiva, in particolare nei calciatori e negli sciatori. Studi epidemiologici condotti su atleti di diverse discipline mostrano che le lesioni meniscali interessano nel 24% dei casi il menisco mediale, nell'8% il menisco laterale. Inoltre nel 20-30% dei casi sono associate ad altre lesioni, ad esempio a carico dei legamenti del ginocchio. Le meniscopatie possono essere trattate conservativamente o chirurgicamente. Molti studi dimostrano che spesso l'intervento chirurgico può condurre a diverse complicanze e a fenomeni di degenerazione articolare, se non associata ad un corretto protocollo riabilitativo. Lo scopo del nostro lavoro è stato quello di confrontare i protocolli riabilitativi cui vengono sottoposti gli atleti in seguito alla lesione meniscale, in relazione alle differenti tipologie di intervento chirurgico attualmente disponibili.

Materiali e metodi. Abbiamo svolto una ricerca attraverso diversi motori di ricerca: PubMed, Medline, Cochrane, CINAHL, Embase, SportDiscus, Pedro and Google, utilizzando come parole chiave: 'rehabilitation protocol meniscal injuries", 'conservative treatment meniscal injuries' e 'management meniscal injuries".

Risultati. Dall'analisi della letteratura è emerso che il tipo di lesione meniscale, le necessità funzionali del paziente, lo stato dell'articolazione prima dell'intervento, la compliance e la motivazione del paziente sono fattori determinanti per la scelta del trattamento chirurgico e riabilitativo. Attualmente le tecniche interventistiche più utilizzate sono la meniscectomia parziale e la sutura meniscale, mentre per soluzioni più recenti, quali il trapianto meniscale e l'impianto di menisco collagenico, pochi studi riportano gli effetti a lungo termine. Molti autori sostengono l'importanza dell'intervento riabilitativo durante la fase postoperatoria per permettere un ritorno all'attività sportiva rapido e in sicurezza. Il programma riabilitativo è strettamente legato al tipo di lesione meniscale e all'intervento chirurgico, soprattutto nell'immediata fase postoperatoria,

quando l'obiettivo riabilitativo consiste nel controllo farmacologico del dolore, nella risoluzione della tumefazione e quando possibile nell'iniziale recupero della mobilità articolare e della forza muscolare. Dai dati analizzati emerge che la riabilitazione permette una ripresa dell'attività sportiva in circa 6-8 settimane dopo meniscectomia parziale, intorno alle 20 settimane dopo sutura periferica, mentre in seguito a sutura meniscale complessa e trapianto meniscale sono necessarie rispettivamente 30 settimane e 12 mesi di trattamento riabilitativo.

Conclusioni. In letteratura i protocolli riabilitativi proposti sono episodici e non sono sempre descritti dettagliatamente, ad eccezione di pochi autori, come Heckmann, Fritz, Pabian e Bizzini, che riportano precisi programmi di riabilitazione cui sono stati sottoposti pazienti dopo l'intervento chirurgico. Nelle recenti linee guida dell'*American Physical Therapy Association*, Logerstedt sottolinea la debolezza delle evidenze scientifiche relative ai protocolli di trattamento delle lesioni meniscali dopo intervento chirurgico. Pertanto sono necessari ulteriori studi per sviluppare protocolli riabilitativi standardizzati e migliorare il livello di evidenza nel trattamento delle lesioni meniscali.

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NEOPLASTIC SPINAL CORD INJURY: WHERE DOES REHABILITATION STAND?

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Introduction. Most studies focusing on Spinal Cord Injury (SCI) center on traumatic lesions. There isn't much wealth of information concerning non traumatic SCI, namely neoplastic causes. Life expectancy due to population aging and more aggressive and efficient treatments has been increasing and it is pertinent to discuss the role that rehabilitation plays in quality of life of these patients. Objectives: characterize neoplastic SCI patients admitted to a rehabilitation center, to analyze their clinical, neurological and functional evolution and compare the results to those already available in literature.

Materials and methods. Retrospective analysis was conducted on discharged patients from SCI unit of a Portuguese Rehabilitation Center, in January 2011 through June 2012. All clinical files were reviewed and patients who had been diagnosed with neoplastic SCI were selected. Lesion etiology; demographic data; neurological classification according to *ASIA impairment scale* (AIS); length of stay; *Functional Independence Measure* (FIM), *Spinal Cord Independence Measure* (SCIM) on beginning and on discharge; bowel and bladder management were recorded and analyzed using Excel 2007®.

Results. In the selected period, 221 patients were discharged from a spinal rehabilitation unit and only 8 had a neoplastic spinal cord injury (3,6%). There was a predominance of primary tumors (75%) (2 astrocytomas, 2 meningiomas, 2 schwannomas) versus metastatic ones (1 multiple myeloma, 1 lymphoma). Female gender accounted for 62,5% and males for 37,5%. Mean age was 60,9, with a minimum of 21 and a maximum of 87 years old. Seven subjects had paraplegia and one had tetraplegia. Incomplete lesions were the majority with 87,5% (AIS B 25,0%, AIS C 25,0%; AIS D 37,5%). There were 1 cervical, 6 dorsal and 1 lumbar injuries. Seven patients had previous surgical treatment, 2 of them received co-adjuvant therapy (1 patient had quimiotherapy and the other radiotherapy) and there was 1 patient who had conservative treatment with a combination of quimio and radiotherapy. Half the patients maintained their vesical initial regimen, the other half improved (1 went from voiding using maneuvers to voiding by sensation, the other patients who had indwelling catheters at admission evolved to sphincter control). Even though, only 1 patient at admission had a satisfactory bowel program, by discharge all of them had regular bowel movements. At admission 75% of the subjects used a wheelchair, 12,5% were bedbound and 12,5% used a walking aid. At discharge there was an improvement with 37,5% of patients walking independently with an aid. Mean FIM difference between admission and discharge was 18,1 with a minimum of 0 and a maximum of 33. Mean SCIM difference was 21,4 with a minimum of 0 and a maximum of 40.

Conclusions. According to several studies with the aging population and improving survival the number of patients with SCI due to tumor who are referred to rehabilitation services is increasing, and so it is pressing to study this topic. Concerning gender, age at admission and predominance of paraplegia and incomplete lesions, our data is consistent with what is described in literature. Barring a poor vital prognosis, functional outcomes are positive. Although there was no improvement in neurological condition (as measured by AIS) we found progresses in daily living activities performance (as measured by FIM and SCIM), in independent ambulation and bladder and bowel function. These gains and also an efficient pain management have shown to be crucial to improving quality of life which in these patients is even more important due to the aggressive treatments they endure (physical and psychological debilitating). Nevertheless it is still an uncommon condition accounting for only 3,6% of the total SCI patients, which is less than described in literature and accounts for the small dimension of our study. A posterior multi centric study which compiled significant data would be essential for better understanding of rehabilitation outcomes and creation of rehabilitation protocols in this specific population.

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THE CARESS PROJECT: ONE YEAR EXPERIENCE

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Introduction. Le problematiche legate agli aspetti preventivi, diagnostici, terapeutici e assistenziali delle persone con disabilità comportano un notevole impegno sia da parte della rete assistenziale sanitaria che di quella sociale. L'attività fisica risulta estremamente importante per l'integrazione sociale, la vita di relazione, il mantenimento ed il miglioramento dello stato di salute. La riabilitazione ha già auspicato l'intenzione di realizzare programmi che prevedano prestazioni sanitarie e sociali integrate tra loro, che valorizzino le abilità di ogni persona e agiscano sulla globalità della situazione di handicap, coinvolgendo la famiglia e la comunità. Inoltre, si prevedono adeguamenti strutturali e del personale dei servizi educativi, sportivi, di tempo libero e sociali. Il progetto CARESS (acronimo dall'inglese "from Childhood to Adulthood: Rehabilitation and Enabling Sport for Sociability", in italiano "Dall'infanzia all'età adulta: riabilitazione e sport abilitante per la partecipazione sociale) è nato all'interno di un percorso condiviso con l'amministrazione (Provincia di Roma), polo di ricerca (Fondazione Santa Lucia, I.R.C.C.S.) e associazione sportiva (Totti Soccer School) al fine di poter integrare integrazione sociale e sport, verificandone l'outcome. Lo scopo ultimo di questo progetto è lo sviluppo di un approccio multidisciplinare che integri le più innovative tecniche riabilitative e valutative, con attività sportive volte allo sviluppo fisico, cognitivo e sociale della persona con disabilità, delineate sulle sue necessità ed al tempo stesso aperte all'interazione con gli altri.

Materials and methods. Si sono indagate le impressioni di genitori, istruttori e psicologi relativamente ai 6 domini delle Impressioni Generali del QUIT e mediante una scala Pittsburgh della Partecipazione sociale. I Questionari Italiani del Temperamento (QUIT) sono una batteria di strumenti che misurano il temperamento della persona in età adolescenziale. Domini principali sono: l'inibizione alla novità, l'attenzione, l'attività motoria, l'attenzione sociale, l'emozionalità positiva e negativa. Queste dimensioni si sono già dimostrate particolarmente adatte al contesto italiano. I QUIT possono essere impiegati per scopi diagnostici, per attività di counseling con genitori e insegnanti, per il follow-up di bambini con problemi di natura diversa (pediatrici, neurologici, scolastici e psico-sociali), per l'organizzazione di gruppi di bambini in età prescolare e scolare e per ricerca. Ogni questionario si compone di circa 60 item e risulta di facile compilazione per genitori, educatori e insegnanti. La scala va da «quasi sempre» a «quasi mai», su una scala a 6 punti. Ogni questionario ha un foglio di codifica che permette il calcolo del valore raggiunto dal singolo bambino in ogni dimensione. Il manuale provvede le norme statistiche per ogni età. I QUIT forniscono sia il profilo temperamentale ottenuto attraverso la compilazione del questionario, sia l'impressione generale che l'adulto ha del temperamento del bambino. La scala di Pittsburgh misura la partecipazione del soggetto in studio alla sessione di lavoro proposto. È una scala molto usata nel campo della riabilitazione, al fine di valutare la partecipazione alla sessione riabilitativa da parte del paziente. È stato proposto a valutazione di inizio e fine stagione per i genitori, psicologi e allenatori da parte di 30 ragazzi con diverse disabilità psicomotorie e dello sviluppo (Sindrome di Down, Autismo, ritardo cognitivo ndd, ecc.).

Results. La descrizione all'inizio dello studio è risultata significativamente diversa tra i 3 valutatori in termini di inbizione alla novità (p=0.036 Friedman Analysis, più basso per i genitori), e al limite della significatività per l'orienta-

mento sociale (p=0.064, giudicato più alto dagli istruttori). Ovvero il grado di diffoltà e/o preoccupazione di fronte a situazioni nuove è stato giudicato più basso dai genitori rispetto agli altri istruttori e psicologi che invece hanno dato risposte consistenti tra loro. Al contrario, gli istruttori hanno riportato un grado di interesse per le altre persone più alto di quello riportato da genitori e psicologi. Non si sono registrate differenze in termini di valutazioni relative a attività motoria (p=0.571), emozioni positive (p=0.949), emozioni negative (p=0.318), attenzione (p=0.759), o partecipazione sociale (p=0.683). Dopo un anno, si è visto che i giudizi si sono uniformati tra le tre figure. L'orientamento sociale è stato giudicato in modo simile (p=0.779) con i genitori che hanno giudicato più alto l'interesse da parte dei propri figli verso le altre persone (+14%). Così anche le differenze in termini di giudizio sull'inibizione alla novità si sono smorzate risultando non più significative (p=0.141), con gli istruttori che hanno giudicato inferiore il grado di difficoltà dei ragazzi davanti alle novità (-14%). Sono rimaste non significative l'emotività positiva (p=0.565) e negativa (p=0.867), l'attività motoria (p=0.867), l'attenzione (p=0.417), la partecipazione sociale (p=0.801).

Conclusions. Lo sport, in particolare, calcio di squadra, eseguito durante una stagione, assume un impatto altamente proficuo per l'inclusione sociale da parte dei soggetti con diversa disabilità psicomotoria. Le valutazioni proposte hanno verifcato come siano unanimi nel proporre evidenti miglioramenti dall'inizio della stagione, ma con diverse sfaccettature a seconda della prospettiva culturale e delle aspettative proprie della sfera emotiva dei valutatori coinvolti. Ciò è tanto più vero all0'inizio della stagione sportiva, mentre tende ad attenuarsi verso la fine della stessa. Lo studio dimostra come lo sport ha un effetto positivo in termini di partecipazione e concentrazione all'impegno, così da migliorare anche l'inclusione sociale nelle attività della vita quotidiana.

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CONSERVATIVE TREATMENT IN FAECAL INCONTINENCE

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Introduction. Anal incontinence is the involuntary loss of flatus, liquid or solid stool that is a social and hygienic problem. Faecal incontinence (FI) has identical definition excluding flatus lost. Patients present with a variety of symptoms and as many people are reluctant to admit to symptoms of FI, it is important to proactively enquire in known high risk groups, such as, women with obstetric injuries, sequelae of surgical procedures and neurological patients (pudendal neuropathy due to chronic constipation, Diabetes Mellitus, Multiple Sclerosis). The guidelines recommends a trial conservative and drug management in the vast majority of patients before considering surgical options because these conservative options are comparatively inexpensive and involve no significant morbidity.

Methods. We performed an evaluation protocol to assess the patients that had integrated a pelvic floor rehabilitation program with faecal incontinence diagnosis.

Results. 13 patients were included. Multiple variables were analyzed to characterize the population: type of incontinence, functional limitations resulting from incontinence, causes of incontinence, alterations on physical examination, diagnostic exams and treatment performed.

Conclusions. Faecal incontinence adversely affects quality of life and limits their ability to interact socially due to fear and embarrassment. A rehabilitation program which includes pelvic floor muscles exercises, biofeedback and/or electrostimulation constitutes an important therapeutic option with good results.

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MLWHFQ PORTUGUESE TRANSLATION

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Introduction. Heart Failure (HF) has an increasing incidence and prevalence in the western countries and despite great therapeutic improvements in the last decades, mortality rates can be as high as 50%. HF symptoms frequently impair quality of life in these patients and monitoring this dimension is useful in evaluating therapeutical interventions and also as a determinant of hospital admission and mortality. Minnesota Living With Heart Failure Questionnaire (MLWHFQ) is a clinical tool that is targeted for evaluation of quality of life in patients with HF. Recently, a systematic revision of the literature recommended the use of this questionnaire in patients with HF. MLHWFQ has been translated and validated in several clinical settings but not in a Portuguese population, so the objective of this study is to translate MLWHFQ to Portuguese and carry out a pilot test in a Portuguese HF group.

Materials and methods. MLHWFQ was translated by two independent native-portuguese language experts from english to portuguese. Then, the translated questionnaire was presented to an expert's panel composed by two cardiologists and one psychiatrist who evaluated conceptual and semantic aspects. The revised questionnaire was then submitted to backtranslation (portuguese to english) by a third independent native-english language expert who had not participated in the previous steps. The discrepancies between both versions were presented to the expert's panel and a final translated version was obtained. The portuguese version of MLWHFQ was applied to 13 patients with HF in an outpatient setting in Centro Hospitalar do Porto (Porto, Portugal). Any dificulty noted by the participants in this step was registered. Statistical analysis was performed using SPSS (version 17.0) for evaluation of psychometric parameters and internal consistency.

Results. The translated questionnaire was critically revised by the group of PMR and cardiology physicians. We applied this pilot questionnaire in thirteen individuals with diagnosed cardiac failure. Eleven were male. Median age was 61 years (minimum 35 and maximum 77 years). The majority of the patients had their cardiac failure classified as NYHA class 2 (n=6; 46%). Median LVEF was 38%. No missings were found in any of the responded questionnaires. The most frequent modal class was "*0*". In items 1, 5, 7, 17 and 18 more than 60% of the individuals responded "*0*" to the question. Although the scale appears to be constructed on one single dimension (the influence of cardiac failure on individual quality of life), principal component analysis revealed that only 44.1% of the total variance is explained by one component; on the other hand three components/dimensions explained nearly 70% of the total variance in the results. The graphical analysis of the screen plot suggested the existence of three main components in this scale. Through rotatory factor analysis we identified some particularly problematic items that did not relate to any of the main mathematical components in this analysis: items 1, 6, 11 and 17. The value of Chronbach's alpha value for the whole scale was 0.917, which revealed very good internal consistency. The majority of the items had an Item-Total Correlation greater than 0.4, except for the items 1, 2, 11 and 16 (0.01, 0.28, 0.31 and 0.01 respectively). Accordingly the value of Chronbach's alpha in items 1, 11 and 16 increased if each one of these items was deleted. After statistical analysis the team of PMR physicians and Cardiologists was again reunited in order to correct the questionnaire for submission to the validation process. Both statistical data and critical review from the respondents and from colleagues was taken into account. Items 1, 11 and 16 were modified for the proposed final version of the questionnaire.

Conclusions. As in any other chronic condition, specific questionnaires are a useful tool to monitor health condition and therapeutical outcomes. This study allowed to translate and pilot-test a specific questionnaire widely used in HF patients. Ongoing research will investigate the validity of the Portuguese version of MLWHFQ beyond internal consistency: contruct validity, floor and ceiling effects, reproducibility and responsiveness.

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TERAPIA MANUALE IN UN CASO DI DOLORE CRONICO PELVICO

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Introduction. Il dolore pelvico cronico rappresenta una patologia frequente e altamente invalidante, oltre che per la presenza del dolore con risvolti sullo stato psichico, anche per le ripercussioni negative sulla vita sociale e sessuale; allo stesso tempo c'è ancora poca informazione e conoscenza su tale algia a localizzazione pelvica e su come affrontarla. Lo scopo del lavoro è di evidenziare, attraverso un caso clinico, la validità di un approccio dolce a tale sindrome, quale la terapia manuale.

Materials and methods. Lo studio analizza i risultati ottenuti su una paziente di 39 aa. con urente dolore rettale e genitale, dispareunia, urgenza alla minzione, dolore addominale dopo la defecazione, stato ansioso/depressivo in terapia farmacologica, per esito di intervento chirurgico con la tecnica STARR (*Stapled Trans Anal Rectal Resection*) risalente a tre anni prima, conseguente a sindrome da ostruita invaginazione retto-anale con rettocele e prolasso muco-emorroidario di IV grado. Per la valutazione iniziale e la verifica dei risultati sono

stati utilizzati: valutazione del perineo e del pavimento pelvico, scala analogica visiva (VAS), valutazione dei trigger point, McGill Pain Questionnaire. È stato effettuato un ciclo di riabilitazione del pavimento pelvico della durata di 4 mesi per un totale di 17 sedute con trattamento sui trigger point peri ed intravaginali, pompages del piriforme e del sacro, tecniche di rilassamento, terapia comportamentale e training domiciliare.

Results. I risultati sono stati molto soddisfacenti. Già dopo un mese la paziente ha ottenuto una riduzione del dolore in sede perianale, ha ripreso gradualmente i rapporti sessuali e ha ridotto l'assunzione di farmaci ansiolitici. A fine trattamento (dopo 4 mesi) il dolore pelvico è notevolmente diminuito tanto da essere compatibile con una soddisfacente qualità di vita, è regredita completamente l'urgenza minzionale, è stata sospesa l'assunzione di farmaci. Si è proseguito solo con il training domiciliare che ha permesso di mantenere i risultati, come evidenziato dal follow up a 5, 24 e 36 mesi.

Conclusions. L'approccio con terapia manuale, senza l'apporto di terapie strumentali quali il BFB e la SEF si è dimostrato valido nel risolvere una sindrome di dolore cronico pelvico in atto da più di tre anni, migliorando notevolmente la qualità di vita e permettendo il mantenimento del risultato a 3 anni dalla fine del trattamento, in una paziente precedentemente candidata all'intervento di Neuromodulazione sacrale.

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ROBOT-ASSISTED NEUROMOTOR REHABILITATION: EVIDENCES FROM LITERATURE.

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Introduction. The use of robotic devices in rehabilitation is documented since the early nineties, and in recent years it has spread supported by numerous scientific evidence showing that the recovery of motor function is sensitive to repetitive and specific task-oriented therapeutic approach. We conducted a systematic review of existing literature on the application of robotic devices in rehabilitation in order to assess the impact and effectiveness of their therapeutic use.

Materials and methods. Paper research was done by using specific keywords in different search engines (Medline, Embase, Google Scholar) and taking into consideration all the papers published up to 2010. The findings were then divided according to anatomical region (upper and lower limbs) and clinical pathology.

Results. The use of technological tools is mainly aimed at facilitating the recovery of the paretic limb function in people affected by stroke, although there is evidence supporting the robot-assisted treatment of patients with cerebral palsy, multiple sclerosis and spinal cord injuries. The subjects treated with robotic devices generally showed promising results as regards the motor recovery, while not always significant improvements in functional recovery of the upper limb and walking were observed. Some difficulties related to specific methodological issues that limit the studies results transferability and practical problems in the use of devices that do not favor extensive use of robotics, occurred during literature data analysis.

Conclusions. To date robot-assisted rehabilitation seems to open new and interesting scenarios in the treatment of patients suffering from various neuromotor disorders. It does not replace the therapeutic relationship based on the interaction between patient and therapist, but it should be considered an additional tool to complement and enhance the rehabilitation activities. Its effectiveness from a functional point of view and depth knowledge of the mechanisms by which it acts is still a question unresolved. Therefore, our wish is that such critical factors of interest for clinicians and researchers become subject of extensive study in order to optimize their use in the rehabilitation program.

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EXPLORATORY DATA ANALYSIS CONDUCTED ON RESULTS FROM THE FIRST QUESTIONNAIRE ON THE USE OF ROBOTIC APPLICATIONS IN REHABILITATION

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Introduction. A Study Group on Robotics and Advanced Technologies in Rehabilitation (RoRIG) was formed in 2009 with the aim to increase the scientific quality of this sector through research and implementation of shared procedures and applications of New Technologies in the treatment of persons with disabilities.

Materials and methods. In 2010, the Group conducted a preliminary investigation to capture the state of the art of robotic applications in rehabilitation by the administration of a special questionnaire mailed to 41 rehabilitation centers in Italy and Switzerland. After a first descriptive analysis performed at the Rehabilitation Center in Brissago (CH), an additional statistic data analysis has been performed at the Fondazione S. Maugeri in Pavia (IT) to provide a comprehensive exploration of how robotic equipment is employed in the centers. An Exploratory Data Analysis (EDA), based upon data mining technique, was applied to the following variables: type of robot, type of pathology, rehabilitation phase, frequency of treatment, intensity of treatment. Such a statistical procedure was chosen to detect and describe patterns and trends in our data set, explore them through highly interactive visual tools and thus establish hypothesis to test.

Results. By the questionnaire administration a census of 20 different types of robotic applications was taken, for a total of 68 devices mainly used for the rehabilitation of stroke patients, cerebral palsy, patients with TBI, patients with Multiple Sclerosis and other demyelinating diseases. The choice of robotic support (for upper or lower limb) varies according to the goal of treatment and depending on rehabilitation phase (acute post-acute, chronic phase). The EDA, through identification and grouping of input values contained in the dataset, allowed to discover similarities and differences in the ways of using technologies in the centers coming to delineate some "examples" of shared protocols, most frequent protocols and protocols conflicting with each other. The data thus processed illustrated an extremely heterogeneous and articulated employment of robotic devices, highlighting the lack of homogeneity of use especially for the treatment of the lower limbs even within the same types of patients.

Conclusions. The findings indicates the presence of methodological limitations that affect informational value of data collected and suggest the need for a deepen consideration of the setting for robotic equipment employment, which should include a critical analysis of subjective reactions among patient and operators who actually use these technological supports.

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PULMONARY REHABILITATION AFTER SURGERY FOR NSCLC: A PROSPECTIVE ANALYSIS OF THE EFFECTIVENESS OF AN INTENSIVE POST-OPERATIVE "HOMELY" PROTOCOL IN A LARGE MONO-CENTRIC SERIES

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Introduction. The treatment for patients with NSCLC is associated to an impairment of pulmonary function that dramatically reduces patients'

tolerance to exercise and quality of life (QOL) [1]. Furthermore, patients with NSCLC experience a variety of symptoms that can provoke significant distress and impair physical function; thereby reduce the ability to participate in activities of daily living (ADLs) [2]. Symptoms result in a vicious cycle where patients may electively decrease their physical activity levels promoting further functional decline and deconditioning [3]. A Pulmonary Rehabilitation Program (PRP) based on exercise training protocols has shown to improve exercise tolerance in patients with moderate to severe chronic obstructive or restrictive pulmonary disease without changes in pulmonary function. The purpose of our study is to evaluate the efficacy of a "homely" pulmonary rehabilitation protocol in the recovery of pulmonary function after surgery for NSCLC.

Materials and methods. From Oct 2009 to Jan 2011, we prospectively collected and retrospectively reviewed the clinical records of 89 patients underwent radical lobectomy followed by pulmonary rehabilitation protocol. During this period, 58 patients underwent 2-wks "homely" rehabilitation protocol (Group-A) while the remaining 31 underwent a 2-wks in-patient rehabilitation protocol (Group-B) in an Intensive Post-acute Rehabilitative Department, being the selection criteria for the inclusion in these two groups not homogeneously adopted in the study but based on case-by-case selection. All patients were evaluated for pulmonary function (dynamic and static lung volumes, blood gases analysis and exercise tolerance, as measured by the 6-minute walking test), before surgery (T-1), after surgery (T0) and at the end of rehabilitative treatment (T1). Similarly, the patients underwent assessment of ADLs indipendence by Barthel Index, perceived pain by VAS-Score and quality of life by SF-36 score, EORTC-C30 and EORTC-LC13 questionnaries, before surgery and after pulmonary rehabilitation. Multiple Cox linear regression models were used to identify the variables in the timeframes (Δ) as reported above. The outlined differences between the two groups were compared to check statistical significance by the paired sample t-test.

Results. Mean age and Male/Female ratio were 66 ± 10.2 and 50/39, respectively. Group-A and Group-B were comparable for demographic and clinical characteristics (comorbidity, smoke habit, BODE-Index and post-op complications) measured at T-1 and also for pulmonary function (FVC, VC, FEV1, TLC, RV, DLCO, PH, Pa02, paC02) measured at T-1 and at T0. Cox regression showed a substantial clinical benefit of the pulmonary rehabilitation in terms of change (ΔT0-T1) of spirometric variables, VAS-score and Barthel Index without significant differences between Group A and Group B, although a global recovery of the pulmonary function was not completely reached. Moreover, we observed as patients experienced a similar optimal recovery in terms of exercise tolerance both in Group A (Δ6MWT= -8.3 mts, p=0.33) and in Group B (Δ6MWT= -1.9 mts, p=0.26). Finally, even the perception of the dyspnea was proven to be improved after pulmonary rehabilitation, regardless the type of protocol adopted (ΔBorg, p=0.28 and p=0.35 in Group A and Group B, respectively).

Conclusions. Post-operative "homely" pulmonary rehabilitation could represent an effective option after surgery for NSCLC to achieve an improvement of exercise tolerance and physical fitness.

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ABNORMALITIES OF DISTRIBUTION OF THE PODALIC LOAD IN SCOLIOTIC PATIENTS

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Introduction. Idiopathic scoliosis is a spine deformity characterized by deviation in the frontal (lateral tilt) and horizontal plane (rotation and torsion). The incidence is about 2% and the 0.7% of cases requires surgical intervention. The aim of our case- control study is to detect an association between idiopathic scoliosis and abnormalities of the distribution of the podalic load by postural examination.

Materials and methods. From January to May 2012, we assessed 37 subjects: 20 affected by idiopathic scoliosis and 17 controls. All patients and controls underwent clinical and postural examination (baropodometric and stabilometric exam, podoscanalyzer).

Results. Of the 20 patients with idiopathic scoliosis, 16 were females; the mean age was 13.4 (range 11- 17); the mean BMI was 20.99 kg/m2 (SD±3.1). Cobb angle range was 20°-40° (average value 32.25°) in scoliotic patients. Six patients presented a right dorsal curve, other six a double curve (right dorsal - left lumbar), seven a right dorsal-lumbar double curve and one subject a left lumbar curve. Sixteen patients presented heterometry (average value 6.83mm). Of the 17 patients of the control group 10 were females, the mean age was 12.4 (range 10- 16), BMI average 20.52 kg/m² (SD± 2.74). The parameters assessed by baropodometric exam (in static), showed that the average percentage of support in the region of midfoot resulted 10.39 ± 9.38% (SD) in scoliotic patients and 23.20 ± 15.11% (SD) in the control group. The ratio between the hindfoot and forefoot was altered in 17/20 (85%) scoliotic patients (both for left and right foot), while in the control group this ratio was altered in 13/17 (76.5%) subjects at the right foot and in 10/17 (58.8%) at the left foot.

Conclusions. The results show an association between scoliotic disease and presence of load variations, especially in the area of midfoot. In scoliotic patients, in fact, there is an alteration of load distribution with an almost complete exclusion of the midfoot and a greater load in hindfoot and forefoot regions. This is in line with the hypotheses of postural changes in relation to the difference of loads in scoliotic subjects.

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POSTURAL ALTERATIONS AND DISTRIBUTION OF PODALIC LOAD IN AGONISTIC ASYMMETRIC SPORT ACTIVITIES

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Introduction. Asymmetric sports are characterized by a non-symmetric muscular activity of kinetic chains of two hemisoma. The aim of our case-control study is to evaluate the interference of non-symmetric muscular activity on the postural asset. In particular boxe and kick-boxing fighters were evaluated because of their asymmetric guard.

Materials and methods. From January to May 2012, 35 subjects were recruited; 15 were playing asymmetric sports (8 boxers and 7 kick-boxers), 10 symmetric sports (5 football players and 5 basket players), 10 no sport. Inclusion criteria were: age between 18 and 35 years, male gender, BMI range 20-25 kg/m², right hand preference, middle- high agonistic level (at least 4 training for week, duration of the session≥ 1 hour), absence of pain or of muscle-skeletal injuries in the last 12 mounths. All subjects underwent clinic and biopostural (including baropodometric static and dynamic examination, stabilometric examination and podoscananalyzer) examination.

Results. Our results show that players of asymmetric sports present alterations in weight distribution beetwen the 2 lower limbs (left 44.86%, right 55.14%), an average alteration of the hindfoot/forefoot ratio on the left (hf= 60.54%- ff = 39.49%) and invertion of this ratio on the right (hf= 46.95%- ff= 53.05%) with PMP (pressure maximum points) localized on the right forefoot in the 80% of the patients. Moreover mean values of COF (center of foot) angle (5.6°) show a rotation in an anticlockwise direction of the over-segmentary structures in all the athletes. At stabilometric examination, mean values of ellipse surface were respectively of 71.09 mm² with OE (opened eyes) and of 36.15 mm² with CE (closed eyes). Players of simmetric sports present: weight distribution (left 48.16 – right 51.84%), hindfoot- forefoot ratio on the left (hf=59.1%- ff= 40.9%) and on the right (hf=59.06%- ff=40.94%) with PMP localized on the right forefoot in only the 10% of the patients; moreover mean value of COF angle (0.46°) was normal. At stabilometric examination, mean values of ellipse surface were normal with OE (42.96 mm²) and CE (49.16 mm²). As for those who don't play any sport: weight distribution (left 49,38%- right 50,62%), hindfoot/forefoot ratio on the left (hf=56.77%- ff 43.23%), on the right (hf=53.78%- ff =46.22%) with PMP localized on the right forefoot in only the 15% of the patients; besides mean value of COF angle was 0.91°. At stabilometric examination, mean values of ellipse surface were normal (respectively of 209.66 mm2 with OE and of 247.08mm2 with CE).

Conclusions. Our results seem to confirm the hypothesis that asymmetric sport brings some postural changes such as weight distribuition on the lower limbs, hindfoot/forefoot ratio, COF angle. Moreover in agonistic players (asymmetric and symmetric athletes) the stabilometric examination shows a reduction of ellipse surface with OE compared to CE, suggesting an increase of proprioceptive control on the balance. We took underconsideration the boxe and kickboxing fighters who during the sport practice assume postures that are consisting

with our findings; so our results are in agreement with the theory about the plasticity of the tonic-postural system.

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THE EFFECTIVENESS OF PELVIC FLOOR MUSCLE TRAINING IN THE MANAGEMENT OF FEMALE STRESS URINARY INCONTINENCE: CASE SERIES STUDY

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Introduction. Pelvic floor muscle training (PFMT) programs are prescribed to increase strength, endurance and coordination of the pelvic floor muscles and are defined as a program of repeated voluntary pelvic floor muscle contraction. They have been principally recommended in the management of stress urinary incontinence (SUI)[1]. SUI is defined as the involuntary urinary leakage due to effort or exertion or from sneezing or coughing and it is usually related to increased urethral mobility and/or poor intrinsic sphincter function[2]. The primary outcome of our study is to evaluate the change in the endurance of the pelvic floor muscles after PFMT programs in female stress urinary incontinence. The secondary outcome is the increase in the number of possible repeatable contractions and in the strength of pubococcygeus muscle.

Materials and methods. From January 2012 to May 2012 we treated five patients with a history of stress urinary incontinence (SUI) at the outpatient clinic of physical and rehabilitation medicine. All women had a negative history of neuromuscular disease and were not using hormone replacement therapy. Each patient underwent an evaluation protocol before (T0) and after five weeks of treatment (T1). We evaluated the pelvic floor muscle (PFM) strength as the maximum voluntary contraction of the pubococcygeus muscle (PC test 0-3), pubococcygeus muscular endurance, as the maintenance of muscle contraction in seconds and the number of possible repeatable contractions before fatigue by digital palpation. We measured quality of life using the King's Health Questionnaire (KHQ) and Incontinence Impact Questionnaire (short form, IIQ-7). The exercise protocol for the PFMT, supervised by a physiatrist, consisted of slow contractions (tonic fibers) and rapid contractions (phasic fibers) practiced in the supine, sitting and standing positions, three times a week 1-h session for a period of five weeks and it was adapted to the capacity of each patient during each treatment. Each patient was asked to repeat the exercise protocol for a total of 3 times a day. All women were first instructed on the anatomy and function of the PFMs and on how to contract them properly. They were asked to contract PFMs as strongly as possible trying not to use gluteal, abdominal, and adductor muscles.

Results. The patients enrolled in our study had a mean age of 58.6 yr (range 50-65) with a mean body mass index of 25.64. Regarding the obstetric history, the average number of vaginal deliveries was 2.2 and in all of the cases was performed an episiotomy. Moreover, two patients underwent an hysterectomy and one had both cystocele and rectocele. Menopause occurred in 4 of the 5 patients at a mean age of 53.7 y.o. and, in one case, was surgical. The SUI occurred on an average age of 55.4 y.o. Endurance at T0, was on average 3" on the right side and 3.6" on the left side, while, at T1, 7.2" and 7.8" respectively. The number of contractions increased, on average, from 6.2 at T0 to 13 at T1. Before treatment, a mean score at PC Test of 1.6 on the right and 1.6 on the left was observed, while after the treatment it was 2 on the right and 2.2 on the left. In addition, at T0, 4 patients contracted the abdominal muscles and two of them also gluteus and hamstring muscles, while, at T1, all of them were able to contract the PFMs alone.

Conclusions. Based on our study, pelvic floor muscle training is easy to perform and results in an improvement in the endurance of the pelvic floor muscle and in the number of possible repeatable contractions. Moreover we observed a reduction of the frequency and the amount of leakage with a positive effect on the quality of life.

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BOTULINUM TOXIN TYPE A IN THE TREATMENT OF IDIOPATHIC TOE WALKING: A CASE SERIES STUDY

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Introduction. Idiopathic Toe-Walking (ITW) is defined as persistent toe walking in a normal child in the absence of developmental, neurological or neuromuscular conditions. At the onset, there is full passive dorsiflexion but an equinus contracture can be developed over time[1]. The conservative treatment of ITW includes physical therapy, bracing, serial casting and off label Botulinum toxin type A (BTX-A) injection[2]. The primary outcome of our study is to evaluate the improvement of the ankle dorsiflexion after only one BTX-A injection in children with idiopathic toe walking. The secondary outcome is to see if there is a reduction of the percentage of time spent walking on toes.

Materials and methods. From January 2011 and June 2012, we enrolled in our study six children with ITW. All the children were evaluated prior the BTX-A injection (T0) and after 1 (T1), 3 (T2) and 6 (T3) months. The evaluation protocol consisted of the measurement of ankle dorsiflexion, both with knee flexed and extended, hip and knee range of motion (ROM), Selective Motor Control scale, Physician's Rating Scale, perceived amount of time spent toe walking and satisfaction after the treatment, both rated by parents. All of the children underwent a BTX-A injection in the calf muscles with a total of 6 units/kg Botox ®. The parents were instructed to perform stretching exercises of the injected muscles and reinforcement exercises of antagonists for 45 minutes three times a week. The use of BTX-A was approved by the Medical Ethical Committee of the Second University of Naples. Moreover, the parents had to sign a detailed informed consent.

Results. All of the children enrolled were males, with a mean age of 6.8 yr (range 4-9). Toe-walking occurred since the beginning of the ambulation. None of the children underwent a previous treatment for the toe walking. The improvement between T0 and T3 in the right ankle dorsiflexion, both with flexed knee and with extended knee, was statistically significant (p=0.0436, and p=0.0183 respectively), as well as in the left ankle dorsiflexion (p=0.0475, and p=0.0386 respectively). At the Selective Motor Control Scale, at T0, five children had F5 and only one had F4 while at T3 all of the children had F5. Taking in consideration the Physician Rating Scale, at the initial contact of the gait cycle, at T0 three children rested their feet to the ground on their toe and three their feet flat to the ground, at T3 all of the children rested their feet flat to the ground. Moreover, during the stance phase, at T0, three of them had an early lifting of the heel in the acceptance of load and three in mid-stance, while at T3 all of the patients had an early lifting of the heel during mid-stance. The mean percentage of time spent toe-walking, reported by parents, was 83.3% at T0 and 50% at T3 (p=0.0379). Only in one case parents were not very satisfied after the treatment.

Conclusions. In our study the use of BTX-A resulted to be effective in improving the ankle dorsiflexion, the resting on the ground of the feet at the initial contact of the gait cycle and in reducing the percentage of time spent toe walking during the day with a good satisfaction expressed by parents. In addition, although none of our patients stopped toe walking completely, the use of BTX-A allowed us to avoid the development and the worsening of an equinus contracture so as to delay the lengthening of the Achilles tendon.

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PROPOSAL OF A PROTOCOL FOR FUNCTIONAL EVALUATION OF PATIENTS WITH POMPE DESEASE.

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Introduction. Pompe disease is an autosomal recessively inherited lysosomal storage disorder. It is caused by mutations of the gene coding for acid α-glucosidase (GAA), located on chromosome 17 in band q25[1], resulting in shortage of GAA. Therefore, the lysosomal degradation of glycogen is hampered and glycogen accumulates inside the lysosomes. In healthy individuals the enzyme is active in all organs. Its deficiency is associated with a large spectrum of clinical symptoms. The aim of our study is to validate an assessment protocol for the functional evaluation and care of patients with Pompe disease.

Materials and methods. From May 2011 to April 2012, we assessed 6 patients belonging to the same family (brothers and sisters) with a diagnosis of Pompe disease: R.A. 43 y.o., R.Ma. 56 y.o., and R.V. 59 y.o., were females and R.An. 49 y.o., R.M. 53 y.o., and R.C. 42 y.o., were males. Our evaluation protocol consisted of: Range of Motion (ROM); Manual Muscle Testing (MMT); Hand Grip Strength Test; Unipedal stance time test; Functional Ambulation Category; Fatigue Severity Scale; Functional tests, Tinetti Scale; Brief Pain Inventory (BPI); Barthel Index and Modified Rankin Scale Index[2] for the disability; Short Form 12[3] for the quality of life. Furthermore, it was done for each patient a baropodometric examination and a DXA Scan for BMD and lean mass evaluation.

Results. The measurement of ROM showed mild limitations in extreme degrees. The Manual Muscle Testing resulted in decreased muscle strength (MMT=4 and MMT=3) more pronounced for proximal than distal muscles. The Hand Grip Strength Test did not show significant alterations. Except for 2 patients, all subjects reported musculoskeletal pain of mild-moderate intensity (BPI range 2.75-4.48), two patients referred that pain interfered with daily life activities. A sense of "fatigue" was perceived by 5 out of 6 patients. One of the brothers presented balance and gait abnormalities more pronounced than the others. Overall, the level of disability was greater for 3 patients, the perception of the quality of life was poor for 4 patients, acceptable for 1 and good for another subject. At the DXA examination, 2 patients resulted osteopenic and 1 osteoporotic. The lean mass evaluation showed values ranging from 53.8% to 80.7% (average value 63.2%).

Conclusions. As outlined in the document for the rehabilitation of neuromuscular disorders, published by the council for Neuromuscular Diseases of the Ministry of Health, in patients with disability related to neuromuscular diseases, the complicated clinical issues require the presence of several health professionals. The team should ensure a comprehensive management of the rehabilitative intervention, carrying out the therapeutic project through selective and targeted programs. Our protocol is exhaustive and easy to administer in order to plan a comprehensive care for patients affected by neuromuscular diseases.

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CHARACTERIZATION OF PATIENTS WITH HIP FRACTURE ADMITTED TO A REHAB INPATIENTS

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Introduction. Severe Osteoporosis is one of the major problems of elderly patients. Hip fractures are the most impactful event in terms of mortality and disability (1-2), requiring in many cases hospitalization in intensive rehabilitation department. The purpose of our study is to characterize the population of elderly with fragility hip fractures, admitted to a rehabilitative setting.

Materials and methods. We enrolled 132 women, aged 60 years or older, with fragility hip fracture, admitted at a rehabilitation hospital "Clinic Center" in Naples, in a period between February and September 2011. We excluded women with fractures of the proximal femur secondary to malignancy (primary or metastatic) and with high degree of cognitive impairment. For all the recruited patients personal data, medical records, operating data and the post-intervention data, the assessment of walking ability in the 15 days preceding the fracture using the Functional Category Ambulation (FAC) and the assessment of cognitive status using the Short Portable Mental Status Questionnaire (SPMSQ) in the post-intervention were collected. All patients underwent X-rays of the dorsal-lumbar spine in the lateral plane for the assessment of vertebral deformities.

Results. Our study population had a mean age of 80.46 years (min 60, max 94), with an average BMI of 25.36 (15.63 min, 37.34 max). The 23.85% underwent surgical menopause. The 4.55% of subjects were smokers, 17.42% drinkers. The family history of fragility fractures was positive in 17.42% of cases. The 25.18% of subjects had personal history of previous fractures over 50 years: in 12.21% of these cases previous fractures were represented by the fracture of the controlateral femur. Most of the enrolled patients (97.73%) had comorbidities and were taking several drugs. The 23.48% of patients had already performed therapies for osteoporosis and 45.45% performed these at the time of enrollment. Before the fracture, the 82.57% of patients were able to walk without assistance (FAC 3-5). The 36.36% of our patients presented normal mental functioning as assessed with the SPMSQ, the 28.79% presented mild cognitive impairment and 34.85% a moderate cognitive impairment. Spinal deformities were present in 60.61% of cases, with multiple deformities in 41,94% of cases.

Conclusions. The presence of comorbidities and reduction of walking ability induce an increased risk of falling, with significant reduction in survival and quality of life in older adults. People with hip fracture had a high prevalence of fragility vertebral fractures. Comprehensive management, including rehabilitative treatment, is essential for an optimal outcome in terms of QALYs (Quality Adjusted Life Years) for elderly with hip fractures, especially for comorbid patients.

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FUNCTIONAL AND OSTEOMETABOLIC IMPACT OF MALE HYPOGONADISM TREATED WITH TESTOSTERONE REPLACEMENT THERAPY (TRT)

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Introduction. Hypogonadism is a clinical condition characterized by low levels of testosterone associated with loss of libido, reduced or absent fertility, decrease of bone mass and muscle strength, reduction in the mood with frequent depressive symptoms. An article recently published in Cell has focused the attention on a possible reciprocal regulation gonads-bone, in particular on the regulation of male fertility by bone through the action of osteocalcin. The aim of our study is to evaluate the bone metabolism of patients with hypogonadism, the alterations of body functions and structures related to movement, and any reduction of social participation and consequently in the quality of life.

Materials and methods. This observational study was conducted in collaboration with the Department of Clinical and Experimental Medicine of our university. All patients with a diagnosis of hypogonadism, that were sent to our observation, were receiving a pharmacological treatment with testosterone. They underwent a DXA examination, a physical examination including the assessment of muscle strength (MMT scale), presence and intensity of any kind of pain with the Brief Pain Inventory (BPI), disability (Barthel Index), and quality of life with the Short Form -12 (SF-12).

Results. Up to date, 15 male patients aged between 17 and 49 years were evaluated; 8 patients were overweight and 1 was obese. Seven patients had a diagnosis of Klinefelter syndrome, 6 Kallmann syndrome, 1 multiple pituitary deficit and 1 a primary hypogonadism after orchiectomy for bilateral testicular cancer. At the DXA examination 4 patients were osteopenic (T-score value between -1 and -2.5). Six patients were practicing a sport. Four patients reported musculoskeletal pain of mild-moderate intensity (BPI range 2.71-4.57), 7 patients had a mild muscle weakness against resistance (MMT = 4/5). No patient had changes in activity and participation (Barthel Index = 100) or of the quality of life.

Conclusions. The testosterone replacement therapy in these patients can restore sexual function, lead to an increase of energy, sex drive and sense of well-being, but also prevent muscular atrophy and bone loss. Hypogonadism is a clinical syndrome complex which comprises symptoms and signs as well as testosterone deficiency; a multi-dimensional diagnostic evaluation that includes the parameters of the muscular-skeletal metabolism might lead to a more satisfactory therapeutic perspective, and then to a possible improvement of quality of life of these patients.

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OSSICODONE/NALOXONE: GESTIONE DEL DOLORE NEL PAZIENTE CON PROTESI DI GINOCCHIO

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Introduction. L'artroprotesi di ginocchio rappresenta una procedura chirurgica diffusa volta ad alleviare il dolore e migliorare la mobilità in particolare in condizioni di osteoartrosi. Un adeguato controllo della sintomatologia dolorosa pertanto è essenziale per consentire al paziente di intraprendere precocemente

un adeguato trattamento riabilitativo. Gli oppiacei sono considerati farmaci di prima scelta nella gestione del dolore d'intensità moderata severa anche di natura non oncologica, tuttavia il loro utilizzo è limitato dal timore d'insorgenza d' effetti collaterali, soprattutto in pazienti anziani.

Materials and methods. Sono stati studiati 20 pazienti sottoposti ad intervento d'artroprotesi di ginocchio affetti da dolore post-operatorio trattati, assieme alla usuale terapia domiciliare, con farmaco a base di ossicodone/naloxone a rilascio modificato. Si è monitorata l'intensità del dolore ad inizio e fine trattamento mediante scala NRS. Sono inoltre stati applicati i codici ICF relativi a 3 domini di Funzione Corporea (dolore, mobilità articolare e forza muscolare) e a 3 di Attività e Partecipazione (camminare, spostarsi con apparecchiature ed ausili, fare le scale), utilizzando il qualificatore di *performance*. Si è inoltre monitorata la comparsa di eventuali effetti collaterali.

Results. Nei pazienti osservati, la terapia farmacologica si è dimostrata efficace nel contenere il dolore post operatorio, favorire quindi la compliance verso il trattamento riabilitativo proposto e garantire infine un buon recupero della performance nelle attività considerate.

Conclusions. L'utilizzo del farmaco a base di ossicodone/naloxone si è dimostrato efficace nel contenimento della sintomatologia dolorosa post-operatoria a fronte di scarsi effetti collaterali associati.

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PROBLEMS IN THE REHABILITATION OF ELDERLY SPINAL CORD INJURY PATIENTS: THE IMPACT OF COMORBIDITY

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Introduction. One of the most significant changes in the numbers of patients referred to the spinal unit is directly related to the increase in the average age of the hospitalized patients. This trend is related to demographic changes within the general population with progressive aging over the last 40 years (confirmed by of ISTAT 2011 analysis). Another factor is the changing habits of older people who have an increasingly active life, well into old age, with the increased risk of accidents such as falls. One should also consider health interventions as increasingly drastic (for example in cardiovascular surgery) that can bring with them complications resulting in spinal cord injury. (Elderly SCI). The increase in age, although not necessarily linked to increased disability, often involves the simultaneous presence of different pathologies in the same subject (comorbidity) with the intake of various drugs (polifarmacologia). With regard to high comorbidity one should pay particular attention to the impact of the consequences of a spinal cord injury on diseases with high prevalence in the elderly, such as COPD, ischemic heart disease, obstructive urinary symptoms, metabolic diseases, osteoarthritis, and cognitive disorders.

Materials and methods. We evaluated work in papers and the methodology of the work of our department in relation to elderly patients hospitalized with SCI from 2007 to 2012.

Results. The analysis of the work has highlighted some critical issues that can be summarized as follows: 1) Geragogy in SCI subjects: encourage physical activity, stress the importance of a balanced diet and a proper calorific intake and reassess mobility aids in relation to changing clinical conditions in order to maintain, as much as possible, independance. 2) Careful handling and use of drugs to avoid the most frequent complications (side effects on cognition of antispasmodics, anticholinergics used for neurogenic bladder that may cause episodes of sub-ileus). 3) Housing and elderly SCI. The loss of a spouse, who is often the caregiver for many years, has an incredible impact on affectivity, which one associates with social and living skills. 4) Housing and aging SCI. The elderly, often in a social context with "smaller" families ("Anchises syndrome") have a reduced possibility of returning home due to the difficulty in using home automation tools or shortfalls in social services care. 5) sensory deprivation, and rapid and important influences on cognition: there are insufficient studies on the influence of large and sudden sensory deprivation on cognition in an elderly patient.

Conclusions. The realization of a specific rehabilitation approach is essential in the elderly with disabilities secondary to a spinal cord injury. We need to separate the issues of SCI's that age from those in an elderly person who becomes SCI. If in the former it's important to learn various strategies to address issues related to aging such as avoiding "overuse" diseases, in the second it is crucial for the rehabilitator and the whole team not to have a 'give up' attitude (ageism) because when trying to restore the delicate balance it's not only important to reduce disability and improve the quality of life but also to avoid the start of a decline which may also lead to death.

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GLI EFFETTI DI DUE DIVERSI TIPI DI TRATTAMENTO MOTORIO SULLE FUNZIONI COGNITIVE IN PAZIENTI CON SCLEROSI MULTIPLA

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Introduction. La Sclerosi Multipla (SM) è una patologia neurologica cronica, degenerativa, infiammatoria e disabilitante che solitamente colpisce persone con età compresa tra i 20 e 50 anni (1). Si stima che la prevalenza della SM nella popolazione italiana sia compresa tra 10 e 80 pazienti ogni 100.000 abitanti (2). Questa malattia provoca inoltre anche deficit cognitivi, soprattutto di tipo attentivo.

Scopo. di tale studio è quello di indagare gli effetti di due differenti tipologie di trattamento motorio integrato sul tono dell'umore e sullo stato cognitivo, analizzando in particolar modo le abilità attentive e la flessibilità mentale.

Materials and methods. Sono stati arruolati 35 pazienti (14 maschi, 21 femmine) affetti da Sclerosi Multipla. I pazienti sono stati randomizzati in due gruppi, sottoposti a due tipi differenti di training motorio: il primo gruppo eseguiva training del passo con strumentazione robotica (Gang Trainer), mentre il secondo training della deambulazione convenzionale. Ciascun paziente è stato sottoposto a 12 sessioni di trattamento della durata di 50 minuti ciascuna. La terapia ha avuto frequenza bisettimanale (2 gg/sett) per la durata complessiva di 6 settimane consecutive. I pazienti sono stati sottoposti a valutazione neuropsicologica prima (35 pz) e dopo il trattamento motorio (32 pz) e ad un follow-up a distanza di due mesi (20 pz). La batteria psicometrica somministrata è costituita da MMSE, PASAT, SART, STROOP, Associazione di simboli a numeri, Test di Fluenza Fonemica, Hamilton Rating Scale for Depression.

Results. Tutti i soggetti, indipendentemente dalla tipologia di trattamento motorio somministrato, successivamente al training, mostrano un miglioramento significativo delle prestazioni cognitive ai test somministrati. Inoltre dall'analisi between group emerge una differenza significativa tra i due gruppi ad un test atto a valutare la memoria di lavoro e l'attenzione sostenuta.

Conclusions. Dai risultati del nostro studio sembra quindi che programmi di esercizio fisico contribuiscano ad incrementare lo stato cognitivo globale, la flessibilità mentale, la velocità di reazione e la coordinazione oculo-manuale; inoltre portano beneficio all'attenzione sostenuta e la memoria di lavoro. Queste ultime sembrano nello specifico migliorare maggiormente nei soggetti sottoposti a trattamento motorio con strumentazione robotica. Tali effetti si mantengono nel tempo.

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OUTPATIENT CARDIOVASCULAR REHABILITATION VS INPATIENT REHABILITATION: FITNESS AND PROSPECTS IN A TIME OF ECONOMIC CRISIS.

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Introduction. Ischemic cardiovascular disease is the leading cause of cardiovascular mortality in industrialized countries and its prevalence is growing

due to increased survival from acute events and increased life expectancy (1). Similarly, the costs incurred by the health services of industrialized countries are steadily growing. Several multicenter studies demonstrate a significant reduction in cardiovascular mortality when compared with patients who don't exercise rehabilitation and physical training programs, and there are also positive effects on the control of cardiovascular risk factors such as smoking, diabetes, hypertension and being overweight (2). In recent years, in light of the increasingly high cost of health care, some countries have revised their health organization and in particular for Cardiac Rehabilitation (CR) changing from inpatient rehabilitation facilities to outpatient rehabilitation, with the goal of cost containment with the same effectiveness (3). A first step to review the organization of healthcare is to select a population of ischemic heart disease patients where outpatients would be the most appropriate route (4).

Materials and methods. The retrospective study conducted at the cardiopulmonary rehabilitation unit of the Rehabilitation Department of the hospital of Alexandria, has analyzed patients admitted as inpatients over the period 1.1.2012 to 31.6.2012. Of the 97 patients (60 males and 37 females) with newly diagnosed cardiac problems, stratification criteria (Class NHYA, absence or presence of immediate postoperative complications, preserved LV function by echocardiography, the absence / presence of pericardial effusion, supraventricular or ventricular arrhythmias, perioperative, revascularization complete / incomplete) was considered and based on these they were divided into two groups (A and B). There were 42 patients in the first group (A) and they had: absence of pericardial effusion, normal LV function, myocardial revascularization, complete and / or coronary arteries with significant lesions, the absence of perioperative arrhythmias, NHYA class I. The remaining 55 patients were included in the second group (B) because they did not meet the above criteria.

Results. The 42 patients in group A completed their stay in the expected timescales of regional guidelines and failed to present any significant complication.

Conclusions. Despite an appropriate CR the effects of outcome and quality of life are evident, participation in programs of rehabilitation and physical training is still fairly low (5). Papers describe some "barriers" to CR, the main one seems to be economic; secondly the lack of user motivation, conflicts in terms of working hours, lack of trust of the healthcare professionals and the lack of support to maintain rehabilitative care choices, residence in rural areas, older age, female gender (6.7). In light of the above data, within the limits of the size of the study, it is believed that an adequate selection of patients chosen for their clinical features and low risk of arrhythmia, can be directed to a CR in an outpatient rehabilitation setting and / or day hospital and therefore improve accessibility to services by all citizens. The cardiac rehabilitation (CR) multidisciplinary outpatient approach, can guarantee an appropriate approach as well as cost containment, monitoring and returning cardiovascular patients to the best functional level and autonomy possible, and to reintegrate them into working life.

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GRADE II MUSCLE INJURIES; ACUTE TREATMENT WITH CRYO MAG: A PILOT STUDY

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Introduction. Acute muscle injuries are commonly observed in many different sports and their incidence is between 10 and 30%[1]. Properties required in sports for muscular tissue are strength, endurance, responsiveness, speed, and flexibility; they're often obtained with intense workout at the limit of muscles elastic resistance. 90% of injuries in sports is made up of muscle injuries[2]. It was found an incidence of 30% in professional football players where the injury occurs often on quadriceps and hamstring muscles[3]. Muscle injuries can be divided into direct trauma injuries and indirect trauma injuries. Indirect injuries are classified, according to the American Medical Association, in: elongations and 1st, 2nd, and 3rd grade depending on: amount of muscle fibers involved, extent of injury, condition of surrounding connective tissue and vascular structures. The healing of the lesion occurs with replacement of the destroyed tissue through two stages: lesion contraction and loss of substance mechanical reduction. Tissue replacement occurs with cells migration (repair) or division of adjacent cells (regeneration) with production of granulation tissue which evolves in a scar.

Aim. of our study was to assess the ability of Cryo Mag applicators in reducing time recovery in athletes with grade 2 muscle injuries. Cryo Mag allows to use synergically: Cryotherapy, Compression and Magneto-therapy. Compression prevents the expansion of hematoma and edema. Cryotherapy reduces spasm and pain, induces local vasoconstriction with fibrin contraction and extravasation reduction, reducing the extent of the lesion, it also exerts antiphlogistic and anti-edema effect by systemic vasoconstrictive action. Magnetotherapy induces an increase in the peripheral blood flow, which leads to better cell oxygenation, with anti-edema and anti-inflammatory action.

Materials and methods. The treatment protocol was performed on 5 male soccer players aged between 18 and 34 years (mean age 25 years) with grade 2 muscle injury. In all patients ultrasound examination was performed at the beginning and after 14 days. We assessed: pain level (with VAS), functional impairment (active and passive goniometric ROM), muscle strength (MRC) at the beginning and at the end of treatment. All athletes were treated with 10 daily sessions with Cryo Mag with the following protocol: 160 Gauss magnetic field strength, frequency up to 50 Hz; ice for 20 minutes, 10 minutes of compression alternating with 5 minutes decompression for a total duration of 60 minutes.

Results. Ultrasound control performed after the treatment period showed complete recovery of edema and blood effusion, an excellent tissue repair without fibrotic phenomena in all patients, significant pain reduction (mean VAS T0: 7 – mean VAS T1: 1), increase in active and passive ROM without pain, increase in muscle strength as noted in tests for strength (MRC T0: 4 + - MRC T1: 5).

Conclusions. Cryo Mag therapy can take advantage of the positive effects of cryotherapy, compression and magnetic therapy in muscle recovery after injury and proved to be an excellent therapeutic tool in terms of effectiveness, ease of use and resolution of pain.

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TIMING AND MODALITIES OF ACCESS TO THE EMRGENCY DEPARTMENT FOR PATIENTS WITH FRAGILITY FRACTURES: DIFFERENCES AMONG NORTHERN, CENTRAL AND SOUTHERN ITALY

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Introduction. The increased risk of falling leads to an increased incidence of fragility fractures in osteoporotic patients. The timing and mode of access to the emergency room (E.R.) vary greatly among individuals that incur in a fall. The aim of our study is to evaluate these differences according to data from the North, Central and Southern Italy.

Materials and methods. During 2011 we conducted a national epidemiological survey INDACO 3, on behalf of SIOT, involving 95 Italian trauma centres. We asked each centre to collect data on patients ≥ 55 years of age with a fragility fracture. For each patient they had to administer a form including questions on various aspects of their medical history: age, sex, reason for visit, fracture type, time spent since the fall to the access in the emergency room, access mode (their own resources or ambulances).

Results. Of 1,786 patients recruited, most were females (80.74%). The mean age was 76.38 y.o. (SD ± 9.12). The mean BMI was 25.72 kg/m² (SD ± 3.97). The percentages of patients who sustained a hip fracture and reached the E.R. with an ambulance were respectively 92%, 87%, and 84% in the North, Centre, and South of Italy. As for those who sustained a humerus fracture, the percentages were respectively 31%, 44%, and 25% in the North, Centre, and South of Italy. As for wrist fractures the percentages were respectively 20%, 15%, and 7% in the North, Centre, and South of Italy. Most of patients reach the E.R. within the first 12 hours, independently of the site of the fracture and the geographic field.

Conclusions. The data show that the subjects with hip and multiple fractures arrive to the emergency room mostly by ambulance and within 12 hours. The subjects with humerus and wrist fractures, which have a greater likelihood of being undiagnosed, go there with their own resources and within 12 hours.

Data indicate no significant differences between North, Central and Southern Italy.

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SARCOPENIA IN WOMEN WITH VERTEBRAL FRAGILITY FRACTURES

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Introduction. Sarcopenia is the age-associated loss of skeletal muscle mass and function (1). The pathogenesis of both sarcopenia and osteoporosis is multifactorial. Interestingly, several factors that play a pathogenetic role in osteoporosis are thought to contribute in causing sarcopenia. Sarcopenia was significantly associated with osteoporosis in a large sample of women following a fragility fracture of the hip (2). The primary aim of our study is to investigate the prevalence of sarcopenia in osteoporotic women with vertebral fragility fracture.

Materials and methods. In this pilot study, we evaluated the prevalence of sarcopenia in involutional osteoporotic women who were 55 years old or older with vertebral fractures, attending the outpatient clinic of Physical Medicine and Rehabilitation of the Second University of Naples, during a period of one year (June 2011- June 2012). We excluded women with secondary osteoporosis and pathological vertebral fractures. Dual-Energy X-Ray Absorptiometry (DXA) was used to measure whole and regional body composition. Appendicular lean mass (aLM) was calculated as the sum of lean mass (LM) in arms and legs. We calculated the skeletal muscle mass (SM) index (aLM/height squared): sarcopenia was defined as a SM index <5.67 kg/m² (3). We evaluated bone mineral density (BMD) and T-scores measured by DXA scan at total-body and at femoral neck. Partecipants were divided according to the number of vertebral fractures (single or multiple fractures). Antropometric characteristics and SM index, BMD at total body, BMD at femoral neck, and number of vertebral fractures were reported.

Results. A total of 67 women were included. The mean age was 69.88 years ± 7.28 SD years. Mean BMI was 27.44 kg/m² ± 5.36 SD. 35 women (52.23%) had a vertebral fracture, their mean age was 68.54 years ± 7.62 SD, mean BMI 27.46 kg/m² ± 5.16 SD, mean aLM was 15.68 kg ± 2.54 SD, mean aLM/m² was 6.31 kg/m² ± 0.93 SD. Of them 8 (22.85%) were sarcopenic. 32 women (47.76%) had multiple vertebral fractures, their mean age was 71.34 years ± 6.70 SD, mean BMI was 27.41 kg/m² ± 5.66 SD, mean aLM was 14.84 kg ± 2.26 SD, mean aLM/m² ratio was 6.12 kg/m² ± 0.89 SD. Of them 14 (43.75) were sarcopenic.

Conclusions. Our results suggest that sarcopenia is common among osteoporotic women increasing along with the number of vertebral fragility fractures.

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COMORBIDITY IN PATIENTS WITH FRAGILITY FRACTURES: ANALYSIS OF "GISMOA STUDY"

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Introduction. Fragility fractures are a major cause of disability and death [1,2] among people in western countries. Italy is one of the countries with the highest life expectancy in the world. The increase in life expectancy is associated with a greater frailty of elderly people and a higher prevalence of chronic and degenerative diseases, including osteoporosis [3]. The aim of our study is to evaluate comorbidities in a population with fragility fractures.

Materials and methods. We conducted a Regional Survey on behalf of GISMOA (Gruppo Interdisciplinare per lo Studio delle Malattie Osteo-Articolari) involving 11 physicians experienced in osteoporosis working in Campania Region. We asked each physician to collect data on osteoporotic patients over 50 years of age. For each patient they had to fill a form including: questions about medical history, evaluation of comorbidities through Comorbidity Illness Rating Scale, type and number of fragility fractures.

Results. Of the 845 forms we excluded 159 patients because they did not meet the inclusion criteria or the data were incomplete, therefore the analysis was carried out on 687 patients with a mean age of 66.3 years. 665 (96.93%) were females. Of these patients 364 (53.06%) had a history of fragility fracture and 62 had more than one fracture. In particular 189 (51.92%) patients reported a history of vertebral fracture, 32 (8.79%) of hip fracture, 10 (2.74%) pelvis fractures; 31 (8.51%) humeral fractures, 99 (27.19%) wrist fractures, 11 (3.02%) both vertebral hip fracture. The mean Comorbidity Index (C.I) and Severity Index (S.I.) in patients with a vertebral fracture were respectively 1.04 and 1.19. The mean C.I. and S.I. in patients with multiple vertebral fractures was respectively 1.78 and 1.19. The mean C.I. and S.I. in patients with a fracture of the hip was respectively 1.73 and 1.38; the mean C.I. and S.I. in patients with a hip fracture and vertebral fractures were respectively 2.54 and 1.61.

Conclusions. Our results confirmed that comorbidity is a major issue in patients with a history of multiple vertebral fractures and in the patients with fracture of the hip and vertebral fractures. Furthermore the C.I. of patients with multiple fracture was overlapped to the C.I. of the patients with a hip fracture. Therefore an appropriate management of comorbidities should be always taken into account in the comprehensive treatment of patients with fragility fractures.

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LEVEL OF PHYSICAL ACTIVITY AND SUN EXPOSURE IN PATIENTS WITH FRAGILITY FRACTURES

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Introduction. Consistent data from randomized controlled trials show that exercise training programs can prevent or reverse almost 1% of bone loss per year in both pre- and post-menopausal women [1,2,3]. The aim of our study was to assess the amount of physical activity in patients with a history of fragility fractures.

Materials and methods. We conducted a Regional Survey on behalf of GISMOA (Gruppo Interdisciplinare per lo Studio delle Malattie Osteo-Articolari) involving 11 physicians experienced in osteoporosis working in Campania Region. We asked each physician to collect data on osteoporotic patients over 50 years of age. For each patient they had to fill a form including: questions about medical history, evaluation of time of physical activity and sun exposure before the fracture, and number of fracture.

Results. Of the 845 forms we excluded 159 patients because they did not meet the inclusion criteria or data were incomplete, therefore the analysis was carried out on 687 patients, 665 (96.93%) were females. 364 (53.06%) had already had a fragility fracture. 164 patients had a history of multiple fractures, of these 14 (8.53%) reported no sun exposure; 70 (42.68%) reported ≤ 30 min a day and 74 (45.12%) reported ≥ 30 min of sun exposure, 135 (82.31%) reported they did not do any physical activity; 9 (2.47%) referred to do physical activity one time a week; 4 (1.09%) 2 times a week and 10 (2.74%) more than 3 times a week. Of the 190 patients with a history of vertebral fractures, 16 (8.42%) used not to be exposed to the sun; 76 (40%) ≤ 30 min a day and 93 (48.94%) ≥ 30 min a day; 147 patients (77.36%) reported they did not do any physical activity; 21 (11.05%) one time a week; 5 (2.63%) two times a week and 12 (6.31%) more than 3 times a week. Of the 15 patients with a hip fracture 5 reported not to be exposed to the sun; 5 for ≤ 30 min and 5 ≥ 30 min. Only one of them used to practice sport 2 times a week.

Conclusions. These findings suggest that lack of physical activity might play a key role in pathogenesis of fragility fractures; while data related to sun exposure are discordant and might require further investigation.

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FIBROMYALGIA: A GROWING PROBLEM IN REHABILITATION

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Introduction. Fibromyalgia is a syndrome characterized by a chronic widespread pain, patients also present a range of other symptoms, including sleep disturbance, fatigue, irritable bowel syndrome, headache, and mood disorders. (1). The aim of our study is to define the functional level of fibromyalgia patients.

Materials and methods. We observed, in the period between July 2011 and March 2012, 41 patients with fibromyalgia. All patients were classified with the Brief ICF Core Set for chronic widespread pain and evaluated with the following questionnaires: Fibromyalgia Impact Questionnaire (FIQ); Brief Pain Inventory (BPI); Widespread Pain Index (WPI); Symptom Severity Score (SS score); Medical Outcome Study (MOS) Sleep scale; Hospital Anxiety and Depression Scale (HADS); Short Form 12 (SF-12).

Results. The mean age of the 41 women observed was 45 y.o. (range 23-75). Using the Brief ICF Core Set for chronic widespread pain, the most affected categories for *Body functions* was the "sensation of pain" (b280); for *Activities and Participation*, "lifting and carrying objects" (d430). As for *Environment factors,* all that examined categories were mostly perceived as a facilitator rather than barrier. At the FIQ: 9 of our patients (22%) had mild disability, 14 (35%) a moderate disability, and 17 (43%) severe. All our patients resulted anxious and depressed at the HADS. The mean Pain Severity score at BPI was 6.75 and the mean Interference Index was 6.46. The evaluation of the quantity and quality of sleep was done with the MOS scale, it resulted that the time to fall asleep was about 15 min for 52% of patients, 16-30 min for 14% of patients, 31-45 min for 10% of patients, and 46-60 min for 24% patients. The quality of life of people with fibromyalgia resulted to be significantly reduced, evaluated by the SF-12, in fact the mean value of PCS was 28.08 and MCS 41.62.

Conclusions. Fibromyalgia is a syndrome characterized not only by a chronic widespread pain, but by many other symptoms as well. The unpredictable and fluctuating course of symptoms interfere with patients' ability to plan work or social activities, patients change also their perception of self. In agreement with previous literature data our results report that women affected by fibromyalgia present a reduction in the performance of daily life activities.

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STUDIO COMPARATIVO DELLA SINGOLA STIMOLAZIONE ELETTRICA FUNZIONALE VERSUS TUTORIZZAZIONE GAMBA-PIEDE IN PAZIENTI NEUROLOGICI: NOSTRA ESPERIENZA.

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Introduzione. È stato comparato l'effetto sull'abilità funzionale di un tutore gamba-piede (AFO) con la singola applicazione di una stimolazione elettrica funzionale (BIO-NESS L300) in un gruppo di 16 pazienti affetti da patologia neurologica su base ischemica (ictus) e demielinizzante (sclerosi multipla).

Materiali e metodi. Sono stati selezionati 16 pazienti (9 maschi e 7 femmine) di età compresa tra i 41 e 76 anni (età media 61,25 ± 4,625). I criteri di inclusione nello studio sono stati rappresentati da utilizzo di ortesi gamba-piede per piede cadente, presenza di patologia neurologica da almeno 24 mesi, assenza di trattamento anticoagulante e anticonvulsivante, nessuna ortesi aggiuntiva per la deambulazione. La valutazione funzionale comparativa di ciascun paziente con il tutore gamba-piede (AFO) e con il Bioness è stato eseguita con il test con percorso ad ostacoli, il test dei 10 metri per il cammino, il test del gradino e l' analisi del passo con accellerometro. Non è stato possibile eseguire la valutazione funzionale dei pazienti senza tutore poiché i soggetti non erano in grado di deambulare. I risultati ottenuti sono stati sottoposti a valutazione statistica parametrica con il test T di uguaglianza della media e il Test di Levene di uguaglianza delle variazioni, inoltre è stata effettuata l'analisi non parametrica con il test U di Mann Whitney a campioni indipendenti; considerando significativo un valore di $p \leq 0,05$.

Risultati. L' analisi dei dati è stata eseguita con il pacchetto statistico IBM-SPSS versione 19. La valutazione della distanza percorsa con il Six Minute Walking Test, il tempo di percorrenza dei 10 minuti e l'analisi del passo con accelerometria per quanto riguarda la velocità del passo e la cadenza non ha evidenziato differenze statisticamente significative nei due gruppi di pazienti ($p > 0,05$).

Conclusioni. Il nostro studio ci ha permesso di giungere a conclusioni interessanti in quanto un singolo ed estemporaneo trattamento di 30 minuti con stimolazione elettrica funzionale a fronte dell'utilizzo continuativo di un tutore gamba-piede da almeno 12 mesi, ha condotto agli stessi risultati per quanto riguarda il tempo di percorrenza dei10 metri, il percorso ad ostacoli, il test del gradino, la distanza percorsa in sei minuti e l'analisi del passo con accelerometria. Alla luce dei risultati ottenuti possiamo affermare che l'utilizzo di una singola applicazione con stimolazione elettrica funzionale abbia la stessa efficacia sulla performance motoria dell' utilizzo prolungato di un tutore gamba-piede. Riteniamo che il campione esaminato sia esiguo e necessiti di essere ulteriormente ampliato, utilizzando una stimolazione elettrica funzionale prolungata e ripetuta cosi' come riportato in letteratura.

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EFFICACY OF EXTRACORPOREAL FOCUSED SHOCK WAVES THERAPY IN PATIENTS WITH ENTHESOPATIC CHRONIC PAIN

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Introduction. Extracorporeal Shock Waves are worldwide used for the treatment of musculoskeletal disorders, even though there is still disagreement regarding its appropriate use and efficacy. This pilot study is aimed to evaluate the efficacy of Focused Shock Waves Therapy in reducing enthesopatic chronic pain.

Materials and methods. We recruited 35 patients suffering from chronic pain due to enthesopathy (at lower and upper limbs). All the patients included were previously treated with drug therapy without achieving significant results in terms of improvement in pain. We excluded all patients with chronic pain due to other causes (neuropathic, dismetabolic, rheumatic, psychogenic). We evaluated all patients using the "Brief Pain Inventory" (BPI) and Visual Analogic Scale (VAS) before (T0) and after 4 treatments (T1). The treatment was carried out with shock waves generated for a focal, electro-hydraulic principle. The energy was applied in 4 sessions over a range between 0.13 and 0.88 mJ / mm ², without application of local anesthetics.

Results. Our study population was composed by 35 patients (16 M and 19 F, mean age 52.3). The mean of the BPI pain severity index and the BPI pain interference index at T0 was 7.85 and 7.17 respectively, while at T1 was 1.43 and 0.82; if we consider the VAS at T0 the mean score was 7.94 and at T1 it was 1.60. If we consider only male subjects the mean of the BPI pain severity index and the BPI pain interference index at T0 was 7.31 and 6.96 respectively, while at T1 was 1.32 and 0.88; the mean VAS score at T0 was 7.31 and at T1 it was 1.44. In the female group the mean of the BPI pain severity index and the BPI pain interference index at T0 was 8.31 and 7.35 respectively, while at T1 was 1.53 and 0.77; the mean VAS score at T0 was 8.47 and at T1 it was 1.74.

Conclusions. In our study we found a significant reduction of chronic pain and a significant improvement in the quality of life both in female and in male patients affected by enthesopathy.

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EFFECTIVENESS OF A SENSORIMOTOR INTEGRATION TRAINING ON BALANCE DISORDERS IN PATIENTS WITH MULTIPLE SCLEROSIS: A RANDOMIZED CONTROLLED TRIAL.

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Introduction. Balance disorders (BD) are one of the most frequent and disabling symptoms in Multiple Sclerosis (MS).[1] They are reported in the 23% of patients as one of the initial symptoms of the disease and in the 82% of patients after longstanding illness.[1] Thus, accidental falls incidence ranged from 48-63%.[1] Literature suggests that BD in MS may have multifactorial causes because different neural pathways throughout the CNS may be disrupted at the same time.[2] However, neurophysiological studies highlighted that BD in MS are likely primarily the results of slowed somatosensory conduction and impaired central integration[2,] which is defined as the inability of the CNS to use the different sensory inputs in order to make up the system of coordinates on which the body's postural control is based. Pharmacological approaches aimed at ameliorating BD in patients with neurological disease and in particular with MS are often lacking[2], while the efficacy of sensory strategies rehabilitation on neurological diseases has been demonstrated.[3] To our knowledge only few studies demonstrated the efficacy of a specific balance training in patients with MS. [2] The aim of this study is to compare the effects of a specific training, aimed at improving the ability to integrate sensory inputs during balance, with the effects of a conventional rehabilitation program in patients with Multiple Sclerosis (MS).

Materials and methods. 80 outpatients with relapsing remitting MS (Age: 30-60 years; EDSS: 1.5-6.0) were randomly assigned to an experimental (EG=39) or control group (CG=41). The EG underwent to a training consisting of balance exercises performed under different sensory conflict conditions. The CG received physical exercises according to the clinical practice for MS. Both groups received 50-minute treatment sessions within a 5-week period (3/week). Primary measures were the Berg Balance Scale (BBS) and the Activities-specific Balance Confidence Scale (ABC). Secondary measures were Multiple Sclerosis Quality of Life-54 (MSQOL-54 PHC and MSQOL-54 MHC), Fatigue Severity Scale (FSS), number of falls, postural transfer test, stabilometric assessment, Sensory Organization Balance Test (SOT) and gait analysis. Patients were assessed before, after treatment and 1-month after the end of treatment.

Results. Compared with the CG, the EG training was more effective in the BBS (p=.001), ABC (p=.033), FSS (p=.026), most of the SOT conditions (p<.05), gait speed (p=.026), heel to hell base of support (p=.027) and double support time (p=.05). Effects in the BBS, ABC, FSS, SOT and gait speed were significant both after treatment and at follow-up, while in heel to heel base of support and double support time only at follow-up.

Conclusions. Training aimed at increasing sensory integration under different sensory conflict conditions during balance may reduce balance impairments and improve mobility in patients with MS.

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I PERCORSI IN RIABILITAZIONE RESPIRATORIA: PUNTI DI FORZA E CRITICITÀ.

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Results. Tra i *punti di forza* che hanno caratterizzato il cambiamento annoveriamo in primis l'estensione del setting di erogazione delle cure: l'attività riabilitativa respiratoria è uscita dalle divisioni di Pneumologia, per approdare prima alle Chirurgie Toraciche e poi alle Rianimazioni e Terapie Intensive, neurochirurgie, cardiochirurgie, *et al.*; l'acquisizione di nuove apparecchiature tecnologiche ha cagionato un incremento di competenze tecniche; la collaborazione con altre figure e altri specialisti ha condotto ad una maggiore interazione professionale. Tra i *punti di critici* si segnala come il modello riabilitativo attuale avvenga ancora "a richiesta" ovvero parte dalla prestazione che altri operatori richiedono. Nonostante l'enfasi sulla individualizzazione del progetto, i programmi di riabilitazione sono per la maggior parte centrati su un fornitore, forse più adatti in un sistema di patologie acute, ma non integrati in un concetto filosofico di gestione delle malattie croniche. Un tale modello in gran parte organizzato su " interventi temporanei" risulta frammentato per pazienti con patologie respiratorie croniche. La maggior parte delle strutture si basano sull' "offerta" e, di fronte ad interventi sanitari sempre più accurati e precisi, il pz resta un destinatario passivo. L'integrazione, mezzo per migliorare le prestazioni in relazione agli accessi, alla qualità, alla soddisfazione degli utenti e all'efficienza, ne risulta grevemente inficiata. Se l'integrazione può essere definita come l'atto di "comporre il tutto dalle parti", le diverse attività devono essere coordinate per garantire un funzionamento armonioso. L'integrazione può essere un mezzo valido per migliorare le prestazioni in relazione agli accessi, alla qualità, alla soddisfazione degli utenti e all'efficienza: se si guarda la realtà osserviamo che in molti ospedali la riabilitazione respiratoria e quella motoria, nell'ambito dello stesso setting, siano ancora espletate da fisioterapisti diversi. L'educazione è ancora vista per lo più come dare informazioni al paziente e non come una combinazione di metodi quali l'insegnamento, il counselling che influenzano la conoscenza, lo stile di vita delle persone e portano all'autogestione, il core essenziale in un sistema di cura centrato sul pz al fine di prevenire le complicanze prevedibili. L'orientamento dei setting di cura è ancora verso la gestione delle acuzie: inevitabilmente ciò si riflette su di un tasso di ospedalizzazione molto elevato rispetto ad altri paesi che hanno rivolto l'attenzione alla gestione della cronicità.

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ACHILLES TENDINOPATHY TREATMENT WITH TRIPLE THERAPY: A PILOT STUDY

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Introduction. Achilles tendinopathy, a painful and inflammatory condition that can be acute or chronic, is common in both active and inactive individuals. In literature it has been shown that laser therapy is effective in increase in blood flow from capillary and arteriolar vasodilatation, stimulation of electrolyte exchange, modulation dose dependent effect on fibroblast metabolism and collagen deposition, inflammation decrease through reduction of PGE2 concentrations and inhibition of cyclo-oxygenase 2, raising the threshold of perception of sensory nerve endings and accordingly less painful sensitivity.

Materials and methods. Between February 2012 and May 2012 we collected and evaluated 5 patients, age between 42 and 55 years, with chronic Achilles tendinopathy. The patients were treated with Triple Therapy, a scanning laser. Triple Therapy was used with an amperage of 7.5 W for the diode of 808nm and 12 W for the diode of 1064nm, for a time of 15 min for a total of 51 J to each treatment session. The patients were treated with a frequency of 2 session every 7 days for 5 weeks. The study protocol provided for an initial and a control ultrasound and thermography evaluation, associated with pain assessment by VAS and Fischer algometer before and after each treatment session. Before treatment at ultrasonography it was found hypoechogenicity of the Achilles tendon and of the peritendinous part, an average value of the VAS pain scale equal to 8.2 (range 6-9), an average value of the Fischer algometer equal to 5 kg/cm2 (range 3-7) and an average value of Δt equal to 4.3° Celsius at thermography with a pre-treatment temperature at T0 of 30.1° Celsius.

Results. At the end of the treatment protocol the ultrasound hypoechogenicity was significantly decreased, and there was an average reduction of pain on VAS scale by 83%, an increased average value of the Fischer algometer equal to 18 kg/cm2 (range 16-20) and an average value of Δt equal to 4.1° Celsius at thermography with a reduced pre-treatment temperature at T1 of 28.2° Celsius. None of the treated patients experienced adverse reactions to treatment.

Conclusions. In conclusion, we affirm that Triple Therapy is can act on Achilles tendinopathy, promoting the tissue trophism and the reduction of inflammatory response in a shorter time, if compared with other treatments, reducing the operating costs and the need for more complex interventions.

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PERCORSO RIABILITATIVO INTEGRATO: CASE REPORT CON UTILIZZO DI INNOVAZIONI TECNOLOGICHE

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Introduzione. La presa in carico ed il percorso riabilitativo di un paziente deve essere globale, multidisciplinare e sostenere la personalizzazione dell'intervento. La centralità della persona disabile all'interno del progetto riabilitativo è l'obiettivo comune di un percorso riabilitativo che si snoda dal reparto per acuti fino alla domiciliazione protetta e non del paziente. La Fondazione Centri di Riabilitazione Padre Pio attraverso la presenza di Presidi Residenziali Extraospedalieri a ciclo continuativo e centri ambulatoriali con annessi i servizi domiciliari, ha adottato, immediatamente, il nuovo modello organizzativo e gestionale previsto dal Piano di Indirizzo per la Riabilitazione 2011 ed è per questo in grado di accompagnare il paziente nel difficile percorso assistenziale che dall'evento immediatamente post-acuto lo porta a ri-apprendere e sviluppare tutte le potenzialità residue per raggiungere il miglior outcome funzionale possibile.

Materiali e metodi. F.C. uomo di 41 anni, affetto da lesione centro-midollare D7-D11 in esiti di fistola artero-venosa durale D7 trattata chirurgicamente. Il paziente è stato ricoverato presso il Presidio Residenziale "gli Angeli di Padre Pio", San Giovanni Rotondo, Foggia. All'ingresso presenta una grave paraparesi con spasticità. Vescica e alvo neurologici. ASIA T9-C. Il paziente è stato valutato dall'equipe multidisciplinare che ha elaborato un progetto riabilitativo personalizzato ed integrato. Il paziente è stato sottoposto ad un training per il recupero della deambulazione con Lokomat-Pro, 3 sedute a settimana per circa 8 settimane. La spasticità è stata trattata con inoculo di tossina botulinica dei muscoli retto femorale, tibiale posteriore e gastrocmenio mediale e laterale. Successivamente il paziente è stato sottoposto a stimolazione elettrica funzionale e ciclo-ergometro Ciclo-FES dei muscoli antagonisti a quelli trattati con tossina botulinica. Inoltre il paziente ha beneficiato di trattamenti fisiochinesiterapici tradizionali ed idrokinesiterapia. I deficit dell'equilibrio e della propriocezione sono stati trattati con l'ausilio, oltre che di tecniche tradizionali, anche con il Balance-SD. Il paziente è stato sottoposto a valutazione con Gait Analysis, alla luce dei risultati è stato proposto l'utilizzo ed il successivo confezionamento di tutori gamba-piede. Il trattamento riabilitativo è poi proseguito in regime ambulatoriale.

Risultati. A distanza di circa sei mesi dall'evento acuto, il paziente ha raggiunto un ottimo out come. È in grado di deambulare con l'ausilio di due canadesi per tragitti medio-lunghi ed è indipendente in tutte le attività della vita quotidiana. È stato nuovamente sottoposto a valutazione con Gait Analysis che ha evidenziato un pattern di deambulazione più corretto sia per quanto riguarda la cinetica che la cinematica ed un aumento della velocità media del passo.

Conclusioni. Come espresso dal Piano di Indirizzo per la Riabilitazione 2011, dalla bozza del Piano Sanitario Nazionale 2011-2013 ma anche dalle esigenze di ricerca in ambito riabilitativo ben esplicitate nel Quaderno n. 8 del Ministero della Salute, è fondamentale poter offrire ai pazienti un percorso riabilitativo che possa dotarsi delle migliori innovazioni tecnologiche attualmente presenti al mondo. Le innovazioni tecnologiche vengono offerte a supporto ed integrazione delle attività riabilitative tradizionali erogate della Fondazione, in relazione alle potenzialità diagnostiche e terapeutiche offerte dalle innovazioni tecnologiche all'approccio terapeutico in riabilitazione per le qualità di misurabilità, ripetitività, intensività e motivazione nella valutazione e nel training della performance motoria. Tra gli obiettivi generali si possono annoverare la garanzia dell'appropriatezza delle cure, la costruzione e l'implementazione di database di riferimento per la valutazione dei trattamenti, la massimizzazione dell'efficacia dei trattamenti convalidata dal monitoraggio e registrazione quantitativa della performance motoria dei pazienti, la massimizzazione dell'efficienza dei trattamenti attraverso l'integrazione delle innovazioni tecnologiche nei percorsi riabilitativi.

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FRATTURE DA FRAGILITÀ OSTEOPOROTICHE ESTREMO PROSSIMALE DI FEMORE: STUDIO OSSERVAZIONALE IN UN REPARTO DI ORTOPEDIA E TRAUMATOLOGIA CON LA COLLABORAZIONE DELLA FISIATRIA

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Introduzione. Negli ultimi 30 anni le fratture di femore da fragilità ossea nel mondo sono state 1,6 milioni. Aggiornando questo dato alle proiezioni dell'invecchiamento della popolazione, nel 2050 le fratture diventeranno 2,26 milioni, raddoppiando nell'arco di 50 anni in Europa, fino a superare i 970.000 casi. È noto come un paziente che abbia avuto una frattura femorale da fragilità, presenti un rischio elevato di andare incontro a nuove fratture, in assenza di un'adeguata terapia medica anti-riassorbitiva o osteoformativa con l'associazione di ca e vit D e di un personalizzato trattamento riabilitativo per il recupero della disabilità ed il miglioramento delle abilità residue. Tuttavia, a fronte di evidenze scientifiche che suggeriscono di instaurare una strategia di prevenzione secondaria e alla disponibilità di farmaci efficaci e sicuri, la letteratura sembra indicare che ciò accade molto raramente. Scopo principale del presente studio è stato quello di verificare, nel territorio della Locride in che misura nei pazienti anziani fragili ricoverati in ospedale per frattura da fragilità osteoporotica di femore, era stata prescritta una appropriata terapia antiosteoporotica prima dell'evento acuto, e se tale atto abbia portato miglioramenti nella qualità della vita dopo la dimissione dal reparto per acuti.

Materiali e metodi. È stato condotto, dai Fisiatri uno studio osservazionale presso l' U.O.C. di Ortopedia e Traumatologia dell'Ospedale di Locri ASP Reggio Calabria nel periodo Gennaio 2010 Dicembre 2011 su una serie consecutiva di pazienti ricoverati per frattura del collo del femore. Criteri di inclusione: pazienti ricoverati per frattura estremo prossimale femore. Criteri di esclusione: soggetti giovani di età inferiore a 60 anni o affetti da patologie note dello scheletro, soggetti non collaboranti. Quindi la valutazione è stata effettuata mediante la raccolta di dati demografici e anamnestici, focalizzati principalmente sulla valutazione dei fattori di rischio e/o della pregressa diagnosi di osteoporosi, la presenza di pregresse fratture, sull'eziologia del trauma (a bassa energia tipica delle fratture da fragilità) e sull'eventuale terapia in atto prima dell'evento fratturativo, per mezzo di una scheda disegnata e testata in precedenza che pianificava anche, tramite delle interviste telefoniche, lo stato di salute dei pazienti a tempi prestabiliti dalla dimissione.

Risultati. Lo studio ha incluso un totale di 400 pazienti: di ambo i sessi. Il 43% di età compresa tra gli 70 e gli 80 anni; Il 67% era di età superiore agli 80 anni. Nei 74% dei casi la frattura era secondaria a trauma a bassa energia e nel 42% dei pazienti, la diagnosi di osteoporosi era precedente all'evento traumatico. Un dato degno di nota è che il 30% dei pazienti aveva una anamnesi positiva per frattura da fragilità ed in particolare, che il 5% aveva subito una pregressa frattura di femore. Al momento del ricovero, solo una parte minima di pazienti stava assumendo farmaci per l'osteoporosi e/o supplementi di calcio e vitamina D, mentre nella maggior parte dei casi non era stata iniziata alcuna terapia. Alla dimissione, l'80% dei pazienti ha ricevuto prescrizione di terapia medica antiriassorbitiva o osteoformativa.

Conclusioni. Pur in presenza di chiare indicazioni basate su solide prove scientifiche, i dati riportati confermano che l'osteoporosi è attualmente una patologia sottostimata. Il ruolo dell'ortopedico sappiamo tutti essere quello di trattare l'emergenza in sé, più spesso con l'intervento chirurgico, ma con l'aiuto di altri specialisti, come il Fisiatra, potrebbe migliorare la gestione del paziente con osteoporosi, che ha rappresentato il substrato patologico per la frattura. Nella gestione del paziente anziano con frattura di femore da fragilità appare invece importante che lo specialista instauri prima della dimissione una progetto- programma riabilitativo tendente a ridurre la disabilità ed una giusta terapia medica con farmaci antiriassorbitivi o osteoformativi associata a supplementazione di calcio e Vi. D che abbiano dimostrato di ridurre in modo significativo il rischio di frattura.

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EVALUATION SCALES AND MEASURES IN CANCER REHABILITATION

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Introduction. The mean aim of Cancer Rehabilitation is to obtain and save the best Health Related Quality of Life (HRQoL) for each affected person through all different ways which are necessary to restore structures, to improve functioning and to reduce activity limitation and participation restriction like by the biopsychosocial model of ICF. Cancer Rehabilitation assessment needs appropriate and high quality measure instruments and evaluation scales to compare results and guarantee correct clinical data for a better assistance and scientific improvement. The aim of our literature review is to identify a basic rehabilitation scales set for a global evaluation of all aspects regarding cancer patient health including Quality of Life questionnaires, impairments (functions/structures alterations) measures and disability scales.

Materials and methods. In May 2012 we performed a literature review using the data base Pubmed and consulting essays and guidelines to identify the most used and well assessed measure instruments and evaluation scales in Cancer Rehabilitation (1,2,3). We developed a list of them and to make their use easier we have distinguished three groups: 1)Impairments scales and outcome measure instruments; 2)Disability scales as generic measures (non specific for disease or population) or specific measure for malignancy 3) Quality of Life scales and questionnaires as generic or specific.

Results. Among impairments pain and fatigue is widely assessed using several instruments as intensity rating scales or multidimensional questionnaires; range of motion, muscle strength, dyspnea and others are largery assessed by common instruments. Apart from generic disability scales normally used, cancer specific disability scales Karnofsky Performance Scale Index and Eastern Cooperative Oncology Group (ECOG) Score or Zubrod Score are both suitable to assess prognosis, daily activities, and clinical effectiveness of therapies, but ECOG score, recomned by WHO,is recently larger adopted. About Quality of Life generic scales the SF36 and its shorter form SF12 are the gold standard and widely used also in malignancy; among specific cancer instruments the European Organization for Research and Treatment of Cancer (EORTC) multidimensional 30- item core questionnaire with neoplasms specific modules and the Functional Assessment of Cancer Therapy Scales have been performed worldwide. Furthermore ICF offers a new contribute to evaluation health conditions of people with malignancy and there are already the core sets for breast cancer and head & neck cancer.

Conclusions. Hence, in clinical cancer practice for a global evaluation of all aspects regarding patient health we have to consider using a patient-based cancer specific HRQoL questionnaire (like EORTC C30 plus the specific module if there is one suitable) in addition to a set of impairments and disability measures focused to the most relevant patient issues. Over these measures ICF is always necessary to be performed and new cor sets for specific neoplasms are needed.

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CHRONIC BENIGN PAIN AND ASSOCIATED CONDITIONS IN ITALIAN BREAST CANCER SURVIVAL PATIENTS

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Introduction. Chronic benign pain is one of the most frequent impairment occurring in breast cancer survival people. The aim of our study was to evaluate the prevalence of chronic benign pain in a breast cancer patients population attending an outpatient oncologic rehabilitation center and particularly to investigate about women suffering mixed chronic bening moderate pain and consuming tapentadol to control pain symptoms.

Materials and methods. From 1st Jenuary 2012 to 31st May 2012 two hundred thirty six breast cancer desease free women underwent examination in our outpatient oncologic rehabilitation center and gave their free and informed written consent to the study. We evaluate the percentage of women suffering from chronic benign pain and studied in particular those treated with tapentadol. In this group we collected the following data: age, weight and height to calculate BMI, presence or absence of lymphedema, treatment or not with Endocrine Therapy (aromatase inhibitors and tamoxifen), menopausal status, perceived HRQoL evaluated by SF12 (1,2), pain intensity assessed by Visual Analogue Scale (VAS) at the time of analgesic therapy starting. Furthermore we calculated the different percentage of patients taking different endocrine drugs (letrozole, anastrazole, exemestane, tamoxifen) and the percentage of patients taking different doses of tapentadol.

Results. One undred forty four patients suffered from chronic benign pain, four women suffered from malignant pain and one hundredeightyeight dind't have pain. Seventynine women took tapentadol. The results about the tapentadol group are resumed in Table 1: the average age of patients was 62 years (min 40, max 85), the average BMI was 30 (min 19-max 44), 60.76 % of patients were affected by lymphedema, 68.35% of women underwent endocrine therapy (Tamoxifen 30.38%,Letrozole 32.91%, Anastrazole 27.85%,Exemestane 7.59%, not remember 1.27%) and 98.73% were in menopause. Mean SF-12 PCS was 33.37 (SD 9.76) and mean MCS was 40.43 (SD 13.81). Mean Pain intensity at the first clinical evaluation was 5.1 (SD 1.12) and the 63.29% of our sample used tapentadol 50mg twice a day, the 35.44% used 100mg twice a day and only one patient used 150mg twice a day.

Conclusions. Chronic benign pain is very frequent in breast cancer patients and it is often moderate rather than severe. Pain suffering women are often overweight and in menopause, a large number of them are treated with endocrine therapy and their HRQoL was poor. Tapentadol are accepted as pain control treatment of a considerable number of patients. Our data suggest that breast cancer women should undergo a global rehabilitation examination paying attention to evaluate chronic pain, its determinants and underlying conditions that may affect it.

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USEFULNESS OF ISOKINETIC DINAMOMETRY IN FEIGNED MAXIMAL SHOULDER EXTERNAL ROTATION EFFORT IDENTIFICATION

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Introduction. Injuries involving the shoulder, especially shoulder impingement, are among the main causes of occupational disease and musculoskeletal disorders. Evaluation of shoulder external rotator muscle strength may be an essential component to assess shoulder injury patients. In fact isokinetic tests have been extensively used in shoulder injury patient assessment. Isokinetic dynamometry provides accurate and reproducible measurement of shoulder external rotator dynamic muscle strength Patient collaboration is crucial in order to generate reliable results. Thus estimation of the level of collaboration during an isokinetic strength test is of great interest. The difference between isokinetic eccentric and the concentric strength ratios at high and low velocity (DEC) appears to be the most widely accepted parameter to assess maximallity of effort. Regarding shoulder external rotator muscles, DEC efficiency has been previously established in normal subject submaximal effort detection (1). However, the isokinetic test was performed in a quite extended range of movement (RoM), namely 60º, which can not be easily attainable for shoulder injury patients. Thus, a shorter test RoM would be desirable in order to assess some cases of shoulder injury patients. Another concern regarding DEC is the isokinetic device influence in its value. Effect of the isokinetic dynamometer brand in shoulder external rotator DEC results has not been previously tested. Therefore, the main goal of the present study is analysing the effectiveness of DEC in identifying suboptimal efforts in a healthy volun-

teer population performing shoulder external rotation isokinetic tests in both a long (60°) and short (20°) RoM. The secondary goal of the study is to test isokinetic dynamometer brand influence in DEC results.

Materials and methods. 16 healthy men aged 20 to 45 years took part in the study. In a first test, the subjects were instructed to exert concentric and eccentric external rotator efforts. Then, test was repeated performing submaximal concentric and eccentric effort. The test was performed at two ranges of motion, 20 ° (short) and 60 ° (long). Two angular velocities of 10°/ s and 40°/s and 30 °/s and 120°/s were applied respectivelly. Peak torques, eccentric/concentric ratios (ECR) and difference of eccentric to concentric ratios at high and low velocity (DEC) were recorded and compared for maximal and submaximal conditions.

Results. Submaximal were significantly lower than their maximal counterparts in all cases and in both long and short RoM. Submaximal ECR and DEC were significantly higher both for short and long RoM tests in high velocity measurements (long ROM submaximal and maximal effort ECR at 120°/s were 1.80±0.49 and 1.35±0.11 respectivelly; those measured in short RoM (40°/s) were 1.36±0.41 and 1.08±0.78) whilst ECR measured at low velocity did not show significant differences. Both long and short RoM maximal effort DEC (0.22±0.16 and 0.01±0.15 respectivelly) were significantly lower than the one registered in submaximal effort (0.56±0.59 and 0.22±0.29 respectivelly). Thus a DEC cutoff level both for long (0.582) and short RoM (0.462) could be defined above which the effort might be labelled as submaximal. Long RoM DEC cutoff level registered in present study is lower (0.582) than the one registered in a previous study (1) (0.81) with a different isokinetic device brand.

Conclusions. In present study, DEC is an efficient parameter to detect submaximal shoulder external rotator isokinetic performances both in short (20°) and long (60°) RoM in healthy volunteers. The use of different isokinetic device brands may significantly affect DEC cutoff value.

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LA VALUTAZIONE POSTURALE NELLE PAZIENTI CON LINFEDEMA DELL'ARTO SUPERIORE DOPO INTERVENTO PER NEOPLASIA MAMMARIA CON SVUOTAMENTO ASCELLARE

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Introduction. Il linfedema dell'arto superiore, causato dallo svuotamento dei linfonodi ascellari dopo intervento per neoplasia mammaria, può portare a conseguenze sia fisiche, sia psicologiche nelle pazienti che ne sono colpite. In questo studio è stato approfondito l'aspetto posturale, conseguente al linfedema, analizzando i parametri posturali delle pazienti prima e dopo il trattamento riabilitativo, per mezzo di una piattaforma normalizzata informatizzata, con l'obiettivo di valutare gli eventuali effetti positivi del trattamento riabilitativo sulla postura.

Materials and methods. Sono state incluse nello studio 32 pazienti. Criteri di inclusione sono stati: presenza di linfedema a un arto superiore causato dalla dissezione ascellare, sesso femminile. Criteri di esclusione: patologie ortopediche, operazioni odontoiatriche in corso, affezioni vestibolari, malattie neurologiche, cefalea cronica. Alle pazienti veniva richiesto di astenersi da altri trattamenti di terapia fisica. Tutte le pazienti sono state sottoposte a visita fisiatrica, trattamento riabilitativo e a esame stabilometrico a occhi aperti e a occhi chiusi, all'inizio e alla fine del trattamento. Per ogni paziente sono stati valutati il linfedema (accertamento clinico, stadiazione, misurazione centimetrica), la cicatrice chirurgica e la funzionalità dell'arto superiore. Il trattamento prevedeva l0 sedute di linfodrenaggio manuale (LDM) e bendaggio. Sono stati valutati i seguenti parametri posturografici: le coordinate del centro di pressione (Cop), l'area, la velocità media e la lunghezza delle oscillazioni del Cop. Inoltre è stato preso in considerazione il peso del soggetto prime e dopo il trattamento e la differenza delle circonferenze, in cm, tra le due braccia (delta). I dati sono stati studiati usando il test statistico del t di Student accoppiato a 1 e 2 code.

Results. Lo studio mostra una riduzione statisticamente significativa ($p< 0,05$) del delta della circonferenza totale tra le due braccia, di tutti i parametri stabilometrici analizzati dopo trattamento di linfodrenaggio e bendaggio nelle registrazioni affettuate sia ad occhi aperti che ad occhi chiusi. Inoltre è risultato statisticamente significativa la riduzione media del peso e della flessione assiale (Copy) nelle misurazioni ad occhi aperti ($p<0,05$ t test a una coda). Lo studio conferma che il trattamento riabilitativo del linfedema migliora l'asimmetria tra le due braccia, riducendo l'edema del braccio affetto.

Conclusions. Numerosi studi hanno già dimostrato che il trattamento riabilitativo ha effetto sui sintomi che incidono sulla qualità della vita quali dolore, senso di pesantezza, riduzione della forza, disturbo posturale associato all' asimmetria a livello del tronco, deficit muscolare a livello del cingolo scapolare, perdita di sensibilità nella sede chirurgica. I risultati dello studio dimostrano che il trattamento del linfedema migliora il deficit posturale spesso misconosciuto perché non associato a vertigini o sintomatologia specifica, ma solo a disturbi riferiti a livello di spalle e braccio. Tale miglioramento potrebbe derivare dalla riduzione dell'edema presente nel braccio affetto incidendo in minima parte sulla posizione del centro di pressione, con una riduzione significativa della flessione , ma soprattutto sulla sintomatologia soggettiva di asimmetria verso il lato leso percepita dalla paziente. Si può ipotizzare che il trattamento, migliorando la differenza tra le due braccia, migliori la dispercezione corporea legata ad essa e quindi l'elaborazione delle afferenze propriocettive/sensoriali, la precisione del sistema e del dispendio energetico necessario per il mantenimento della stazione eretta. Questo è testimoniato dalla riduzione delle oscillazioni e dalla riduzione di velocità e lunghezza delle oscillazioni, indici stabilometrici indiretti di dispendio energetico.

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DENOSUMAB TREATMENT FOR THE MANAGEMENT OF LOW BONE MINERAL DENSITY IN POSTMENOPAUSAL WOMEN WITH RECENT OSTEOPOROTIC HIP FRACTURE

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Introduction. Osteoporosis and osteopenia are associated with increased fracture incidence. Postmenopausal osteoporosis results from an increased rate of bone remodeling, which corresponds to bone loss and decreased bone strength. Despite advances in osteoporosis therapy, the incidence of hip fractures increased by 25% between 1990 and 2000. There is strong evidence to indicate that individuals who sustain a hip fracture are at a greater risk of developing another. Denosumab is a human monoclonal antibody for osteoporosis treatment. It inhibits RANK Ligand, with high affinity and specificity, preventing the activation of the RANK receptor on the osteoclasts surface and, therefore their development, activation, and survival. Denosumab decreasing osteoclast activity induces a reduction of bone resorption and an increase of cortical and trabecular bone mass and strength.

Aim. The aim of this proposal research is to assess whether denosumab inducts significant changes regarding bone mineral density, bone turnover markers, and specific rating scales scores in women with recent osteoporotic hip fracture.

Materials and methods. The study will be conducted over a 36-month period. The inclusion criteria for the study are: > 70 years old, postmenopausal osteoporosis with high fracture risk assessed by DEFRA, recent osteoporotic hip fracture, and a T-score value of phalangeal quantitative ultrassonography < 4.0. At baseline and months 6, 12, 18, 24 and 36 the following will be evaluated:

- Bone turnover markers (serum C-terminal telopeptide of type I collagen - sCTX, serum bone alkaline phosphatase - bAP, Dickkopf-1 - DKK1, sclerostin, calcium, vitamin D).
- Bone quantity assed by ultrasound measurements of the proximal finger phalanges.
- Rating scales (Barthel Index, Womac, SF-36).

Conclusion. Denosumab has been shown to reduce the incidence of vertebral, non-vertebral, and hip fractures. This proposed research evaluates the antifracture efficacy, the bone mineral density, and the bone turnover changes with clinical use of Denosumab in women admitted to "Istituto NeuroTraumatologico Italiano (INI) – Divisione Villa Dante, Guidonia" for rehabilitation treatment after hip fracture.

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EFFICACY OF INTRA-ARTICULAR HYALURONIC ACID INJECTION FOR HIP OSTEOARTHRITIS THROUGH ULTRASOUND GUIDANCE

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Introduction. Osteoarthritis (OA) is a degenerative joint disease characterized by damage of cartilage tissue, changes in subchondral bone, osteophyte formation, and synovial inflammation, which can lead to disability in activities of daily living, causing pain, swelling, and deformity. At the present time, intra-articular hyaluronic acid (HA) injections are an effective treatment for hip OA, providing short-term symptom amelioration. Different anatomical-guided injection techniques have yielded inconsistent intra-articular needle positioning due to the impossibility to directly visualize the area of interest. Musculoskeletal ultrasound represents one of the most practical imaging modality, which can be used to improve the accuracy of intra-articular injections. It is rapid, safe, relatively inexpensive, non-invasive, and can be performed in the outpatient's clinical setting.

Aim. The objective of this study was to ascertain the efficacy of intra-articular injection of Hyaluronic Acid (Synvisc® Hylan G-F 20) through two different approaches:

– *Lateral approach*, noting the reference marks of the intra-articular injection through a preliminary ultrasonography.
– *Anterior approach*, under ultrasound guidance.

Materials and methods. The study included 20 patients with advanced hip OA. They were randomly assigned to two groups of 10 patients each. The first group was injected by the lateral approach and the second group by the anterior approach. Needle insertion occurred between the acetabular rim and the femoral head inside the capsule through the two methods described above. All patients received a 2ml HA injection at the time of baseline and again after 3 months. Rating scales (WOMAC, VAS, Lequesne index) were assessed before each injection and will be evaluated at months 3 and 6 after treatment.

Results and conclusions. Our preliminary rating scales results prior to injection suggest that there are no significant differences between the two approaches: patients received similar improvements in pain, autonomy, and disability scores. Thanks to these preliminary results, the team will evaluate the same backgrounds at follow-up at months 3 and 6 after treatment.

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PROGETTO SPIAGGIA: BENEFICI DELLA SABBIA E DEL MARE IN AMBITO RIABILITATIVO

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Introduction. Nel corso delle estati 2011 e 2012 il Team del Centro Riabilitativo "Villa Adelchi" spinto dall'idea di proporre "un contesto" meno limitante di quello imposto dalla palestra riabilitativa e consapevole della grande risorsa naturale a pochi passi dalla struttura, ha provato a suggerire un nuovo setting ai propri pazienti: la spiaggia. Partendo quindi dall'idea di voler sperimentare i benefici del mare, dell'aria e della sabbia sulle capacità respiratorie, sulla propriocezione, sulla coordinazione e sull'equilibrio (oltre che sull'umore) dei pazienti sono stati selezionati bambini e adulti che potessero partecipare a quello che è stato chiamato "Progetto Spiaggia".

Materials and methods. Sono state coinvolte nell'anno 2011 sette persone (4 bambini e 3 adulti) di cui: una bambina affetta da ritardo dello sviluppo psicomotorio da trisomia parziale 15q e monosomia parziale 7p, un bambino affetto da disturbo pervasivo dello sviluppo sottotipo autistico, una bambina affetta da emiparesi brachio-crurale sinistra da esiti di paralisi cerebrale infantile, un adolescente affetto da Disturbo pervasivo dello sviluppo, 3 adulti affetti da Sclerosi Multipla. Nel corso del 2012 sono stati coinvolti 5 persone (3 adulti e 2 bambini) di cui: una ragazza affetta da Sclerosi Multipla, un adulto affetto da esiti di frattura di bacino ed acetabolo sinistro trattato chirurgicamente, un adulto affetto da emiparesi brachio-crurale dx da ischemia cerebrale, un bambino affetto da Disturbo pervasivo dello sviluppo sottotipo autistico, una bambina affetta da ritardo dello sviluppo psicomotorio da trisomia parziale 15q e monosomia parziale 7p. Le figure professionali coinvolte sono state: le fisioterapiste, le logopediste e la neuropsicomotricista coordinate dal medico fisiatra. Data le differenti tipologie di pazienti e di età delle persone arruolate nel progetto non è stato possibile somministrare alcun test che potesse dimostrare la validità del lavoro svolto. Ciò nonostante, a parlare in maniera eloquente sono le immagini relative alle esperienze in spiaggia che dimostrano l'entusiasmo ed il divertimento delle persone coinvolte.

Results. I risultati ottenuti sono stati superiori alle previsioni: i bambini hanno partecipato in maniera entusiastica al nuovo modo di proporre gli esercizi e gli adulti hanno apprezzato la possibilità di poter scendere in spiaggia nonostante le proprie disabilità. Le iniziali incertezze dell'équipe riabilitativa sulle possibilità di ottenere dei benefici per i pazienti, sulla disponibilità da parte dei genitori a far partecipare i bambini e sulle difficoltà tecniche del progetto sono state ampiamente superate nel corso delle due estati.

Conclusions. Nonostante le diverse patologie da cui risultavano affette le persone incluse nel progetto erano tutti accomunati dalla voglia di testare un approccio diverso, più emozionale e coinvolgente dei trattamenti riabilitativi, logopedici e neuropsicomotori a cui erano abituati. La novità del " Progetto Spiaggia" non è stato solo quello di portare i pazienti in riva al mare ma anche quello di far lavorare simultaneamente e sullo stesso paziente professionisti diversi, con una integrazione delle stimolazioni offerte e degli imput sensoriali. I risultati ottenuti possono essere tradotti in termini di una maggiore compliance al progetto riabilitativo ed alle singole attività proposte, una più funzionale relazione terapista paziente, una maggiore gestione del comportamento disfunzionale dei pazienti in età evolutiva.

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INFILTRATIVE TREATMENT ASSOCIATED WITH REHABILITATION IN COXARTHROSIS: LONG-TERM RESULTS

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Introduction. Hip osteoarthritis is a disease characterized by cartilage and joint structures' deterioration, which manifests clinically with worsening pain and consequent reduction of the functionality. Pain resolution is the primary target in the treatment of hip osteoarthritis. In the management of osteoarthritis (OA) Analgesics and NSAIDs are widely used, although often they aren't well tolerated by patients because they given adverse effects. SYSADOA is another class of drugs, capable of retarding or stabilizing the cartilage and joints' degeneration. Infiltration with high molecular weight hyaluronic acid (HA) is used for many years and it has proved high efficacy, due to high viscosupplementation ability, with improvement of tissue integrity and homeostasis. To perform intra-articular injection requires a visual ultrasound, fluoroscopic, or tomographic guide because of the joint's depth. The study assessed the immediate and remote analgesic effects, the improvement of joint function and delay or avoidance surgery.

Materials and methods. At the O.U.C. of " Rehabilitation" of the U.H.C "P. Giaccone " in Palermo, between February 2008 and June 2012, occurred 313 patients with primary hip arthritis (177 females - 126 males) aged 44-86 years (mean 62.5); 36 subjects had right hip OA, 54 left and 223 bilateral

arthritis. Inclusion criteria were: age over 40 years, II or III degree according to the radiological Kellgren and Lowrence classification, symptomatic from at least one year. Treatment consisted of 3 monthly intra-articular infiltration of 2 ml of high pm HA, performed under ultrasound guidance. We excluded 84 patients; the reasons were: rheumatic diseases, intake of ASA, concomitant intra-articular steroids, previous allergy to hyaluronic acid or to avian protein. The 224 subjects designed were randomly assigned into 2 groups: A and B. Group A consisted of 108 patients (mean age 61.9), 12 of these where infiltrated the right hip, 23 the left and 75 bilaterally; group B included 116 subjects (mean age 64.3), 22 of these suffering from right hip arthritis, 27 from left and 65 bilaterally, all treated with a cycle of infiltration in association with a rehabilitative program consisting of functional rehabilitation and Nd Yag laser. Each patient was evaluated at baseline (T0) and after at each infiltration (T1, T2 and T3); the follow-up was at 6 months and at 12 months. NSAIDs were given as needed; their consumption was monitored over all the period of observation. We also considered the VAS and Lequesne functional index for each check.

Results. Analysis of data shows that patients in group B had an early resolution of pain and independence recovery in ADL, compared to group A. In group A the mean Lequesne Index was 6.23 and the mean VAS was 12.5 at the baseline, while their value was 4.25 and 8.5 respectively at last follow-up; however, in group B, we found 6.5 and 12 respectively at the basic time, 3.5 and 7 after 12 months. No adverse events were observed. Only 19 patients had not improved at all and consequently they have been treacted with arthroplasty.

Conclusions. This study was performed to obtain clinical evidence, not only about immediate analgesic effect, but also regarding the delay in arthroplasty. Results show that 3 infiltrations every 30 days are well tolerated and they get a high degree of satisfaction for effectiveness for at least 6 months. The follow.

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VALUTAZIONE TRAMITE PET TOTAL BODY DI CASO CLINICO DI SPONDILODISCITE

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Introduction. Spondylodiscitis is an infection of two adjacent vertebral bodies and their intevertebral disc space. The most frequent disease locations are cervical and lumbar vertebras mostly at the L3-L4 and L4-L5 level, that are considered the site with higher probability of infection and the most frequent sympton is pain.

Materials and methods. The aim of this study is to assess, starting from a clinical case, the potential role of the PET/TC in clinical menagement in a patient with spondylodiscitis at the moment of diagnosis during treatment.

Results. The patient is a seventy four years old woman, who is affected by spondilodiscitis; she was studied at the beginning with traditional techniques (CT with and without contrast medium and lumbar X ray) and treated with antibiotic therapy for four weeks as long as the pain and high levels of inflammation index in blod examination, the patient was been valud by Pet Total Body that allowed us to give a correct indication to continue antibiotic therapy and to decide an appropriate rehability project.

Conclusions. Pet total body is a non invasive examinatio with few collateral effects and, differently from MNR and aimed biopsy, without false positive or negative results, that can be used later in spondylodiscitis follow-up.

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MANCANO AUTORI

MANCANO AFFILIAZIONI

Introduction. La malattia di Parkinson (MP) è un disordine neurodegenerativo con andamento progressivo ed invalidante che colpisce entrambi i sessi con leggera prevalenza di quello maschile ed è caratterizzata da diversi sintomi in particolare della sfera motoria con difficoltà nella marcia ed instabilità posturale da cui consegue un invalidità progressiva e un elevato rischio cadute. Inoltre sempre più numerosi studi evidenziano una riduzione di densità minerale ossea (BMD) più frequente nei malati parkinsoniani rispetto ai sani. Elevato rischio di cadute e bassa BMD, espongono i malati parkinsoniani a rischio di fratture. L'esercizio fisico è stato considerato da sempre importante nel trattamento della MP, in particolare per migliorare l'equilibrio e ridurre il rischio di cadute. Lo scopo di questo lavoro è quello di valutare la presenza di osteoporosi/osteopenia in pazienti con MP e l'efficacia di trattamento riabilitativo volto a migliorare in particolare il deficit di equilibrio e le alterazioni posturali con prevenzione del rischio cadute. Inoltre dai dati preliminari parte uno studio con un campione più numeroso.

Materials and methods. Sono stati arruolati 10 pazienti con MP (7M, 3F), di età media 64.8± 6.9, con durata di malattia compresa tra 3 e 9 anni, e stadio di Hoehn e Yahr fra 2 e 4, ricoverati in riabilitazione specialistica per ciclo di rieducazione neuromotoria**.** I pazienti venivano sottoposti a ciclo di 8 settimane di trattamento riabilitativo standardizzato della durata di 1 ora al giorno. Erano esclusi pazienti con osteoporosi secondaria e con comorbidità significative. I pazienti inclusi nello studio sono stati sottoposti a protocollo di valutazione con un gruppo di scale volte in particolare ad indagare la componente motoria, in particolare l'equilibrio, e la qualità di vita, nelle fasi ON della giornata: scala di Berg dell'equilibrio, Parkinson's Disease Rating Scale (UPDRS), Parkinson's Disease Questionnaire (PDQ-39). Inoltre è stata misurata la massa ossea in tutti i pazienti mediante valutazione densitometrica con metodica DEXA sul tratto lombare L2-L4, prima dell'inizio del programma riabilitativo, ed esami ematochimici del metabolismo fosfo-calcico e per diagnosi differenziale.

Results. Sono stati raccolti i dati relativi ai 10 pazienti che sono rientrati nel nostro studio, al tempo T0 ingresso e T1 dimissione. Tali dati evidenziano un miglioramento in 6 pazienti per la valutazione della scala UPDRS, in tutti i 10 pazienti per quanto riguarda la scala di Berg e la PDQ-39. 9 pazienti presentavano osteopenia/osteoporosi.

Conclusions. Premesso che il campione era esiguo,i dati del presente studio confermano quelli presenti in letteratura. In conclusione risulta importante un approccio globale al paziente con MP, non dimenticando gli aspetti relativi alla massa ossea, alla qualità dell'osso per evitare fratture e l'ipomobilità che ne consegue che aggrava il quadro motorio-funzionale ipocinetico ed espone il soggetto a complicanze infettive soprattutto polmonari gravi. Inoltre questo studio conferma l'efficacia del trattamento riabilitativo intensivo, in particolare per quanto riguarda le performances motorie e l'equilibrio. Sono necessari studi con campioni più numerosi.

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SPASTICITY PLAYS A FAVORABLE OR UNFAVORABLE ROLE IN ALLOWING LONG-DISTANCE ARTIFICIAL INDUCED WALKING IN COMPLETE PARAPLEGICS?

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Introduction. The purpose of this work is to determine if spasticity (SPS) and/or Residual voluntary motor activity (VMA) in gait trained (GT) complete spinal cord injuy (SCI) patients through electrically-induce [EI] or mechanically-induce [MI] walking can inhibit or facilitate prolong walking. We hypothesize that walking may be perturb by spasticity and the latter be the reason of the increase in power requirement and oxygen consumption.

Materials and methods. SCI gait-trained individuals sample-comparison. *Setting;* Neurorehabilitation-Research center. *Participants;* Two groups of SCI subjects and able-bodied (AB); 10 (5+5) paraplegics and 5 control AB. *Intervention;* Three trials at 45 minutes walking on a treadmill at the preferred maximum speed in m/min at zero of inclination. *Main Outcome Measures;* Power requirement (PR)(VO_2 mL/kg, min), Work intensity or Physiological cost (PC) (VO_2 mL/kg, m), Oxygen uptake (O_2up)(mL/min),Asworth scale (SPS) was represented by ROM assesment average values of 6 different joint comprehensive of hip flex/ext, hip abduction/adduction, knee ext/flex, ankle dorsiflex/plantarflex and VMA.

Results. Significant ($p \leq 0.001$), ($p \leq 0.01$), ($p \leq 0.05$) differences were noted for PR,PC,VMA,SPS, and O_2up higher for the EI-group. O_2up ($p \leq 0.001$) between the research groups was present, higher for the EI-group when compare to the MI-group. Within each group correlation was found between O_2up and level of injury, higher for the lower SCI. PR show differences ($p \leq 0.001$) between the research groups, higher for the EI-group when compare to the MI-group. The MI demonstrated that PR was related to level of injury and VMA. Within the EI-group a higher variation was identified. SPS vs PR confirm that a higher PR in the MI-group seems related to the higher degree of SPS but was not considered significant. The EI-group instead reported a higher correlation between degree of spasticity vs PR, appearing that higher the degree of spasticity lower the PR($R^2 \geq 0.7$).

Conclusions. Our results seems to sustain the hypothesis that spasticity on SCI subjects up to an Ashworth scale degree of 3 may facilitate EI walking decreasing the PR need for walking. The contrary was observed for the MI-group. Spasticity seems to play an important role in walking. Despite the good quality

of our laboratory-controlled study, the tedious preparation and training of SCI subjects to walk for 45 minutes was not easy and this was the reason of the small sample size, as a result our findings may not be able to assert for final conclusions and further studies may be needed which are in the process to be presented.

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ADHESIVE CAPSULITIS OF THE SHOULDER: LASER CO2 VS INTRA-ARTICULAR INJECTIONS

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Introduction. The adhesive capsulitis of the shoulder is a chronic idiopathic pathology affecting the gleno-humeral joint. It is characterized by the presence of adhesions of the capsule, which limit the volume of space, reducing both passive and active movements in the three planes of space, especially abduction and external rotation. The diagnosis is confirmed through a clinical evaluation and x-ray of the shoulder. The disease takes advantage in most patients in rehabilitation treatment; the release of arthroscopic surgery should be reserved only in resistant cases (about 6 months) to drug therapy combined with physical therapy and functional rehabilitation. The study has shown that the functional rehabilitation is more effective when combined with the CO2 laser rather than a corticosteroid injection.

Materials and methods. At the U. O.C. Rehabilitation of the A.O.U.P. of Palermo, from June 2011 to March 2012, we have selected 20 patients with adhesive capsulitis of the shoulder: 8 men and 12 women, mean age 60 years old (50-75 aa), divided randomly into two groups "A" and "B" undergoing rehabilitation treatment duration of 8 weeks and reassessed at 1 month after the end of therapy. Group "A" included 10 patients (6 women and 4 men) treated with a treatment protocol that combined the functional rehabilitation with CO2 laser. Group "B", consisting of 10 patients (5 men and 5 women), underwent exercise therapy combined with 4 infiltrations of corticosteroids 2 weeks apart from each other. At baseline (T0) were administered the VAS scale, Barthel scale and the Constant Shoulder Score, then to 30 days (T1) and after 2 months of treatment (T2), to determine the degree of pain and disability of 'upper limb. In addition, both groups were subjected to a further check-up 1 month after the end of the treatment protocol (T3).

Results. The evaluation by Vas, Barthel and Constant Shoulder Score showed an improvement in terms of reducing pain and restoring joint function. The group "A" compared to "B", showed a reduction in VAS scale greater and earlier, and an important increase of the Barthel and Constant Shoulder Score scales from the first clinical control.

Conclusions. Analysis of our data shows that the functional rehabilitation associated with the CO2 laser causes a greater reduction in pain, better recovery of joint ROM and an increase in muscle strength compared to treatment associated with injections of corticosteroids.

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LA RETE INTEGRATA TRA MMG, SPECIALISTI DELLA RIABILITAZIONE ED ATTIVITÀ MOTORIA PROGRAMMATA

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Contrastare l'invecchiamento è un compito interdisciplinare che coinvolge non solo i medici e personale paramedico, ma anche altre branche della scienza (scienze nutrizionali e sportive, psicologia, sociologia, ecc). Il raggiungimento di un buon stato di salute in età avanzata, presuppone una serie di interventi che coinvolgono la sfera fisica, intellettuale, spirituale e sociale, nell'ambito dei quali è certamente importante sia scopo preventivo che in caso di malattia. Una regolare attività fisica giova agli individui durante l'intero arco della vita. I 50 anni segnano un momento della mezza età in cui una regolare attività fisica può essere particolarmente efficace nel ridurre ed evitare i rischi fisici, psicologici e sociali spesso associati all'avanzare del tempo. Una regolare attività fisica giova agli individui durante l'intero arco della vita. Il nostro scopo è quello di contenere gli effetti dell'involuzione motoria fisiologica cercando di ristabilire un giusto equilibrio emodinamico, cardiorespiratorio e nello stesso tempo mantenere la mobilità articolare e la forza muscolare. Esiste un'ampia letteratura sulla validità e sull'efficacia degli interventi dei MMG nel modificare i comportamenti dei propri assistiti, ad esempio uno studio sull'efficacia dell'azione dei MMG per incrementare i livelli di attività fisica tra i propri assistiti ha evidenziato in aumento del 40% del tasso di adesione ad un programma di attività fisica da parte del gruppo sperimentale rispetto al gruppo controllo, e questo nonostante l'intervento di supporto da parte dei medici fosse alquanto limitato nel tempo. La nostra proposta è quella di organizzare un progetto di educazione alla salute, rivolto a persone adulte, e quindi finalizzato al cambiamento/miglioramento del comportamento individuale e collettivo nei confronti dell'attività motoria nell'anziano, e cioè attinente a una componente dello stile positivo di vita. Indurre modificazioni nello stile di vita della popolazione rappresenta un compito di estrema importanza nell'ambito delle politiche sanitarie e, nel raggiungimento di tale obiettivo, il peso dell'azione dei medici di medicina generale è da ritenersi di primaria importanza.

Obiettivi del progetto. Il problema principale nel costruire il progetto è quello di trovare i soggetti che dovevano partecipare al protocollo sperimentale. Il primo step sarà quello di contattare i MMG dell'ASL Napoli 3Sud e Napoli 2Nord e verificare se siano interessati direttamente al progetto: "promozione del benessere della persona anziana, con funzione di dare impulso alla rete dei servizi esistenti, promuovere la diversificazione dell'offerta di servizi rendendo maggiormente incisivi quelli che perseguono finalità alternativa alla istituzionalizzazione". Il colloquio con i MMG servirà a definire gli obiettivi e il contesto in cui si dovrà andare ad operare, e soprattutto a capire se c'era la possibilità reale di rendere attuabile il progetto spiegando loro, in maniera dettagliata, con tutte le modalità di coinvolgimento, i metodi di intervento e la tipologia specifica di soggetti nel proseguo della dissertazione. La fase iniziale del progetto si rivolge ai MMG in modo di farli diventare educatori alla salute dei loro assistiti, per educarli a mantenere uno stile di vita attivo che solleciti regolarmente il sistema cardiocircolatorio, i grandi gruppi muscolari, le articolazioni, i meccanismi di controllo e apprendimento motorio ed a reclutare gli assistiti. In questa fase i MMG selezioneranno e recluteranno gli assistiti sottoponendoli a Tests di valutazione esemplificati. I MMG si trovano nella posizione di poter svolgere un ruolo unico e fondamentale per far si che le persone possano godere pienamente degli innumerevoli benefici che l'esercizio fisico è in grado di offrire. La fase successiva sarà integrata dal fisiatra e dal nutrizionista che provvederanno ad inquadrare clinicamente l'assistito ed inserirlo in un percorso, palestra, ove sarà seguito o uno specialista in scienze motorie o da un Terapista della riabilitazione. I pazienti con più problematiche che necessitano di un inquadramento diagnostico più approfondito e multidisciplinare sarà inserimento in un altro percorso, quello riabilitativo.

Obiettivi. Gli obiettivi generali del progetto sono sostanzialmente tre: 1 - in primo luogo si vuole rendere l'anziano più attivo e sensibile all'attività fisica, e attraverso questa migliorare le condizioni fisiche dei soggetti stessi; solamente se nasce la consapevolezza e si associa l'attività motoria come un mezzo per migliorare la propria salute, tale obiettivo potrà essere centrato, infatti, il protocollo di esercizi è stato sviluppato affinché in un primo momento ci sia l'intervento dell'operatore motorio, ma poi ci sia l'autonomia dell'anziano nell'eseguire gli esercizi senza per l'appunto il supporto di una figura esterna. 2 - se si verifica che tale modello è attuabile, lo si rende a sua volta sostenibile, in quanto si potrebbero coinvolgere un elevato numero di anziani, e attuare così politiche di prevenzione e di sostegno a questa fascia di popolazione; il secondo obiettivo è quello di verificare se l'esercizio fisico, oltre ad essere positivo sulle capacità fisiche e i livelli di autonomia, può entrare a far parte del quotidiano dell'anziano, e se questo può essere svolto in forma autonoma; se così fosse, si potrebbe pensare di sviluppare delle politiche di sostegno a tale scopo, e coinvolgere elevati numeri di soggetti che diventano "attivi" sul fronte motorio. 3 - Il terzo obiettivo non può non prescindere dai precedenti, ed è sicuramente il più interessante anche se ovviamente è il più difficile da raggiungere/realizzare, ovvero capire, se politiche concentrate più sulla prevenzione, attraverso per l'appunto l'attività fisica, siano in grado di diminuire gli outcomes tipici della fragilità, ovvero morbilità, ospedalizzazioni, istituzionalizzazione, utilizzazione dei servizi e costi socio-sanitari, mortalità. Gli obiettivi specifici consistono nell'azione su:

- sistema di controllo e regolazione del movimento/forza muscolare;
- sistema scheletrico ed articolare;
- deambulazione ed equilibro;
- stato cognitivo.

Gli obiettivi della prescrizione di attività fisica eseguita dal medico specialista sono espressi in funzione delle condizioni generali del paziente e delle sue abilità motorie. La presenza di problemi specifici deve orientare il medico alla Collaborazione degli specialisti per una valutazione funzionale e l'inserimen-

to in un altro percorso. La scelta di obiettivi specifici per il singolo paziente consiste nel definire un percorso di valutazione/prescrizione che dovrà essere nello stesso tempo adeguato al soggetto per la tipologia alla quale il soggetto appartiene. Nella definizione di tale percorso il medico deve anche considerare aspetti oggettivi quali il tempo e il costo del processo valutativo e la possibilità di condividere esperienze e risultati con i colleghi.

Monitoraggio e valutazione di processo e di esiti. La valutazione del progetto sarà misurata attraverso relazioni circa l'attività abilitativa svolta ed attraverso scale di valutazione esemplificate:

– VALUTAZIONE del paziente anziano: ° Test della mobilità articolare ° Scala di Tinetti ° Performance Oriented Assessment of Gait (Valutazione dell'andatura e della velocità di passo) .

– competenze motorie e cognitive: ° Geriatric Depression Scale ° MMT e ADL/IADL nella versione abbreviata, FIM ° Autovalutazione funzionale COOP/WONCA CHARTS.

Lo studio sarà effettuato su due gruppi di campioni di utenti, omogenei, selezionati in base all'età, sintomi e/o diagnosi di cui uno seguirà il percorso da noi organizzato l'altro eseguirà il programma di attività fisica nel proprio domicilio.

Materiali e metodi. *Metodo di studio*: selezione degli assistiti da parte del MMG.

Risorse professionali: 5 MMG, 2 Fisiatra, 1 Geriatra, 1 Internista, 1 Psicologo, 2 T.d.R., 2 laureato in scienze motorie, 2 amministrativi.

Sede operativa: locale adibito a palestra presente a Palma Campania (NA);

Orario: 3-5 giorni a settimana, orario da definir secondo le esigenze dell'utente.

Durata: 1 anno con 2 verifiche (+ quella iniziale). Si prevedono 2 incontri settimanali di 40-50minuti.

Materiali: Sessanta (60) utenti dai 60 agli 80 anni al fine di migliorare non solo lo stato fisico, sociale e familiare ma anche il ruolo lavorativo.

Risultati. elaborazione di report dopo 1 anno e dopo altri 6 mesi per il prosieguo del progetto nel domicilio dell'assistito. Nella identificazione di un programma di attività fisica dovremo considerare che tutti i soggetti di oltre 65 anni, allo scopo di migliorare e mantenere un buon stato di salute, dovrebbero adottare uno stile di vita che preveda:

– migliorare la forza muscolare ed il ROM attraverso *esercizi dinamici globali.*
– *(aerobici)*;
– Favorire la coordinazione motoria, l'equilibrio in ortostatismo con e senza ostacoli;
– Promuovere l'esecuzione di reazioni posturali (reazioni paracadute);
– Intensificare la presa coscienza di un corretto schema corporeo;
– Esercizi posturali per potenziare la muscolatura del rachide e correggere posture.
– scorrette (cifosi e/o iperlordosi lombare);
– Esercizi propriocettivi e respirazione toracica, addominale e combinata;
– Migliorare la funzione cognitiva attraverso la proiezione di film, la lettura di libri al fine di rafforzare la memoria. Certamente è importante il grado culturale dell'assistito.
– Promuovere un corretto apporto alimentare ed idrico.

Modalità generali e contesti dell'attività motoria. La finalità degli interventi nei confronti delle problematiche di salute degli anziani non deve essere la cura della malattia di tipo clinico né il recupero funzionale di tipo riabilitativo tradizionale, ma la promozione ed il sostegno del benessere nelle sue varie dimensioni oggettive e soggettive. Per raggiungere tale scopo, è importante dare a chi ha bisogno e solo a loro (appropriatezza) con i minori costi (efficienza) e con il risultato migliore (efficacia). La vecchia è un fenomeno fisiologico ove i fattori di rischio ad essa correlata sono modificabili grazie all'educazione sanitaria e quindi alla prevenzione. Per la costruzione di uno stile di vita attivo si potranno considerare i seguenti obiettivi:

– conoscere i benefici di un'attività motoria regolare;
– prevedere attività motorie quotidiane, legate o meno alle attività abituali;
– rendere regolare le attività aerobiche spontanee del soggetto (passeggiata,
– uscita per la spesa, uscite in bicicletta);
– frequentare regolarmente corsi, almeno bisettimanali, di attività motorie a corpo libero per anziani;
– imparare nuove attività motorie o tornare a praticarle (andare in bicicletta, nuotare, camminare su sentieri, ballare);
– imparare esercizi di mobilizzazione articolare e di stretching da eseguire autonomamente;
– imparare a sollevare e spostare oggetti pesanti in modo corretto;
– Prestare attenzione ad un'alimentazione equilibrata ed ad un adeguato apporto di liquidi.

Consigliare e prescrivere attività fisica rappresenta un impegno che non travalica in alcun modo i confini del lavoro del medico, ma può inserirsi perfettamente all'interno della normale pratica quotidiana.

Monitoraggio e valutazione. È importante definire il percorso che l'utente deve seguire nel progetto per risolvere, limitare il suo problema di salute, sfruttando, nel miglior modo possibile, le risorse a disposizione. Lo schema proposto è descrittivo visto che i tre momenti del processo, decisioneàattuazioneà valutazione, sono connessi in modo circolare. Nella seconda frase si può registrare se quanto programmato sarà realizzato. Il programma di abilitazione/riabilitazione verrà effettuato su un gruppo campione di 60 utenti omogenei per età, scolarizzazione, sintomi. La valutazione dell'intervento offerto sarà misurato attraverso test di gradimento dell'intervento mediante il quale si verificherà il livello di gradimento dell'intervento stesso in adesione e non adesione alle aspettative iniziali. La valutazione dell'outcome verrà misurata mediante la Scala FIM e le scale, esemplificate, applicate inizialmente dal MMG e dal Fisiatra. Il nostro scopo è quello di far investire su questo ambito, programmare più ampi progetti magari anche con il supporto di altre figure professionali, al fine di occuparsi in forma attiva della popolazione anziani.

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POLIMORFISMO GENETICO ED OUTCOME RIABILITATIVO IN PAZIENTI OSPEDALIZZATI CON ICTUS ISCHEMICO: RUOLO DELL'APOLIPOPROTEINA E4

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Introduction. Pochi e discordanti sono i dati che si posseggono in letteratura circa il recupero motorio e cognitivo dei pazienti con allele APO Eε4 con ictus ischemico sottoposti a trattamento riabilitativo di tipo intensivo. Il nostro studio ha pertanto le seguenti finalità: determinare il ruolo e gli effetti che l'allele APO Eε4 ha sul recupero motorio e cognitivo a lungo termine di questa tipologia di pazienti, al fine da determinare il percorso assistenziale riabilitativo degli stessi.

Materials and methods. Si tratta di uno studio longitudinale prospettico con valutazione al baseline, finale e studio di follow – up a 6 mesi. Sono stati individuati pazienti colpiti per la prima volta da ictus ischemico dell'età ≥ 60 anni e ≤ 80 anni. I pazienti con ictus emorragico o eventi ictali precedenti o con altre patologie neuromuscolari ed ortopediche e quelli con condizioni cliniche o psichiatriche serie o instabili sono stati esclusi dallo studio. I pazienti sono stati raggruppati in base alla sede dell'ischemia, quindi al lato del deficit neurologico e in base alla presenza o assenza del neglect o dell'afasia. È stato analizzato, inoltre, il percorso assistenziale e il tipo di setting riabilitativo cui sono stati avviati i pazienti. La valutazione funzionale è stata effettuata mediante l'utilizzo della scala FIM e l'utilizzo del Protocollo di Minima, all'ingresso, alla dimissione e al follow-up. La genotipizzazione dell'APO E è stata fatta attraverso la PCR-restrittiva su campioni di sangue anticoagulato con EDTA.

Results. Sono stati studiati 170 soggetti. 29 di essi (19 M, 10 F, età media 70 anni) sono stati reclutati nello studio. Dall'analisi del DNA genomico è emerso che 3 pazienti, tutti di sesso maschile, avevano l'APO Eε4 nella forma ε3-ε4, 6 pazienti (4 M, 2 F) avevano la forma ε2-ε3, mentre 20 pazienti (12 M, 8 F) la forma ε3-ε3, quindi erano senza l'allele specifico. Dei pazienti con APO Eε4, 1 di loro aveva un'emiplegia destra, 1 un'emiparesi destra, 1 un'emiparesi flaccida sinistra. Un paziente aveva inoltre afasia, in prevalenza motoria. Nessun paziente presentava neglect. I valori medi all'ingresso, alla dimissione e al follow-up a 6 mesi della scala FIM nei pazienti con APO Eε4 sono risultati, rispettivamente 39.3 (±10.8), 71 (±8.6), 73 (±8.6); della scala VAS 1.3 (±1.8), 0.6 (±0.9) e 0; della scala Barthel 21.6 (±8.5), 53.3 (±1.7), 53.3 (±1.7); della FAQ 0, 2, 2. I valori della mRS 4, 2.6 (±0.5), 2.6 (±0.5), del TCT 61 (±18.4), 57 (±21.7), 61 (±18.3); della Motricity Index 56.6 (±23.1), 86 (±22.9) e 90 (±23.2); della CNS 5.3 (±1.7), 6.6 (±1.2) e 7.3 (±0.5), della Ashworth 0, 0, 0, dell'NHPT 4.35, 4.47 e 3.42. I valori della scala MMSE 22 (±1), 18.5 (±0.5), 18.5 (±0.5). Differenti sono stati i risultati nei pazienti con APO Eε2-ε3 e in quelli con APO Eε3-ε3.

Conclusions. I pazienti con APO Eε4 tra i sessanta e gli ottanta anni con un primo episodio di ictus ischemico, sottoposti a trattamento riabilitativo di tipo intensivo e valutati con Protocollo di Minima, presentano alla dimissione un buon recupero motorio, che permane o migliora ulteriormente al follow-up a sei mesi, come per i pazienti senza APO Eε4. A differenza di questi ultimi, tuttavia, nei primi la presenza dell'APO Eε4 contribuisce a determinare declino cognitivo, in particolare nell'apprendimento verbale e nella memoria. Nei pazienti con APO Eε4 vi è inoltre afasia, prevalentemente motoria, che migliora in seguito a trattamento riabilitativo.

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ASSISTIVE TECHNOLOGY TO BE USED IN A LIVING ENVIRONMENT AFTER DISCHARGE FROM A CARE-INTENSIVE REHABILITATION UNIT: PATIENT SATISFACTION UNDER LIMITING PRESCRIPTION RULES

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Introduction. The prescription-appropriateness (PA) of an assistive technology (AT) aims to encourage the residual tasks (i.e. walking, transfers) of patients and to contain unwise expenditure. In our care-intensive rehabilitation unit (IRU) PA rules for AT at discharge were define as follow: wheelchair for patients able to walk < 50 meters, lightweight wheelchair for independent and extended use, 2-wheel walker for indoor use when combine to a wheelchair prescription and when the patient isn't independent with a 4-wheel walker. Bed side rails instead of orthopedic beds for patients with trunk control and bedsore defense systems for patients with pressure-sore or Braden scale ≤ 14. The aim of our study is to evaluate AT user satisfaction, service and usefulness of our interventions.

Materials and methods. The Quebec User Evaluation of Satisfaction with Assistive Technology (QUEST 2.0) was used for assessment. The 12-item scale (8 for AT and 4 for service) provides a 5-point score (1= not at all satisfied to 5=very satisfied). Five direct questions related to the use of the AT were included. 28 patients discharged during the first 6 months of 2012 were included in the study (13 stroke, 4 multiple sclerosis, 2 amyotrophic lateral sclerosis, 8 fractures of the femur neck, 1 hip replacement). The QUEST was compile by telephone and/or personal interview. *Setting*: Care-Intensive Neuromotor Rehabilitation Unit & Research Center. *Design*: Retrospective and observational study.

Results. From 28 patients only 25 were interviewed. Patient age 75.17±12.94, time elapsed between discharge to interview 3.63±1.62 months. 44 AT were provided; 91% utilized during first month of delivery; 9% didn't (#3 two-wheel indoor walker (2w) not accepted by the patient, #1 four-wheeled outdoor walker (4w) worsening of clinical condition). At the time of the survey 70.5% of AT were still used and 29.5% weren't. AT abandonment: 46% clinical worsening, 15% clinical improvement, 39% non-acceptance. The QUEST total mean 3.97±1.07,AT mean 4.05±1.04, Service mean 3,81±1.10. 2w total mean 4.06±1.07, 2w patient acceptance 4.7±0.57, 2w patient refusal 1.7±0.5. The lightweight wheelchair (lwc) mean 4.0±0.94. 4w mean 4.66±0.57, standard wheelchair (swc) 4±0.9, bed side rails, bed and bedsore mattress 4.8±0.45, bathroom aids 4.56±0.61; lwc including a postural control system 3.48±0.88. 71.43% of wheelchairs users able to walk <50 meters, 28.57% able to walk >50 meters. 100% of patients with postural system not able to walk >15 meters; 66% swc patients not able to walk >50 meters; 50% lwc able to walk >50 meters. Walker + wheelchair (combine prescription) in 7 cases ([Quest A 4.5], 2w in 5 cases [71.4%], 4w in 2 cases [28.6%]). Among patients with combined prescription at the moment of the survey 57.1% used 2w, 28.6% 4w, 14.3% both walkers. Among 2w 80% walk inside the home, 4w 20% walk inside home and 80% also out-side home. 100% lwc users were mobility independent, 33% of them wheelchair-bounded, 67% alternate to walking. 50% swc users have minimum independent mobility the other 50% didn't. 50% needed occasionally for outdoor mobility, 17% used at home, 33% stop using due to clinical deterioration and bedridden status.

Conclusions. QUEST was used for collecting patient satisfaction data and document the benefits of AT in the living environment (2). Reference review indicate four factors as significant related to abandonment: lack of consideration of user opinion, fast AT delivery, poor device performance, and change in user functional abilities or priorities (3). Our findings demonstrate the high degree of patient satisfaction and AT service on the contrary don't follow strictly our prescription rules. Patients or relatives often condition prescription rules due to sense of fatigue, balance problems, fear of falling or not appropriately performing outdoors. We believe that AT-related policies and services need to emphasize consumer involvement and their long-term needs to reduce device abandonment and enhance consumer satisfaction. Further studies are needed to verify if more specific PA rules can satisfied patients compliance, appropriateness and be economic sustainable.

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A PILOT STUDY RELEVANT FOR JOB SATISFACTION, STAFF STABILITY AND WORK-LOAD DYNAMICS TO PREVENT FROM BURNOUT IN A CARE-INTENSIVE REHABILITATION UNIT: A NEW STRATEGIC APPROACH

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Introduction. Heavy patient-load assistance (HpA), long-term care (LT-c), nursing shortage and absenteism to sickness among staff-members put at risk health professionals (HP) for burnout. The study objective was to understand staff-stability according to human motivational and percieved external environmental factors in the work-dynamics (Wd) of an intensive neuromotor rehabilitation unit (IRU). Also the study aim to understand the mechanism to prevent from burnout among HP.

Materials and methods. 92 (17 licensed vocational nurses [LVN], 37 register professional nurses [RN], 36 physical therapist [PT]) HP from two IRU across Piacenza, Italy, completed a - 28- item questionnaire- base on Maslow [1-2]"Hierarchy of needs theory" and Maslach[3] principles to prevent burnout. A 5-point analog scale was used for grading. Questionnaire anonymous compilation required 20 minutes for completion. An attributable value was given for each group of data and was related to the employee desirable working condition (DWc) versus the percieved -real- working situation (RWs). *Motivational factors* analyse ***safety*** (management of critical events, environmental stability, freedom from risk), ***belonging*** (communication, collaboration, group perception), ***esteem*** (professional recognition and professional autonomy), ***self-actualization*** (professional and skill growth), *External environmental factors* analyse ***work environment*** (comfortable work setting), ***work technology*** (useful & upgraded technology), ***work load*** (quality, fatigue and work distance from home), *Patient selection factors* include; ***adequate patient recruitment*** (commesurate patient selection for appropriate IRU rehabiliation, planning patient admittance and discharge). Statistical significance (S-S) was set at $p \leq 0.05$, and correlation studies set significance at $R^2 \geq 0.7$. *Setting*: Two Care-Intensive neuromotor rehabilitation unit & Research center (Borgonovo & Villanova). *Design*: Questionnaire-survey and correlational prospective pilot study.

Results. $p \leq 0.05$ differences were recorded when comparing DWc versus RWs, higher for DWc, meaning that staff-members were not satisfied with their "real" working situation. The need of feeling safe, the sense of belonging, the esteem and self actualization to professionally growth mean was $p \leq 0.05$ and $R^2 \leq 0.5$ differences were recorded within and between the units and the HP groups, except for environmental familiarity $R^2 \geq 0.7$. Comfortable work setting, useful work technology and work-load follow the same trend of S-S differences as per motivational factors, except for home-work distance mean $R^2 \geq 0.7$. Patient selection mean differences were $p \leq 0.05$, higher for DWc than RWs and greater for the Villanova PT group. Less significant ($p \leq 0.06$) differences were found for RN, higher for DWc than RWs.

Conclusions. Work-dynamics in a heavy work-load IRU may be stressful for the intensive-care in dealing with the acuteness of the patient disorder, the advance age and the presence of other cumulative illness problems, but also may be aggravated when the desirable working condition highly differ from the percieved working situation. Our study highlight the importance of the intermingle relation between environmental and motivational factors in the work-dynamics and if not appropriately balanced jeopardize the quality of the entire work organization. Absenteism due to sickness may be one of the manifestation of disappointment and when personnel shortage isn't appropriately substitute, < self-actualization, < upgrade technology, < freedom of risk, lack of communication and collaboration happen and HP are prone to burnout. Further studies are needed to better understand the problem of burnout in IRU and the care and assistance of the ever more aging neuromotor disable population. Our group of research will contemplate the correlation of this and the follow-up data of this study with the dashboard control-panel data refer in a different study.

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LA RETE INTEGRATA TRA MMG, SPECIALISTI DELLA RIABILITAZIONE E L'ATTIVITÀ MOTORIA PROGRAMMATA. PROPOSTA

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Introduction. Contrastare l'invecchiamento è un compito interdisciplinare che coinvolge non solo i medici e personale paramedico, ma anche altre branche della scienza (scienze nutrizionali e sportive, psicologia, sociologia, ecc). Il raggiungimento di un buon stato di salute in età avanzata, presuppone una serie di interventi che coinvolgono la sfera fisica, intellettuale, spirituale e sociale, nell'ambito dei quali è certamente importante sia scopo preventivo che in caso di malattia. Il nostro scopo è quello di contenere gli effetti dell'involuzione motoria fisiologica cercando di ristabilire un giusto equilibrio emodinamico, cardiorespiratorio e nello stesso tempo mantenere la mobilità articolare e la forza muscolare.

Materials and methods. Nella identificazione di un programma di attività fisica dovremmo considerare che tutti i soggetti di oltre 65 anni, allo scopo di migliorare e mantenere un buon stato di salute, dovrebbero adottare uno stile di vita che preveda:

- migliorare la forza muscolare ed il ROM attraverso *esercizi dinamici globali.*
- *(aerobici)*;
- Favorire la coordinazione motoria, l'equilibrio in ortostatismo con e senza ostacoli;
- Promuovere l'esecuzione di reazioni posturali (reazioni paracadute);
- Intensificare la presa coscienza di un corretto schema corporeo;
- Esercizi posturali per potenziare la muscolatura del rachide e correggere posture scorrette (cifosi e/o iperlordosi lombare);
- Esercizi propriocettivi e respirazione toracica, addominale e combinata;
- Migliorare la funzione cognitiva attraverso la proiezione di film, la lettura di libri al fine di rafforzare la memoria. Certamente è importante il grado culturale dell'assistito.
- Promuovere un corretto apporto alimentare ed idrico.

Metodo di studio: selezione degli assistiti da parte del MMG.

Risorse professionali: 5 MMG, 2 Fisiatra, 1 Geriatra, 1 Internista, 1 Psicologo, 2 T.d.R., 2 laureato in scienze motorie, 2 amministrativi.

Sede operativa: locale adibito a palestra presente a Palma Campania (NA);

Orario: 3-5 giorni a settimana, orario da definir secondo le esigenze dell'utente.

Durata: 1 anno con 2 verifiche (+ quella iniziale). Si prevedono 2 incontri settimanali di 40-50minuti.

Materiali: Sessanta (60) utenti dai 60 agli 80 anni al fine di migliorare non solo lo stato fisico, sociale e familiare ma anche il ruolo lavorativo.

Results. Elaborazione di report dopo 1 anno e dopo altri 6 mesi per il prosieguo del progetto nel domicilio dell'assistito. È importante definire il percorso che l'utente deve seguire nel progetto per risolvere, limitare il suo problema di salute, sfruttando, nel miglior modo possibile, le risorse a disposizione. Lo schema proposto è descrittivo visto che i tre momenti del processo, decisioneàattuazioneà valutazione, sono connessi in modo circolare. Nella seconda frase si può registrare se quanto programmato sarà realizzato. Il programma di abilitazione/riabilitazione verrà effettuato su un gruppo campione di 60 utenti omogenei per età, scolarizzazione, sintomi. La valutazione dell'intervento offerto sarà misurato attraverso test di gradimento dell'intervento mediante il quale si verificherà il livello di gradimento dell'intervento stesso in adesione e non adesione alle aspettative iniziali. La valutazione dell'outcome verrà misurata mediante la Scala FIM e le scale, esemplificate, applicate inizialmente dal MMG e dal Fisiatra.

Conclusions. Il nostro scopo è quello di far investire su questo ambito, programmare più ampi progetti magari anche con il supporto di altre figure professionali, al fine di occuparsi in forma attiva della popolazione anziani.

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AN EXPERIMENTAL TASK TO DIFFERENTIATE NEGLECT AND HEMIANOPIA. PRELIMINARY DATA ON HEALTHY SUBJECTS.

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Introduction. One of the most frequent deals in a rehabilitation take-in-charge is the patient's difficulty in exploring the surrounding space and neglect whatever encloses him. This phenomenon could be caused by an attentional deficit (i.e. visuo-spatial neglect) or by a reduction of visual field width (hemianopia); most of the time, this exploration impairment could be determined by an interactive effect between these two causes. Different neuro-anatomical substrates are well known in the distinction between neglect and hemianopia, nevertheless the performances of the patients still provide confounding results at the specific examinations. In particular it is not yet clear if the observation at the neuropsychological evaluation is a clear expression of neglect nor if the result at the visual-field exam is exclusively dependent by hemianopia. In the last twenty years only few studies tried to disantagle neglect from hemianopia and most of them were based on single case studies. Besides these contributions, scientific literature provides lot of results concerning an effective implicit processing of information for patients with neglect which is not present in patients with hemianopia. Since there is a wide agreement in an implicit information processing for patients with neglect, we hypothesize that a priming word in the neglected field should determine a semantic activation effect even when it is not consciously perceived by the patient; on the contrary if the priming word occurs in a blind hemifield should not determine any activation effect. The position of the priming words, in terms of visual degrees, could be put in relation with visual field examination and neuropsychological tests in order to specify the width of space in which patients are blind and the part in which they do not orient attention. The aim of this work is to develop a task which could be put in relation with the main used examination procedures and consequently provide a suggestion for the differential diagnosis process.

Materials and methods. For this study a semantic priming task was used. We conducted two experiments with two different prime durations (150 vs 300 ms). The experimental procedure consisted in a fixation point (+) which lasted in the center of the screen for 150 ms; after that a prime word occurred in six possible positions on the central horizontal line of the screen corresponding to three positions on the left and three on the right. For both experiments, prime was followed by a mask (dash string) and, after 150 ms blanc, by the target word. Target words may belong to living or nonliving category. Subjects were required to press the space-bar only when the target word belonged to a living category. Three different conditions were present: related (the same category for prime and target), unrelated (different category for prime and target) and neutral (instead of a prime word, an "x" string appeared). Twenty healthy subjects took part to the first experiment (prime at 150 ms) and 15 healthy subjects to the second (prime at 300 ms). Reaction times and accuracy were considered as dependent measures.

Results. We analized data by means of a repeated measure ANOVA with three dependent variables: prime (related, unrelated, neutral), position (six

different positions), and duration of prime (150 vs 300). In both experiments we observed a main effect of semantic relation (p <.05), and a main effect of position (p <.05) but specifically in the second one (prime at 300 ms) a semantic priming effect arose for all the positions of the prime (p =.001).

Conclusions. In this preliminary part of the study our aim was to find a task that could be inserted in the differential diagnostic procedure for neglect and hemianopia. Our experimental results seem to show significant semantic priming effect for different prime positions in healthy partecipants. All of them showed lower RTs in case of relation between prime and target for every position in which prime occurred. Moreover priming duration seems to affect significantly subjects' performance. These observations allowed the application of this procedure to patients with right brain lesion in order to obtain more functional information for specific rehabilitation trainings.

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THE "DASHBOARD CONTROL-PANEL" IN A CARE-INTENSIVE REHABILITATION MEDICINE UNIT: A CONTROL SYSTEM EXPERIENCE ON THE WORKING-LOAD DYNAMICS TO ASSIST FOR PLANNING ACTIVITY

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Introduction. Working-load (patient-load assistance and nursing) assessment at admission in a care-intensive neuromotor rehabilitation unit (IRU) is essential to provide for better care to patients with particular complexity. Resources are constantly necessary and their needs require validated evaluation instruments. More-less recently, some Authors, like those represented in the bibliography, elaborated rating scales for measuring functional recovery but also to evaluate the need or not of intensive rehabilitation care and nursing.

Materials and methods. *Setting*: Care-Intensive Neuromotor Rehabilitation Unit & Research center. *Design*: correlational prospective pilot study. Our study comprehend the elaboration of the so-call "dashboard control-panel" (DCP), that consisted not only in data related to number of patients, patient pathology, date of admittance, plan date of discharge but included other clinical indicators (or rating scales) like the physical burden of illness measured by the Cumulative Illness Rating Scale (CIRS; Illness Severity Index [SI] and Co-morbidity Index [CI])[(1),] the 10-Items Modified Barthel Index (BarthelM)[(2)], the Nursing Scale (clusters b and c)(Nursing), and the Complexity Rehabilitation Scale (RCS)[(3)]. An Excel sheet program was used for data collection and analysis. The DCP was weekly updated and give a synoptic resumè of the inpatients complexity and of the working-load. The average time to complete the DCP was 1 hour per week by a trained compiler (MD). Nurses update the Modified Barthel Index and nursing scale scores at admission and thenafter once a week. Linear regression elaboration was used for statistical analysis.

Results. The first 6 months of data collection was purposely eliminated in this study for learning curve reasons. Data presented here was collected from September 9, 2011 to March 9, 2012, and derived from a mean daily patient presence of 21,77±1,68. Our results were as follow: *BarthelM*: neurological patients (NP) 77,81±6,02 vs total patients (TP) 66,19±5,08; *CIRS severity*: NP 1,73±0,054 vs TP 1,63±0,058; *CIRS comorbidity*: NP 4,48±0,31 vs TP 3,90±0,37; *Nursing*: NP 61,62±6,07 vs TP 51,81±3,64; *RCS*: 8,20±0,64 vs TP 7,29±0,45). The trend month to month show an increase in the above mentioned variables for NP corresponded by a decrease in TP. These results showed that NP (stroke patients, brain injuries, multiple sclerosis, etc.) need major nursing assistance and more intensive rehabilitation care than others but the planning of the ward activity seems well compensated by an increase of other neuromotor disabilities patients at low Nursing, RCS, CIRS and BarthelM scores as the TP results demonstrate. The scores of each patient allowed an easy comparison between them independently from the cumulative load, which was calculated by the DCP. BarthelM Index scores in neurological patients demonstrated almost a statistic predictive efficacy (R^2 0,546; r 0,739; P* 0) following a descriptive trend, same for the CIRS severity (R^2 0,497; r 0,705) and the RCS (R^2 0,480; r 0,693).

Conclusions. In our experience, the DCP seems an important instrument to measure working-load dynamics in an IRU, helpful for planning related activities. The statistic predictive validity of the involved clinical indicators permit us to evaluate working-load trend weekly and conseguently organize new patient admissions. DCP can also be used to evaluate appropriateness of recovery and future studies may validate this tool as such. Our research group is comtemplating to correlate this and the follow-up data of this study with the burnout risk among staff-members data presented in a different study.

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EPIDEMIOLOGY DATA IN NEURO REHABILITATION AFTER STROKE, CP AND NEUROMUSCULAR DISEASES. IMPACT OF SPASTICITY AND DISABILITIES; A 5-YEAR EPIDEMIOLOGY OF A REFERENCE INPATIENT REHABILITATION CENTER IN SO

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Epidemiology data in Neuro Rehabilitation after Stroke, CP and neuromuscula disease. Impact of Spasticity and disabilities; a 5-year epidemiology of a reference inpatient rehabilitation center in South Italy.

Introduction. Disabilitant Severe Spasticity after a Stroke and Neuromuscular pathologies is a devastating event that may affect every aspect of an individual's life. CS may have ischemic and non-traumatic causes and its distribution varies with age and gender. We aim to describe epidemiological data about spasticity management after Stroke Rehab of patients admitted to an inpatient rehabilitation program in a Rehab Day hospital in a 5-year period.

Materials and methods. Database of codified medical records admitted to a rehabilitation center from 2007 to 2012, were reviewed. All patients with Stroke and Spasticity were enrolled (187). Variables included gender, age, etiology, level and severity of injury and reintegration settings.

Results. The mean age over that period was 47 years 04-77 years), with older patients in 2011 (mean age of 50 years; p<0.05). Male/ female ratio was3:1, but tends to reduce. The leading cause was ischemic stroke (66.3%), but there is a trend to decrease of trauma while nontraumaticcausessuch as congenital or neuromuscular disease significantly increased (2% in2007vs 10% 2011; p<0.05). Traumatic lesions were more frequent in man (72%; p<0.05) and neoplastic lesion were twice more common in women (p<0.05). The most frequent impairment was hemiparesis and paraparis but dystonia and cerebral palsy seems to be increasing.

Conclusions. The results of this study are in accordance with literature. Stroke is still the major cause of Spasticity in our sample, affecting mainly men. However our population is getting more feminine and older and so other causes of Spasticity are arising, for example neuromuscular disease and infantil pahologies. We could observe a trend to an increase of spasticity after cerebral surgery, neuro- degenerative pathologies and neuro-cerebral neoplastic causes with a decrease of cerebral palsy.

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INFLUENCE OF A SHORT PREOPERATIVE EXERCISE PROGRAM ON PATIENT'S OUTCOME AND LENGTH OF STAY AFTER HIP ARTHROPLASTY. DO WE NEED A DIFFERENT ORGANIZATIONAL MODEL?

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Introduction. The effectiveness of rehabilitation programs after hip replacement surgery is well accepted from literature, but there is controversial evidence about the efficacy of a preoperative education on patient's outcome after total hip arthroplasty.[1,] A reduction of hospital length-of-stay (LOS) is reported about those patients which underwent a preoperative rehabilitation program[2]. Patients undergoing hip arthroplasty constantly reduced their LOS in our Unit to actual average of two weeks, but experience in foreign countries shows the possibility of fast-track setups in order to achieve shorter LOS [3], thus saving resources of health systems. This study comes after preliminary data already presented and the aim was to test the efficacy of a two-weeks preoperative physiotherapy, in order to reduce patient's LOS and disability after hip total arthroplasty.

Materials and methods. For the preoperative rehabilitation a first group (G1) of 15 patients resident in the hospital geographical area were consecutively recruited among the candidates for hip replacement surgery. After hip replacement surgery, patients were started with a rehabilitation program, as inpatients in our Rehabilitation Unit. A control group of 15 subjects (G2) were recruited among the patients consecutively admitted to our Rehabilitation Unit after total hip replacement. At the beginning and at the end of the G1 group pre-operatory treatment, the following evaluations were performed: 1) Hip range of motion (ROM) and muscles strength 2) Pain assessment 3) Hip function 4) Transfer ability 5) Gait analysis 6) Walking speed, using a 30-meters walking test (30WT) 7) Overall disability, using Functional Independence Measure scale (FIM). On hospital admission after hip surgery, both groups of patients underwent the same assessments, with the exception of transfer ability test, Gait analysis and 30WT. At discharge from the hospital both groups of patients underwent the same assessments as at hospital admission plus transfer ability test, Gait analysis and 30WT.

Results. After preoperative program G1 patients showed a significant improvement of hip ROM and muscle strength. At discharge from the hospital, both groups of patients achieved a good recovery of hip ROM and muscle strength, with no significant differences. Pain assessment in both groups showed no significant difference on admission and discharge, so did the hip function and step width, while step length showed a statistically significant difference for G1 group. Walking speed was not statistically different at discharge between two groups. G1 group also showed a better performance in transfer time with statistically significant difference, while FIM score at discharge was not statistically different between the two groups of patients. G1 group showed a shorter LOS by 0.3 days, without significant difference compared to G2 group.

Conclusions. The administration of a short-term physiotherapy treatment before hip arthroplasty is feasible with few organizational effort, but it requires resources and it presents a substantial lack of effectiveness in patient's reduction of impairment when compared to patients which did not undergo the preoperative treatment. Our results confirm literature data, while it was not confirmed an influence of a preoperative exercise program in reducing patient's LOS after total hip arthroplasty, pointing to the need for a different organizational model for this rehabilitation path (i.e. treatment as outpatient), saving resources of National Health System.

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PROGETTO "GUADAGNA SALUTE": PROGRAMMA DI PREVENZIONE DEL DOLORE ALLA COLONNA VERTEBRALE IN ETÀ SCOLARE

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Introduzione. La Fondazione Don Carlo Gnocchi si è sempre proposta nel territorio sia come presidio riabilitativo che come agenzia educativa. In quest'ultimo decennio, in particolare dal 2004, il GLS (Gruppo Lavoro Scoliosi) del Centro S. Maria della Pace, Fondazione Don Gnocchi di Roma, ha rivolto l'attenzione alla prevenzione ed all'educazione alla salute, in particolare quella della colonna vertebrale, all'interno della Scuola primaria, secondaria di I e II grado. Il progetto "Guadagna Salute: educazione alla salute e igiene della colonna vertebrale" è nato dall'esigenza di proteggere le nuove generazioni da comportamenti e stili di vita potenzialmente dannosi per la salute, con obiettivi formativi ed informativi per gli alunni, le famiglie, il corpo docente. Nel corso degli anni sono stati informati e formati circa 5000 alunni e 450 insegnanti delle Scuole di Roma e della provincia di Avellino.

Materiali e metodi. Il progetto ha previsto quattro aree tematiche con attività correlate: Educazione alla salute in classe (LABORATORI). Formazione del personale insegnante certificata (CeFOS). Coinvolgimento e formazione delle famiglie. Ricerca e valutazione sulla presenza dei fattori di rischio nella scuola. La durata complessiva del Progetto è stata di sei mesi, comprendendo due incontri con gli insegnanti di due ore ciascuno, un ora e mezza di laboratorio per ogni classe coinvolta, un incontro di due ore con i familiari. I bambini dopo il laboratorio erano in grado di valutare la corretta posizione della sedia e del banco, la corretta postura sulla sedia e sul banco; come caricare, indossare e trasportare lo zainetto. Sono stati inoltre introdotti parole e concetti nuovi come postura ed ergonomia, assieme ad alcune finalità educative più generali: L'educazione alla salute dipende anche dai comportamenti dei singoli. La salute ed il benessere non si ottengono solo nelle palestre o con l'attività sportiva ma anche con comportamenti responsabili. Molto del lavoro di supporto e di rinforzo successivo ai laboratori è stato affidato ad una brochure da utilizzare con diverse modalità:

- interattiva negli incontri con gli operatori della Fondazione.
- differita per attività interdisciplinari proposte dall'insegnante.
- autonoma da parte degli studenti anche in famiglia.

Risultati. L'efficacia della nostra azione educativa è stata valutata, grazie all'aiuto del corpo insegnante, al quale era stata affidata la fase di verifica degli apprendimenti e dell'impatto dell'attività mediante un questionario di verifica. I risultati estremamente positivi di tali verifiche (75% delle risposte corrette al questionario di verifica) ci hanno spinto ad una traduzione multilingue di questa brochure al fine di promuovere l'educazione alla salute della colonna vertebrale sia in ambito europeo che nei Paesi dell'Area Mediterranea.

Conclusioni. Questo studio ha mostrato l'efficacia di un programma di educazione alla salute in una vasta popolazione di soggetti in età scolare.

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DOLORE ALLA COLONNA VERTEBRALE IN ETÀ ADOLESCENZIALE

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Introduzione. La prevalenza del dolore lombare (Low Back Pain, LBP) negli adolescenti è estremamente variabile e va dal 7% (Leboeuf-Yde C, 1998) al 50.8% (Korovessis P, 2004). Egualmente variabile è la prevalenza di dolore al collo, alla colonna dorsale e alle spalle. In particolare, la prevalenza di dolore al collo va dal 3% (Balague F *et al.*, 1988) all'8% (Hakala P, 2002), la prevalenza alla colonna dorsale va dal 9,5% (Balague F, 1988) al 72% (Korovessis P, 2004). Studi longitudinali hanno inoltre dimostrato che il LBP in età scolare è significativamente associato a LBP in età adulta (Harreby MS, 1997). Numerosi ricercatori si sono occupati di questa patologia e gli studi pubblicati hanno permesso di identificare i fattori di rischio del LBP in età scolare. Tra questi vanno certamente considerati i fattori antropometrici, lo stile di vita, i carichi (es. lo zainetto), i fattori psicologici, sociali e comportamentali (Neuschwander TB, 2010; Kaspiris A, 2010; Astfalck RG, 2010). Uno studio, eseguito nel 2010, dalla Fondazione Don Gnocchi di Roma su 2358 bambini e preadolescenti ha mostrato che: a) le femmine manifestano più dolore rispetti ai maschi durante l'uso dello zainetto, questa differenza di dolore tra maschi e femmine è maggiore nei preadolescenti ($p<0.0000$) rispetto ai bambini ($p<0.003$); b) nei maschi il dolore durante l'uso dello zainetto in età < 10 aa non è significativamente differente rispetto al dolore presente in età > 10 aa mentre nelle femmine la differenza di dolore in rapporto all'età è altamente significativa; c) il dolore, sia nei bambini che nei preadolescenti, si presenta più nel trasporto dello zaino che durante l'attività sportiva, a casa e a scuola. L'obiettivo del presente studio era esplorare il tipo di dolore (nocicettivo/neuropatico) nella rachialgia in una vasta popolazione di adolescenti, mediante scale specifiche.

Materiali e metodi. Abbiamo valutato il dolore con le seguenti scale: la Numeric Rating Scale (NRS), scala di severità del dolore con un valore che va da 0 (assenza di dolore) a 10 (massimo dolore) e l'ID-Pain, scala in grado di identificare la probabilità di dolore neuropatico, con valori da -1 a 5, in particolare valori -1 o 0 indicano dolore non neuropatico, valore 1 indica possibile dolore neuropatico, valore 2-3 indica probabile dolore neuropatico e valori 4-5 indicano dolore neuropatico altamente probabile.

Risultati. Abbiamo reclutato 806 adolescenti di età compresa tra i 14 ed i 19 aa. La severità del dolore (misurata con l'NRS) è significativamente maggiore (p<0.000) nelle femmine. Il dolore è maggiore nei soggetti che vanno a scuola a piedi-macchina/bus rispetto a quelli che usano solo la macchina/bus (p<0.000). Chi pratica sport amatoriale ha più dolore di chi pratica sport agonistico (p<0.01). Come aspettato, il valore di NRS è significativamente più alto (p<0.0000) in chi ha spesso dolore (a casa, a scuola, nello sport e nel trasporto zaino) rispetto a che non ha dolore. Il valore di NRS è significativamente più alto (p<0.000) in chi prende farmaci e /o si rivolge al medico rispetto a chi non lo fa. Per quanto riguarda il tipo di dolore (misurato con l'ID-Pain) il 23,4% ha un dolore neuropatico probabile o altamente probabile.

Conclusioni. Questo studio ha mostrato la prevalenza di dolore al rachide nelle femmine anche in età adolescenziale; la differenza di dolore tra chi pratica sport amatoriale e chi agonismo (dato interessante per capire risultati contrastanti, presenti in letteratura sull'impatto dello sport nella rachialgia) ed in ultimo, lo studio ha permesso, per la prima volta, di caratterizzare la prevalenza di dolore neuropatico sul più ovvio dolore nocicettivo negli adolescenti con rachialgia.

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OUTCOME IN PROLONGED ANOXIC VEGETATIVE STATE: A PROGNOSTIC STUDY IN REHABILITATION SETTING

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Introduction. The number of patients in prolonged Post-Anoxic Vegetative State (A-VS) is progressively increasing. As a consequence, social, economic and ethical impact of long-term management and treatment of VS patients are rising as well. However, while several studies tried to identify predictors of outcome in post-anoxic comatose patients (most often within one week post-onset), limited information is available about prognostic markers of long-term outcome in patients who remain in VS longer than one month post-onset. As a result, neurorehabilitation teams have no means to plan the most appropriate level of care, particularly when information about the acute phase is lacking. The present two-year prospective clinical study aimed to identify prognostic markers recorded in the rehabilitative phase that can help clinicians to optimize management of post-anoxic VS patients.

Materials and methods. *Subjects:* Forty-three inpatients with prolonged (1 to 6 months) anoxic VS (23 females; age range: 12-83 years) admitted in the Rehabilitation Unit for Disorders of Consciousness of Salvatore Maugeri Foundation, Telese Terme (BN). *Variables definition:* Anamnestic information, clinical variables, level of responsivity (assessed on Coma Recovery Scale-Revised, CRS-R), level of disability (measured by Disability Rating Scale, DRS) and neurophysiological examination (SEP and EEG) were collected at study entry. *Outcome definition.* Patients were followed-up until 24 months after onset; at the study endpoint patients were classified as responsive (conscious and minimally conscious state) or unresponsive (chronic VS or death in VS) on the basis of clinical criteria and on CRS-R. Functional disability was assessed by means of DRS score.

Results. Nine patients recovered responsiveness with severe disability, whereas 12 patients remained in VS and 22 died in VS. Responsive patients were significantly younger, showed higher CRS-R total score and lower DRS score at study entry; all of them had spared pupillary light reflex and nociceptive response, and parossistic sympathetic activity. Logistic regression analysis showed that presence of SEP and CRS-R total score^3 6 were significant predictors of recovery of responsiveness.

Conclusions. The present study demonstrated that clinical and instrumental markers collected in the rehabilitation setting can provide useful, easily available, information to predict long-term outcome and to determine the appropriate level of rehabilitation program in prolonged post-anoxic VS patients.

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ORTESI DINAMICA PER IL TRATTAMENTO DEL TOE WALKING

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Introduction. La deambulazione in punta di piedi, nota anche con il nome di toe walking, è una variabile comune dei bambini in fase di apprendimento del passo. La maggior parte di essi supera lo schema di deambulazione in punta dopo i primi 2 anni di vita, altri, invece, mantengono questa tendenza anche dopo la maturazione motoria, divenendo, così, caratteristica abitudinaria del loro modo di camminare. L'attuale incertezza sulle cause che determinano questo anomalo pattern deambulatorio determina uno stimolo per la ricerca multisettoriale, con proposte di classificazione delle varie forme di toe walking idiopatico, inquadramento clinico di ciascuna forma e possibili scenari di trattamento. Oltre l'opzione chirurgica in casi di ROM tibio-tarsico gravemente deficitario, il trattamento incruento del toe walking idiopatico prevede l'utilizzo di gessi seriali per il segmento gamba piede con l'articolazione tibio-tarsica portata in posizione neutra (90°), l'applicazione di ortesi gamba-piede (AFO) rigide alla tibio-tarsica con un angolo di caviglia neutro (90°), l'inoculo di tossina botulinica e l'attività fisioterapica volta allo stretching muscolare del gruppo plantaflessorio. Scarsa chiarezza in letteratura sull'epoca di inizio e sulla durata del trattamento. Il presente lavoro si propone di descrivere lo sviluppo di un'innovativa ortesi dinamica per il trattamento conservativo del toe walking idiopatico, in epoca precoce.

Materials and methods. Questa ortesi dinamica è costituita da tre elementi imprescindibili:

– ortesi plantare in materiale depressibile con stimoli propriocettivi posti nella porzione avampodalica;

– lamina in fibra di carbonio sagomata come una molla dalle caratteristiche dinamiche calibrabili in funzione delle esigenze, inserita fissa o mobile al di sotto del plantare o all'interno del fondo della calzatura;

– calzatura opportunamente accollata e con un'allacciatura prossimale posta in corrispondenza del versante dorsale della rima articolare della caviglia;

L'ortesi è configurata in modo da agire come una lamina a molla in grado di esercitare, a fronte di un carico avampodalico, una forza di richiamo verso il basso a livello della regione retropodalica con conseguente espressione di un momento di flessione dorsale sulla tibio-tarsica contrastando la flessione plantare tipica del soggetto toe walker. L'ortesi è stata sperimentata su un gruppo di 20 soggetti di età compresa tra 4 e 12 anni, senza compromissioni di natura neurologica. Parallelamente sono stati condotti test di laboratorio volti a valutare l'entità delle forze esplicate dall'ortesi sul segmento podalico andando a confrontare i valori ottenuti con quelli ricavati dal modello matematico sviluppato a margine.

Results. La sperimentazione condotta finora ha consentito di:

– creare un modello matematico che descrive l'azione biomeccanica dell'ortesi;

– individuare le tipologie di materiali più opportuni per la costruzione dell'ortesi;

– ottimizzare la morfologia dell'ortesi in funzione dei risultati clinici ottenuti;

Conclusions. Lo studio e l'analisi dei dati raccolti mostrano incoraggianti prospettive di trattamento ortesico minimamente invasivo.

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INIZIALE STUDIO OSSERVAZIONALE SU PERSONE AFFETTE DA SLA IN CALABRIA

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Introduction. La Sclerosi Laterale Amiotrofica è una malattia neurodegenerativa con incidenza annuale da 2 a 4 casi per 100.000 abitanti, lieve prevalenza nel sesso maschile (1,2-1,3:1), ed età media di insorgenza nella sesta decade senza differenze significative tra i due sessi. Il tasso di prevalenza in Italia è di 6-8 ogni 100.000 abitanti. La durata media di sopravvivenza è di 4-5 anni nel 50% dei casi, e solo nel 15% dei casi è uguale o superiore ai 10 anni. Fattori prognostici favorevoli sono: l' esordio in età inferiore a 50 anni, la forma spinale, la più tardiva compromissione respiratoria e l'assistenza da parte dei centri specializzati per la malattia (1, 2, 3, 6). Il centro Clinico "San Vitaliano" di Catanzaro nasce nel Gennaio 2011 come Struttura Riabilitativa di tipo Estensiva con 35 posti letto di cui 20 dedicati alle persone affette da disabilità completa causata da gravi patologie neurodegenerative. Nell' ambito di tali patologie rientrano i ricoveri delle persone affette da SLA. Obiettivo del nostro lavoro è quello di elaborare i dati epidemiologici e clinici relativi alle persone affette da SLA afferenti al centro Clinico "San Vitaliano" di Catanzaro in regime di ricovero tra Gennaio 2011 e Luglio 2012.

Materials and methods. Sono stati analizzati i dati relativi all'età media di insorgenza e alla durata media di malattia, alla percentuale di decessi sul numero totale di ricoverati, alla presenza di disturbi respiratori e di eventuale supporto ventilatorio, alla presenza di gastrotomia percutanea. Si è proceduto inoltre ad esaminare le raccolte anamnestiche al fine di evidenziare eventuali fattori di rischio e patologie concomitanti.

Results. Sono state arruolate 30 persone (12 femmine e 18 maschi), rappoto uomini/donne 1,5:1. I pazienti erano tutti nati e residenti in Calabria. Il 60 % delle persone afferenti in struttura con diagnosi di SLA era residente in una località costiera calabrese. L'età media di insorgenza dei pazienti è di 55 anni (età media donne 54 anni; età media uomini 56 anni). Dei 30 pazienti afferenti in struttura 8 sono deceduti nel corso del biennio 2011/2012, di questi il 75% non aveva supporto respiratorio nè PEG. La durata media di malattia per gli altri 22 pazienti è di 3,4 anni. Undici pazienti sono tracheostomizzati e con adeguato supporto ventilatorio, nove sono portatori di gastrotomia percutanea (4, 5). Analizzando le professioni dei pazienti prima della diagnosi di malattia si evidenzia un pugile professionista, due medici, due falegnami, due operai, due insegnanti, due braccianti agricoli, tre autisti, quattro muratori, cinque casalinghe. Patologie concomitanti: 2 con pregresso IMA, 4 persone con DM tipo II, 7 con IA, 4 persone hanno in anamnesi un intervento di erniectomia, mentre 2 pazienti riferivano un trauma cranico importante precedentemente all'insorgenza della SLA, 3 soffrivano di disturbi del comportamento (7, 8, 9).

Conclusions. Dall'analisi dei dati riportati emerge che nella nostra casistica risulta più bassa l'età media di insorgenza, mentre concordano con la prevalenza del sesso maschile (rapporto di 1,5:1). Per quanto riguarda la durata media della malattia dei pazienti decuduti è di 3,1 anni. Un dato che è emerso alla nostra osservazione è la provenienza del 60% dei pazienti da zone costiere. Il 13% dei pazienti avevano subito un intervento di erniectomia prima della diagnosi di SLA e nel 6,6% si evidenziava un trauma cranico pregresso.

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THE EFFECTS OF BALNEOPHYSICAL THERAPY TO MOBILITY OF THE HIP, MUSCLE STRENGTH AND INTENSITY OF PAIN IN PATIENTS WITH COXARTHROSIS

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Introduction. The aim of this study is to estimate the influence of the balneophysical therapy to mobility of the hip, muscle strength of the hip and intensity of pain in patients with coxarthrosis.

Materials and methods. Fifty-five patients with coxarthrosis, who fulfilled ACR criteria for hip osteoarthritis, were involved, during stationary rehabilitation at the Rehabilitation Department of the Institute Niška Banja. Duration of the rehabilitation was 14 days, the patients were treated by hydrotherapy (oligomineral, homeotheric, low radioactive water) 20 minutes a day, mineral peloid therapy in the form of a packaging and kinesiotherapy as well. The average age was 69.69± 6.31 years, and the average duration of the disease was 8.8±5.6 years. Before and after rehabilitation, the patients filled scale of pain, which is presented by VAS scale 0-100 mm. In all patients, hip mobility was measured by the estimation of the hip flection with outstretched knee, hip flection with bent knee, hip extension, hip abduction and hip external and internal rotation. Muscle strength was measured by MMT (manual muscle test).

Results. Our results show significant improvement of mobility of the hip, strengthening of muscle and reduction of pain in patients with coxarthrosis. The average value of the hip flection with outstretched knee before the therapy was 49.32±18.25º, and 62.16±18.121º, after balneophysical therapy with statistically significant p<0.0005. The average value of the hip flection with bent knee before the therapy was 75.47±13.40º, and 86.56±14.07º after balneophysical therapy with statistically significant p<0.0005. The average value of the hip extension before the therapy was 4.20±3.40º, and 7.05±3.94º after balneophysical therapy with statistically significant p<0.0005. The average value of the hip abduction before the therapy was 7.27±4.76º, and 11.93±5.31º, after balneophysical therapy with statistically significant p<0.0005. The average value of the hip external rotation before the therapy was 9.89±5.65º and 15.00±6.73º after balneophysical therapy with statistically significant p<0.0005. The average value of the hip internal rotation before the therapy was 9.55±6.08º and 13.18±6.91ºafter balneophysical therapy with statistically significant p<0.0005. Muscle strength of the hip assessed by manual muscle test show significant improvement: for muscles abductors with p=0.0005, for muscles internal rotation p =0.0008, for muscle iliopsoas p=0.06 and for muscle gluteus maximus p=0.005. The average value of the VAS scale before the therapy was 66.64±12.70 and 42.73±11.16 after balneophysical therapy with statistically significant p<0.0005.

Conclusion. Balneophysical therapy has significant and positive effects in the improvement of mobility of the hip, strengthening hip muscle and reduction of pain in the patients with coxarthrosis.

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LA SINDROME DELLO STRETTO TORACICO SUPERIOIRE: CASE REPORT

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Introduction. La sindrome dello stretto toracico superiore (TOS - Thoracic Outlet Syndrome) comprende una serie di alterazioni dovute alla compressione, intermittente e posizionale, del plesso brachiale, dell'arteria e/o della vena sottoclavicolare nella zona dell'egresso toracico. L'etiopatogenesi può essere ri-

conducibile alla presenza di una costa cervicale, ad una postura scorretta, ad un trauma al nervo accessorio (biopsia di un linfonodo cervicale), ad una frattura della clavicola, a lesioni vascolari primarie, a tumori (Sindrome di Pancoast), ad un colpo di frusta, ad insufficiente apporto di Vitamine del gruppo B, Vitamina C e folati; la sintomatologia è caratterizzata da segni neurologici, venosi e/o arteriosi.

Materials and methods. Nel Settembre 2011 giungeva presso la nostra U.O.C. di Riabilitazione dell'A.O.U.P. "P. Giaccone" di Palermo, la sig.ra R. L. di 23 anni, lamentando perdita di forza e parestesie all'arto superiore sinistro; dopo un'accurata anamnesi e un attento esame obiettivo, sono stati somministrati i test specifici provocativi della Sindrome dello Stretto Toracico: Test di Allen, Test di Wright e la Manovra di Adson. Si è prescritta una radiografia della colonna in toto in 2p, che ha evidenziato un'importante scoliosi dorsolombare ad "esse italica" con un Angolo di Cobb di 47°. Infine è stato richiesto alla paziente di effettuare un esame spirometrico, per la valutazione dei volumi respiratori e della compliance toraco-polmonare, che ha messo in evidenza una sindrome restrittiva. Si è impostato un progetto riabilitativo mirato alla presa di coscienza del movimento respiratorio, con allungamento della fase espiratoria, al rinforzo isometrico dei muscoli del rachide cervicale, dei muscoli dello stretto toracico superiore e al miglioramento della tenuta del cingolo scapoloomerale. Il programma prevedeva rieducazione posturale, rieducazione funzionale del cingolo scapolo-omerale, ginnastica respiratoria e laserterapia in sede cervicale a cadenza giornaliera per 20 sedute e successivamente tre volte la settimana per ulteriori 2 cicli. È stata iniziata inoltre una terapia farmacologica, consistente in Acetil-carnitina 500 mg da assumere per 45 giorni. La valutazione della paziente veniva fatta alla visita basale (T0), dopo le prime 20 sedute (T1), al termine del trattamento riabilitativo (T2) e a distanza di 3 mesi dalla fine della terapia (T3).

Results. A T1 si è rilevato un discreto miglioramento della sintomatologia neurologica riferita dalla paziente e dei test provocativi della TOS; a T2, oltre alla scomparsa delle parestesie e dell'ipostenia, si è registrato un significativo miglioramento alle valutazioni specifiche e un discreto incremento dell'espirazione massimale forzata. A T3 si è evidenziato il mantenimento ottimale dei risultati ottenuti.

Conclusions. La nostra esperienza conferma la validità della terapia fisica, della rieducazione funzionale distrettuale e degli esercizi respiratori nella TOS, associati al trattamento farmacologico con neurotrofici. Il nostro protocollo riabilitativo ha consentito un ripristino delle ADL, una migliore tolleranza allo sforzo e di conseguenza una migliore qualità di vita.

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APPLICATION OF ROBOTICS IN DAILY CLINICAL PRACTICE

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Introduction. The use of robotic devices is daily practice in our center for neurological rehabilitation. By the treatment of more than 700 patients in more than 16'500 therapy sessions in our robot-assisted movement center in the last 6 years some guidelines for the clinical application of robotics were established.

Materials and methods. Clinical observation.

Results. A specialized team and the integration into a comprehensive neuro-rehabilitation concept are essential in the application of robotics. The training must be always task- and goal-oriented and start as early as possible. Robotic devices do not replace therapists. Information provided from the robotic devices must be interpreted and implemented in the therapy.

Conclusions. Robotic devices as an integral part of multidisciplinary therapies give an additional benefit for the patient and offer further promising ways for the motor rehabilitation.

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END-EFFECTOR TRAINING FOR UPPER LIMB REHABILITATION IN STROKE PATIENTS

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Introduction. During the last decades, in the rehabilitation field, a number of computerized and robotic devices were introduced with the main aim of improving efficacy and effectiveness of rehabilitation therapy (1). The aim of this study was to evaluate, in a randomized control trial design, the effects of a rehabilitation motor program for the upper limb recovery performed by means of an end-effector device in stroke patients.

Materials and methods. The study enrolled 16 patients randomized in a Study Group (2 F, 6 M) (mean age 58.7± 7.1 yrs) and a Control Group (3 F, 5 M) (mean age 61± 11.2 yrs). All the patients were diagnosed with a first-ever stroke occurred within 4-weeks. Other inclusion criteria were: a) trunk control (Sitting Balance score ≥ 2); b) upper limb paresis ≥ 3/5 Medical Research Coucil (MRC) (shoulder-upper arm) while ≥ 2/5 MRC (wrist-hand). Exclusion criteria were: a) clinical or functional contraindication to intensive treatment; b) upper limb pain (≥ 4/10 Visual Analogue Scale, VAS); c) spasticity (≥ 2 Modified Ashworth scale); d) decubitus or pressure sores on the wrist or hand; e) visual neglect. The rehabilitation program was conducted for 60 minutes/day, six days/week. Additional therapy included 30 min of Armeo®Spring training (10 sessions) in which the patients executed a series of functional games, while the Control Group performed 30 min of conventional upper limb rehabilitation therapy. Fugl-Meyer and FIM scale were used for functional and clinical evaluation. Before and after the rehabilitation training, all the subjects underwent a functional kinematic evaluation of the affected arm by means of Armeo®Spring and a 12 infrared TVCs system (BTS Smart DX5000, BTS Bioengineering, Italy). The evaluating session was based on two different motor tasks which every patients were naïve of, presented with the following series: 1. executing the maximum range of arm flexion-extension and abduction-adduction; 2. a "gaming exercise" based on a reaching motor task. The following indexes were calculated as motor performance parameters: a) the 2D Max Range Movement (maximum range of abduction-addunction and vertical flexion-extension); b) Jerk index (2); c) mean and maximum speed of reaching movements. Repeated measure ANOVA was used to analyze statistical differences of the mean values of motor performance indexes between Armeo and Control group.

Results. Clinical scales result showed no statistical differences between the two groups before and after the rehabilitation treatment, while significant differences were found, for both groups, between pre-post rehabilitation treatment ($p<0.05$). The post treatment instrumental analysis revealed a statistically significant difference, between Groups, for jerk index, mean and max movements' speed ($p<0.05$).

Conclusions. This study showed that stroke patients took advantage from the rehabilitation intervention for the upper limb recovery using Armeo®Spring system. However, where clinical scales data evidenced no statistical differences between traditional rehabilitation and Armeo training, the motor performace indexes revealed a most effective recovery in the Armeo Group. Further studies are needed to confirm these preliminary data in wider samples.

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URINARY DISORDERS REHABILITATION TREATMENT IN PWMS: EVIDENCES FROM A RANDOMIZED CLINICAL-CONTROLLED TRIAL

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Introduction. Over 80% of Multiple Sclerosis patients (PwMS) refer symptoms of lower urinary dysfunction during the disease course. Different studies show some positive effects of rehabilitation in neurological diseases but they usually involved a small number of PwMS. Studies about urinary rehabilitation in MS are few and show benefits in incontinence, nicturia and function of pelvic floor muscles (PFM) but no in urinary retention. Here, a randomized controlled trial study was designed in order to evaluate the effectiveness of the rehabilitation treatment in MS patients with urinary disorders. This study is part of a major project (Strategic Program, Ministry of Health) that will involve 160 MS patients.

Materials and methods. 160 MS patients with urinary symptoms will be recruited, consecutively visited by physicians in two AISM Rehabilitation Centres and randomly assigned to Experimental group (EG), submitted to the rehabilitation treatment, or to control group (CT), assigned to the waiting list. Exclusion criteria: relapses within 3 months before recruitment, indwelling catheter, upper urinary tract diseases, EDSS ≥ 8,5. Demographic and clinical data will be recorded at T0. Both groups will be assessed with outcome measures at T0 (treatment or waiting list start) and after 2 months (T1, end of treatment or waiting list), including PVR, functional pelvic floor muscles evaluation (strength, tone, coordination), surface EMG evaluation, 5 day bladder diary for frequency, incontinence, urgency and nocturia, VAS, Qualiveen Scale, UDI; Incontinence Impact IIQ, Wagner, NQOL, ICIQ, OAB. Rehabilitation protocol include one hour/24 sessions, 3 times a week. The goal oriented treatment, based on instrumental investigation and on pelvic floor muscles (PFM) evaluation, include: IVES for detrusor hypoactivity; PTNS for detrusor hyperactivity; EMG biofeedback and physiotherapy for PFM spasticity; FES, physiotherapy and EMG biofeedback for PFM hypostenia; physiotherapy and EMG biofeedback for incoordination of PFM, intermittent catheterization for bladder retention.

Results. Until now, 25 patients completed the study (21 female and 4 male) with mean age of 53,96 years (SD±10,8), mean disease onset 14,88 years (SD±8,78), mean EDSS 4,84 (SD± 1,57). 44% had retention (PVR>100ml), 84% referred incontinence and urgency, 68% referred frequency and 60% nocturia. 12 patients were assigned to EG and 13 were assigned to EG but due to 2 drop outs in this group 11 subjects completed the study. Statistical analysis showed statistical significant differences only for EG between T0 and T1 and in particular for: VAS, UDI, Puco-Coccygeal Grading Tests for muscle strength, resistance and endurance, PVR and EMG ($p < 0,05$).

Conclusions. The overall results showed that urinary disorders rehabilitation is effective in ameliorating both clinical and instrumental parameters in PwMS both in incontinence and retention.

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UTILIZZO OFF LEBEL DELLA TOSSINA BOTULINICA NEL TRATTAMENTO DELLA SCIALORREA

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Introduction. La scialorrea, ovvero l'incontinenza orale di saliva quantitativamente e qualitativamente normale con scolo anteriore o posteriore, rientra tra le possibili patologie target della tossina botulinica tramite un effetto sul sistema nervoso autonomo per inibizione presinaptica del rilascio di acetilcolina a livello delle ghiandole salivari deprimendone la capacità secretoria parasimpatico-dipendente. Il trattamento con tossina botulinica tipo A in Italia è autorizzato per le indicazioni di spasmi, distonie, spasticità e Botox ® è autorizzato anche per il trattamento delle ghiandole sudoripare in caso di iperidrosi primaria persistente. Numerosi studi supportano la possibilità di trattare la scialorrea mediante l'uso della tossina botulinica tipo A iniettata a livello delle ghiandole salivari (paratiroidi e sotto mandibolari), meglio se sotto guida ecografica. La nostra attività riabilitativa in regime di day hospital e di ricovero ordinario prevede casi di disabilità complessa neurocardiorespiratoria spesso originata da patologie, quali la SLA e le GCLA, con frequenti problematiche disfagiche gravi, tali da non consentire la gestione salivare, ed attualmente i farmaci disponibili per tale disturbo sono pochi e comunque poco efficaci.

Materials and methods. Lo studio è iniziato il 07/02/2012. Al momento sono stati trattati 5 soggetti, tutti maschi, con età media di 55.4 anni. Sono pazienti affetti da grave disfagia con livello 1 alla scala DOSS (Dysphagia Outcome and Severity Scale), 3 dei quali con associata insufficienza respiratoria con necessità di supporto VMI 24 H e 2 con utilizzo della NIMV 2 ore/die per reclutamento alveolare. 3 soggetti sono affetti da SLA, 1 da atrofia multisistemica e 1 da sclerosi multipla. L'inquadramento pre e post trattamento si basa sulla compilazione di una scheda di valutazione comprendente la VAS, la Drooling Severity and Frequency Scale e la stima del numero di oroaspirazioni e delle eventuali tracheoaspirazioni giornaliere, nei soggetti portatori di cannula tracheostomica. La rivalutazione è stata effettuata a 55-80 giorni dall'inoculo. Il farmaco inizialmente prescelto è Botox ® per ragioni di farmacoeconomia, per ragioni farmacocinetiche di minor rischio di diffusione, per indicazione in scheda tecnica all'inoculo delle ghiandole sudoripare in caso di iperidrosi, per maggior supporto bibliografico e per ragioni di risk management nella diluizione di un unico tipo di BTX-A. La tecnica di inoculo è quella per via transcutanea sotto controllo ecografico con la collaborazione di un radiologo esperto. Il dosaggio è 100 U.I. di BTX A (1 flacone di Botox ®) diluite in 2 ml di soluzione fisiologica, da dividere in 50 U.I. per lato, ovvero, 1 ml in siringa da 1 ml con ago 22 G da distribuire 0.3 + 0.3 ml in 2 siti della ghiandola parotide e 0.4 ml in 1 sito della ghiandola sottomandibolare per lato.

Results. Il valore VAS passa da 6,4 ± 3 a 3,4 ± 2,3 (p 0.014). Il valore Drooling Severity passa da 4,2 ± 0,8 a 1,6 ± 1,5 (p 0.019). Il valore Drooling Frequency passa da 3,2 ± 0,8 a 1.4 ± 0 (p 0.009). Il numero di oroaspirazioni medio giornaliero passa da 17 ±9,7 a 9 ± 4,1 (p 0.078). Il numero di tracheoaspirazioni medio giornaliero nei soggetti con tracheostomia passa da 10 ± 8 a 6.6 ± 4 (p 0.422). Lo studio è tuttora in corso, ma ad una analisi statistica preliminare emerge la significatività nella variazione della maggior parte dei valori rilevati.

Conclusions. L'inoculo di tossina botulinica nelle ghiandole salivari per la gestione delle secrezioni salivari sembra essere una valida arma nelle mani del riabilitatore di patologie gravi e complesse.

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CORRELATION OF URETHRAL PRESSURE PROFILOMETRY MEASURES TO CLINICAL MEASURES OF INCONTINENCE SEVERITY (PAD TEST AND VAS) AND PELVIC FLOOR MUSCLE PERFORMANCES IN WOMEN WITH URINARY INCONTINENCE

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Introduction. The primary objective of this study was to correlate measures of urethral pressure profilometry to subjective variables of severity of urinary loss (VAS), pad test and pelvic floor muscle performances in women with urinary incontinence (UI). Another objective was to find any possible correlation among demographic measures, clinical characteristics and pelvic muscle contraction performances.

Materials and methods. A total of 117 female patients with UI without neurological disease were recruited into the study and was stratified in 3 groups: stress incontinence, urge incontinence, mixed incontinence. Women underwent a multichannel urodynamic evaluation, including urethral testing: urethral pressure profilometry (UPP) at rest; pelvic muscle contractions at maximum urethral closure pressure; UPP with 3 to 5 successive coughs (transmission test). Participants were then asked to conduct a pad test (according to the ICS modified protocol) and to grade the severity of their urinary loss using a visual analogue scale (VAS) of 0–10. A clinical evaluation of pelvic floor including pubo-coccygeous strength assessment (grading from 0 to 3) was performed too.

Results. The mean age of patients was 57.63 years (28-80). Urgency urinary incontinence (UUI) was reported in 14 (12%), stress urinary incontinence (SUI) in 62 (53%) and mixed urinary incontinence (MUI) in 41 (35%). The detrusor overactivity (DO) was recorded in 29 patients (25%). There was a significant correlation (ANOVA p=0.0281; Kruskal-Wallis p=0.038) between profilometry measures of voluntary sphincter contractions and pubo-coccygeous strength assessment. Maximum urethral closure pressure (MUCP) is negatively associated with pad test (Spearman cor-

relation p=0.010) and positively with profilometry measures of voluntary sphincter contractions (Spearman correlation p=0.02). VAS was clearly related with the type of incontinence (ANOVA p=0.019; Tukey's HSD p= 0.015; Kruskal-Wallis p=0.010) and was higher in women with MUI and tended to be lower in women with UUI and SUI. Other than a negative correlation between pelvic floor muscle strength and VAS (Kruskal-Wallis p=0.020; Spearman correlation p=0.005) there were no significant correlations between perineal performances and baseline demographic or clinical characteristics.

Conclusions. This study demonstrated that the ability to perform an adequate pelvic muscle contraction is significantly correlated with profilometry measures of voluntary sphincter contractions and VAS but is independent of subject age, parity, hormonal or hysterectomy status and other urethral profilometry measures. When the patients were stratified by type of incontinence (stress, urgency, mixed), VAS was a more accurate indicator of severity of incontinence than urethral profilometry measures and digital test parameter. Presence of a significant correlation between the parameters of urethral profilometry and perineal performances emphasizes the important sphincteric role played by the pubo-coccygeous and therefore its essential consideration in the treatment of female UI. From a rehabilitation of view a good relationship between the pubo-coccygeous strength assessment and urodynamic testing, is also an expression of the possibility of relying on this profilometric data to predict the therapeutic outcome.

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LA LEUCOARAIOSI NELL'ANZIANO ULTRAOTTANTENNE AMBULATORIALE. UNA DISABILITÀ NASCOSTA

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Introduction. Leucoaraiosi (LA) è un'alterazione della sostanza bianca encefalica visibile con la risonanza magnetica in forma di lesioni iperintense a forma di cappucci o di sottili strisce o di aloni lisci circondanti i ventricoli oppure di lesioni sottocorticali multiple puntiformi o più estese, parzialmente confluenti o confluenti. Tali alterazioni sono frequentemente osservate nei soggetti anziani ultraottantenni con fattori di rischio vascolare, causate da ipoperfusione nei territori delle arteriole terminali profonde dell'encefalo (1). Lo studio ha l'obiettivo di confermare l'ipotesi se la LA sia associata con un grado misurabile di deficit funzionale e quindi se sia l'espressione di un processo età-correlato coinvolto nella transizione da uno stato funzionale di autonomia ad uno stato di disabilità malgrado l'apparente autonomia nella vita nel soggetto anziano ambulatoriale.

Materials and methods. Sono stati arruolati 20 anziani ultraottantenni che presentavano lesioni proprie della LA di grado lieve, impiegando la scala di Fazekas (lieve-moderato-severo) (2). I pazienti sono stati valutati con test funzionali diretti ad indagare il funzionamento cognitivo (*Beck Questionnaire, BQ)*, motorio *(Up and Go Timed Test; 30 second Chair Stand Test; Test di Schober*; *V.A.S Funzione*) e la qualità della vita (*Life Satisfaction Index, LSI)*. Tale gruppo è stato confrontato con un gruppo C, di controllo, formato da anziani che non presentavano alla RM lesioni proprie della LA. Lo studio ha incluso, in entrambi i gruppi, anziani non operati per patologie osteoarticolari degli arti inferiori e del rachide; in assenza di patologie neurologiche medio-gravi invalidanti (esiti Tia o ictus pregresso); che presentavano alcuni fattori di rischio, come diabete e ipertensione arteriosa in trattamento farmacologico; I dati ottenuti sono stati analizzati statisticamente e confrontati utilizzando il T test di Student per dati appaiati, con significatività al 5%. È stato valutato l'indice di massa corporeo (BMI). *Eseguiti controlli della pressione arteriosa al mattino (valori medi pressori sistolici e diastolici) e del diabete (emoglobina glicosilata)*.

Results. Io studio conferma l'ipotesi che la LA è associata alla disabilità nell'anziano. Pazienti che presentano alla RM lesioni proprie della LA hanno un grado misurabile di deficit funzionale, malgrado l'apparente autonomia nella vita rispetto alla popolazione degli anziani che non presentavano lesioni ischemiche proprie della LA. Tali lesioni sono espressione di un danno di tipo ischemico cronico alla cui base ci sarebbero alterazioni dei piccoli vasi profondi cerebrali prodotte dalla combinazione di più fattori: processo di invecchiamento, cattivo controllo dell'ipertensione, del diabete, altre condizioni metaboliche. Essa si associa a deficit cognitivi, depressione, anomalie motorie e disfunzione urinaria (3).

Conclusions. Questi dati danno indicazioni ad una precoce identificazione degli anziani a rischio, attuando una politica sia nella prevenzione primaria che secondaria intervenendo con possibili trattamenti efficaci nei soggetti ipertesi e diabetici.

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COGNITIVE TRAININIG IN ACUTE STROKE PATIENTS: PRELIMNARY DATA FROM A RANDOMIZED CONTROLLED TRIAL

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Introduction. The impairment of cognitive functions is a frequent complication of stroke and sometimes it is the more severe and relevant clinical symptom that strongly affects patients' independence and autonomy. Previous studies demonstrated the correlation between cognitive impairment and level of functional recovery, and there are evidences in support of the predictive value of early cognitive deficits on long-term depressive symptoms and quality of life. These observations, together with the initial evidence of efficacy of neuropsychological rehabilitation have recently added guidelines on the management of patients with stroke, with recommendations concerning the importance of assessment and rehabilitation of cognitive disorders. The present study aimed at verifying the effectiveness of a cognitive intervention conducted in early post-stroke patients.

Materials and methods. The study enrolled adult patients with a first-ever stroke within 4 weeks from the insult. All the patients underwent a comprehensive cognitive evaluation assessing memory, language, attention, logical-executive functions and visuo-constructional abilities. All the patients with evidence of cognitive impairment were randomly assigned to the intervention group (IG) or to a control group (CG). The cognitive rehabilitation program consisted in 16 individual one hour sessions, 4 sessions a week, in which patients performed computer exercises with increasing levels of difficulty. All the sessions were administered by psychologists, expert in neuropsychology. The control group received usual care without cognitive training. After 4 weeks all the patients were re-evaluated.

Results. 30 patients (13F/17M, mean age 67.3±12.2, mean education 9.5±5.7) were enrolled into the study, 15 in the IG and 15 in the CG, respectively. Socio-demographic and clinical characteristics of the two groups were comparable. Statistical analysis showed a significant improvement ($p<0.05$) in all neuropsychological measures at post-training evaluation for the IG, while CG showed a mild improvement in cognitive tests that did not reach statistical significance. Between group analysis revealed that memory and attention were the functions that benefited most from the training.

Conclusions. These preliminary data showed the positive effects of an early cognitive training for post-stroke patients, suggesting that neuropsychological rehabilitation could be a viable therapeutic option to improve cognitive performances in stroke survivors. Further longitudinal studies with larger populations are needed to identify the effectiveness of cognitive intervention both in the short and in the long term, to clarify the patients' characteristics that optimize the outcomes of neuropsychological rehabilitation and to determine how to transfer and maintain the positive effects in daily life.

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FLEXION RELAXATION PHENOMENON NELLA VALUTAZIONE DEI PROGRESSI DI UN TRATTAMENTO RIABILITATIVO SPECIFICO NEI SOGGETTI AFFETTI DA SCLEROSI MULTIPLA

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Introduction. Il Flexion Relaxation Phenomenon (FRP) è stato riconosciuto fin dal 1951. Consiste nella registrazione attraverso elettrodi di superficie del segnale elettromiografico proveniente dai mm latissimo del dorso e multifido durante il movimento di flesso-estensione del tronco. Questo esame viene citato frequentemente in letteratura soprattutto in relazione al Low Back Pain ma non esistono studi precedenti di applicazione in soggetti affetti da patologia cronico-degenerativa del SNC (sclerosi multipla) con la finalità di valutare i progressi di un trattamento riabilitativo specifico.

Materials and methods. 20 soggetti affetti da sclerosi multipla con punteggio alla EDSS (Expanded Disability Status Scale da 1 a 3,5) vengono sottoposti a valutazione multidisciplinare e, se presente atassia del tronco evidente sia clinicamente che all'esame elettromiografico, inseriti in un progetto riabilitativo finalizzato al rinforzo degli stabilizzatori della colonna. Vengono effettuate durante il trattamento riabilitativo e come follow-up 4 valutazioni clinico-strumentali a T0 (prima di iniziare il trattamento), T1 durante il trattamento dopo 10 sedute e T2 (a fine trattamento dopo 20 sedute) e follow up dopo 30 gg dall'ultima seduta tramite sEMG degli erettori spinali (multifido e latissimo del dorso) durante la flesso-estensione del tronco e a misurazione del ROM articolare della colonna in toto.

Outcome: Descrivere un modello teorico per l'uso potenziale del FRP in soggetti affetti da disabilità da danno del SNC prima e dopo la riabilitazione e l'utilità clinica del sEMG combinato con il ROM come test per la pianificazione dei programmi riabilitativi.

Conclusions. Lavoro al momento dell'invio ancora in corso. Sono state effettuate le registrazioni sEMG e ROM a T0 che hanno messo in evidenza la presenza, in massima flessione della colonna nella fase di silenzio elettromiografico, spike di attivazione ed oscillazioni del tronco verosimile manifestazione di attivazione dei muscoli stabilizzatori della colonna nel tentativo di contrastare l'atassia del tronco in posizione sensibilizzata. I soggetti stanno effettuando un ciclo di 20 sedute di riabilitazione prevalentemente mirata a migliorare la stabilità del tronco in posizioni intermedie della piramide posturale e attraverso esercizi di stabilizzazione ritmica. Ci si propone di portare i risultati dettagliati dello studio in occasione del congresso nazionale.

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PROJECT OF REHABILITATIVE TAKE IN CHARGE OF THE ASPECIFIC OCCUPATIONAL CERVICAL PAIN IN A POPULATION OF ADMINISTRATIVE DEPENDENTS OF THE SANTA CORONA HOSPITAL. PRELIMINARY DATA.

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Introduction. The cervical pain is clinical very common eventuality. The prevalence of the cervical pain| in the general population is of 10%, constituting 1% relief abandonment of ship in circle of general medicine. Cervical pain is, also, the second cause of abstention after the lumbago, becoming a clinical problem and partner-economic extremely remarkable. Gthem railway accidents is the cause more frequent than acute cervical pain, while the chronic entities are conditioned, in most cases, from professional causes.

Materials and methods. We have wanted to set up a program of taken in charged for the staff personnel of the Santa Corona Hospital, suffering from non specific chronic cervical pain, according with our Servizio di Medicina del Lavoro. All subjects presented a persistent pain of the duration superior to three monthes at the level of the cervical region, with irradiation to the superior limbs, but in the abscence of signs of neurologic peripheral compression and/or of other specific causes (spondylolistesis, slipped disc, stenosis of the channel). A criterion of exclusion were represented by neurologic pathology associate, anxious and depressive symptoms, results of vertebral surgery, They came administered to all subjects the following questionnaires and evaluation scales: the Core Outcome Measure Index (COMI) for the cervical pain, Neck Pain Disability Scale (NPDS), EuroQol questionnaire (5 dimensions) (EQ-5D), and the numerical scale of the pain (NRS), after 7 days came again the COMI party supplied. At the term of the rehabilitative treatment for the chronic cervical pain, new administration of questionnaires distributed at the beginning, in association with the evaluation of the perceived global effect (GPE) with respect to the treatment effected. The rehabilitative program (of group) was based on exercises of postural recover, mobilization, strengthening, educational counseling. The duration of the session was of about 60 minutes, with a frequency of 3 times a week, for 10 general sessions.

Results. We have enlisted at this moment 50 subjects (40 females and 10 tap). The principal working area of origin of subjects is that administrative one or of informatics support system of our hospital. All subjects use for many hours per day a computer posting to develop it really working activity. All subjects have been appraised at the beginning of the taking in load by just the same medical physiatrist. Evaluations are been administered by a group of physiotherapists devoted on purpose to such project, experienced in the management of patient groups. At the actual state they have concluded the program of treatment 45 subjects. With regard to the results it can bring the following data of recapitulatory character: Evaluation of the perceived global effect (GPE) with respect to the treatment effected: all subjects have reported to have been helped or to have been helped much from the treatment effected. It is also been noted globally a substantial general improvement in the treated population with regard to the Questionario EuroQol-5 dimensions (EQ-5D), and the NRS.

Conclusions. From the preliminary data of result of this project it can do the following conclusions:

– it exists the need to plan an overseeing of the personnel also with regard to the cervical pain problem, more diffused in the administrative personnel;
– an articulated program of taken in load rehabilitative for the chronic occupational cervical pain it must be undertaked according with the Sevizio di Medicina del Lavoro and requires specific interventions and in evaluation assessment and in therapeutic approach;
– all subjects have shown an excellent adhesion to the project and have reported a meaningful benefit from the treatment effected;
– there are the premises to continue and extend such project in the time and to a greater number of subjects.

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EFFICACIA DELLA FISIOTERAPIA RESPIRATORIA NEL POST-OPERATORIO DEL PAZIENTE CON PNEUMOTORACE SPONTANEO

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Introduction. Lo *pneumotorace spontaneo* è causato dalla rottura di una o più bolle enfisematose. Si verifica maggiormente in soggetti alti e magri e non affetti da malattie polmonari. È recidivo sullo stesso lato nel 30% dei casi. La terapia per eliminare le recidive è esclusivamente chirurgica e consiste nel-

la bullectomia. L'obiettivo dello studio è verificare l'efficacia della fisioterapia praticata nel periodo post-chirurgico in pazienti con pneumotorace spontaneo trattato con intervento di bullectomia ed abrasione pleurica, analizzando se la compliance del paziente ad un programma riabilitativo assegnatogli da svolgere autonomamente pervenga agli stessi risultati di un trattamento svolto quotidianamente con il fisioterapista.

Materials and methods. È stato esaminato un totale di 10 pazienti affetti da pneumotorace spontaneo e sottoposti a intervento chirurgico di bullectomia ed abrasione pleurica. Attraverso randomizzazione casuale sono stati formati due gruppi di 5 pazienti omogenei per età, patologia, tipo e durata dell'intervento chirurgico. Il criterio di trattamento applicato al GRUPPO 1 prevede che le tecniche e gli esercizi riabilitativi utilizzati vengano assegnati ed avviati in prima giornata post operatoria ed eseguiti con la quotidiana assistenza del fisioterapista fino al termine della degenza. Il criterio di trattamento del GRUPPO 2 prevede l'assegnazione al paziente delle medesime tecniche ed esercizi tramite counselling ed effettuati in modalità di autosomministrazione in maniera autonoma fino al giorno della dimissione, in cui sarà eseguita la valutazione dei risultati raggiunti. I parametri presi in considerazione sono: tempo impiegato per la rimozione dei tubi di drenaggio, pressione di aspirazione dei drenaggi, VAS dolore (a riposo e in movimento), VAS dispnea, ROM attivo della spalla omolaterale all'intervento (flessione e abduzione), riespansione polmonare, SpO_2, frequenza cardiaca, frequenza respiratoria e durata della degenza. Tali valutazioni vengono effettuate in prima giornata post-operatoria e il giorno della dimissione.

Results. Dall'analisi dei risultati ottenuti si evince che non c'è una differenza statisticamente significativa tra il gruppo 1 rispetto al gruppo 2 per quanto riguarda il tempo occorso per la rimozione dei tubi di drenaggio toracici e la gestione del dolore post-operatorio. Anche i livelli di dispnea e i valori di frequenza cardiaca e respiratoria appaiono pressoché omogenei tra i due gruppi. Nessuna differenza, inoltre, è stata rilevata per quanto riguarda la durata del periodo di degenza. Il trattamento riabilitativo con la costante presenza del fisioterapista, invece, contribuisce a migliorare in modo statisticamente significativo il livello di riespansione polmonare con conseguente aumento dei livelli di SpO_2. Nel gruppo 1, inoltre, si osserva una significativa riduzione del deficit articolare della spalla omolaterale all'intervento rispetto al gruppo con auto somministrazione degli esercizi.

Conclusions. Il trattamento riabilitativo effettuato con la presenza del fisioterapista si è dimostrato utile ed efficace nel migliorare la riespansione polmonare e nel ridurre il deficit articolare della spalla probabilmente attraverso un meccanismo di feedback positivo sul controllo del dolore e sulla relativa assenza di effetti collaterali dell'esercizio stesso. Per quanto riguarda gli altri parametri e valutazioni presi in considerazione nello studio i risultati ottenuti dai due gruppi sono sostanzialmente sovrapponibili.

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REHABILITATIVE TAKE IN CHARGE AFTER PROSTHETIC SURGERY OF KNEE AND HIP: AN EXPERIMENTAL EXPERIENCE OF PUBLIC-PRIVATE INTEGRATION.

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Introduction. The increase of indications to interventions of prosthetic surgery for advanced arthrosis of the knee and of the hip, it has done rise the need to create specific program of therapeutic and rehabilitative take in charge that is able to assure an increase in the number of the operated patients, a taking in load rehabilitative global and a cost reductions of hospitalization, also across the experimentation of forms of collaboration among structures of the national health service and private institutions, according to the article 9 bis D Lgs 502 / 1992. We want to describe a project of managerial experimentation finalized to the activation of a private center of orthopedics in a public hospital, delineating the essential characteristics connected to rehabilitative take in charge.

Materials and methods. The experimentation is finalized to the recovery of the passive mobility, with precedence for patients of the ASL 2 Savonese, with the attribution of 18 places in the hospital of Albenga, whose management has been entrusted to the GSL institution (Gruppo Sanitario Ligure) and regulated by the following formalities: The sanitary activity object of the project of experimentation articulates in four principal typology:

- presurgery activity;
- surgical activity;
- hospitalization activity, inclusive of the post surgery early rehabilitative take in charge;
- following rehabilitative activity developed with an agreed nursing home with the ASL.

Clinical and managerial responsibilities are the following thing:

- The GSL institution manages directly every aspect connected to the surgical orthopedic activity across his personnel, acquiring services from the ASL 2 of Savona with the reimbursement of the correspondent of the specific DRGs, diminished of a percentage that comes to constitute the saving by the ASL. The GSL institution operates for the whole period of the experimentation (9 years) in special places located in the Santa Maria di Misericordia Hospital in Albenga, with a dedicated surgical block.
- The sanitary direction of the experimental department is entrusted to the ASL 2.
- The medical direction of the hospital has the managerial and budgetary general responsibility of all the unrolled activity by the Società GSL in the hospital of Albenga.
- The chairman of the SC RRF of Santa Corona Hospital has the managerial and budgetary responsibility of the whole rehabilitative take in charge, in the respect of the established economic budget. He has helped for the clinical point of view by the chairman of the SSD RF of the Albenga hospital.
- The coordinator of the SC RRF physiotherapists has the technical professional responsibility of the control of the adherence to rehabilitative protocols, to guarantee the uniformity in the rehabilitative take in charge for all the patients.
- It has been adopted a shared rehabilitative sheet, that allows the exact monitoring of the progression of the rehabilitative program and the attainment of the specific functional objectives; the GSL surgeons furnish at the end of every specific intervention indications regarding aspects of orthopedic pertinence necessary to activities of rehabilitation, that will become part of the rehabilitative project.

Preliminary Results. Until May 2012 have been operated 220 patients in the experimental project, divided approximately in a 50 % of THP and a 50 % of TKP. The middle long of stay for the rehabilitative treatment developed in the rehabilitative agreed structure ASL has been of 8 days. With regard to greater orthopedic urgent complications (dislocation, fractures, etc.) that require a return back in orthopedic unit it has verified an episode of fracture of the unaffected hip for accidental fall of the patient. Nobody has manifested episodes of precocious infection of the prosthetic implant.

Conclusions. The illustrated integrated public-private project constitutes certainly an example of clinical-managerial experimentation in rehabilitative medicine. The identification of specific clinical hospital referents (medical physiatrist and coordinator of physiotherapists) that, with regard to the specific competences, guarantee an exact adherence to the established protocols, constitutes equally a point of strength of all the project, that requires a narrow observance of times and procedures, to maintain elevated standard of efficacy.

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PAEDIATRIC AND DEVELOPMENTAL REHABILITATION: MUSICTHERAPY IN AQUATIC ENVIRONMENT

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Introduction. In this experimental research the Author underlines the effectiveness of the Paediatric Musictherapy Plan in Aquatic Environment (PaMtPAE) she has created and applied with reference to the psychomotor rehabilitation of paediatric patients suffering from different pathologies. The PaMtPAE can improve patient's motor coordination, cognitive, communicative and relational abilities, an experimentation of his own body image and a self-management of his expressive, emotional and creative resources.

Materials and methods. MATERIALS. Eight patients (in two groups) that are aged 12 on the average (7-16) (six female patients and two male patients) suffering from mental retardation, sensorimotor and development disorders, Down syndrome, autism. Swimming pool (m. 8 x 4; depth: cm. 30-110; temperature: 33°). Eleven musictherapy sessions and a weekly session of 45 minutes for each group of four patients. The PaMtPAE is worked out by means of: - patient's sonorous anamnesis; - four session observation protocols; - production of Sonorous-Musical Energy (SME) by voice, water, body, floating sonorous-musical instruments and further instruments the Author has made from salvage and domestic articles; - Patient-Environment-Music Index (at the time t_0 and t_n) and Therapeutic Advancement Index; - analysis of individual and group feedback (Somatic Pattern). METHODS. The PaMtPAE sets up an active-creative Musictherapy session in several stages, as: - Welcome song. - Synchronization. The musictherapist's non-verbal communication meets the patient's bodily-sonorous-rhythmical activity (instrumental and vocal) through his instrumental/

vocal production. The patient's motricity, the hearing acuity, more sensorial perceptions and the speech are involved. – Free bodily-rhythmical-sonorous games between the musictherapist and each of the patients and among the patients too. Later these games can have a structured task and/or can become a rhythmical-sonorous dialogue. - By means of the SME by the bodily-rhythmical-sonorous instruments each of the patients can tell his (true or fantastic) story and the role of the leader can change. Both the therapist and each of the patients can be the leader and can conduct the group orchestra, the group's composition of songs, drawing, movements and dances linked up with listening to recorded music by Hi-Fi or live music. - Within the SME production the Author/Musictherapist works out the differentiation of the sound pitch and of dynamic gradation and the improvement of patient's skills to catch the sound (near-far). - Rhythmic speech and singing drills using pacing and rhythmic patterns to address the disorders of the rate. - Vocal exercises focusing on the pitch to improve the intonation and on the diction to improve the articulation and to lead up it to an increased intelligibility. - Method of swelling or culmination method. By means of a gradual increase in the modulation of the musical parameters (time, velocity, dynamics, rhythm and meter, intensity, duration and sound pitch) and the vocalization the Author/Musictherapist makes the patients achieve an emotional swelling/culmination and then the slackening. – Final water-song.

Results. In aquatic environment a free and empathic SME production can depict the individual/group mood and dynamics in order to achieve intrapersonal and interpersonal harmony. By the aquatic massage the SME can improve individual motor patterns, attention, concentration and sensorimotor coordination, bodily and spatial feeling and perception, extended borders of bodily contact, muscular/postural/mood tone, self-confidence, emotional communication, interaction and mutual acceptance and social relations.

Conclusions. The Author points out the PaMtPAE optimizes the neuropsychophysical rehabilitation of paediatric patient's. The PaMtPAE promotes a better development of the sensorimotor/expressive/emotional/creative resources, a motivated compliance with the musictherapeutic care and a higher quality degree of the cognitive/manipulation/relation skills.

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VALUTAZIONE DELLA DEGLUTIZIONE E MODALITÀ DI NUTRIZIONE DOPO ICTUS O TRAUMA CRANICO NEI PAZIENTI CON DISFAGIA SEVERA: STUDIO MULTICENTRICO

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Introduction. I pazienti disfagici, a seguito di ictus o trauma cranioencefalico (TCE), sono a maggior rischio di sfavorevole outcome funzionale, morte e malnutrizione rispetto ai non disfagici. Le linee guida per la disfagia pongono importanti indicazioni sulla diagnosi e sulle modalità di alimentazione che, nel caso di disfagia severa, può avvenire tramite sondino nasogastrico (SNG) o gastrotomia endoscopica percutanea (PEG) a seconda che il tempo stimato per il recupero sia maggiore o inferiore a 4 settimane. Obiettivo di questo studio è valutare l'adesione della pratica clinica a queste indicazioni.

Materials and methods. Abbiamo condotto uno studio osservazionale della durata di un anno in sette centri italiani includendo pazienti con ictus o TCE incapaci ad alimentarsi per os a 30 giorni dall'evento. Di questi pazienti sono stati considerati età, genere, caratteristiche della lesione, scale specifiche per patologia e valutazioni effettuate per la disfagia. La modalità di alimentazione è stata registrata a 30 e a 90 giorni dall'evento e sono state rilevate 5 possibili cause di non aderenza alle linee guida. I dati raccolti sono stati analizzati utilizzando descrizioni frequenziali e χ^2 test o Fisher's exact test per valutare le correlazioni tra le categorie.

Results. Sono stati inclusi 137 pazienti (111 ictus e 26 TCE; M/F=85/53; età media 67 anni). La Rankin in ingresso per gli ictus aveva una mediana di 5 (range 3-5). Nei pazienti con TCE la mediana per la GOS-E a 30 giorni era 3 (min 2 max 3), così come la scala LCF (range 1-5). La valutazione DOSS all'ingresso aveva un valore mediano pari a 1 (71%), invariato a 30 giorni con un aumento delle frequenze nei valori 3-4. Non veniva rilevata correlazione significativa tra le suddette variabili e la via di alimentazione. L'80% dei pazienti ha effettuato valutazione logopedica, il 12% foniatrica, il 10% nutrizionale, il 4% videofluoroscopia e il 12% valutazione endoscopica a fibre ottiche. La nutrizione a 30 giorni avveniva tramite SNG nel 78% dei pazienti e con la PEG nel 20%. A tre mesi il 33% si alimentava tramite SNG, il 31% tramite PEG e il 23% per os. Il tardivo impianto della PEG era motivato dal ricovero dei malati in struttura a più di 21 giorni dall'evento (21% dei casi), da aspetti organizzativi legati all'intervento (15%), da condizioni cliniche critiche a 30 giorni (35%), dall'osservazione di un progressivo miglioramento della disfagia (25%) o da altro (4%). Abbiamo poi valutato la distribuzione delle motivazioni suddette in base all'outcome a 90 giorni. La motivazione "condizioni cliniche" è più frequente in coloro in cui a tre mesi persisteva il sondino (63%); per coloro che hanno recuperato una alimentazione per os a 90 giorni il motivo più comune era costituito dal miglioramento della deglutizione (59%) e nei pazienti andati incontro all'impianto della PEG era l'aspetto organizzativo-gestionale (76%).

Conclusions. Questo studio mostra come sia frequente un prolungato utilizzo di SNG nei pazienti disfagici. Le motivazioni a 30 giorni coinvolgono in modo non dissimile aspetti gestionali-organizzativi, clinici e valutativi, ma se osserviamo la vie di alimentazione a 90 giorni, le cause suddette hanno una distribuzione molto diversa a seconda dell' outcome. Inoltre solo una minoranza di pazienti accede agli esami strumentali per la valutazione della disfagia. Ulteriori studi si rendono necessari per verificare su larga scala l'adesione alle linee guida nazionali.

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RIABILITAZIONE DELL'ARTO SUPERIORE DOPO STROKE: UN INNOVATIVO APPROCCIO "ROBO-MECCATRONICO".

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Introduction. This work describes the rationale, design, architecture, and preliminary results in rehabilitation of prototype ARAMIS (Automatic Recovery Arm Motility Integrated System), an integrated approach purported to implement the upper limb rehabilitation protocols by combining biomechanical (mechatronic component) and cognitive stimuli (virtual reality component). The ARAMIS rationale is based on evidence that a paretic arm can recover its motor function in the first 3 – 4 months after hemispheric damage only if an alternative brain motor organization develops, is able to mimic the system original properties, and is trained compliant to its intrinsic potentialities.

Materials and methods.

– Treatment. Each patient underwent a specific ARAMIS treatment for the upper limb through the 6 actives DOF allowing to perform all movements in space. The treatment consisted of one 50-min session/day, 5 days a week, for a total period of at least 7 weeks. The protocol was designed to include a progression and mode of execution of the movement itself, from passive to assisted movement to spontaneous movement.

– Evaluations. The subjects' motor performance was assessed in baseline and at the end of treatment by conventional scales. The Fugl-Meyer scale for upper limbs (modified by Lindmark and Hamrin; upper scores: 115[total], 8 [pain], 63 [overall motor function]), the FIM and the Motricity Index for Upper Extremity were used. The Lindmark adaptation of the Fugl-Meyer Scale was chosen for this experimental study for its combining the functional limitation with the underlying impairment; it uses an evaluation scale comparable to the original one and has been validated trough comparison with the Fugl-Meyer score. A descriptive analysis of the changes after treatment was performed by comparison with the scales scores at baseline (Student's t-test).

Results. Fourteen patients with upper limb disability due to hemispheric ischemic stroke participated in the study (11 men; age range: 43-75 yrs.; mean 67±11.2 yrs.). Summary demographics and clinical condition are in Table I. Six

had right-side and 8 left-side hemispheric lesions; the mean time from the acute event was 21±6.2 days. All subjects were treated by an ARAMIS protocol with 31±4.7 session over a 54±3.6 days period of time in parallel with a conventional ADL-compatible training for e.g. eating, drinking, etc. The Fugl-Meyer total score improved from 48±18 at baseline to 75±27 at the end of the ARAMIS rehabilitation protocol (p<0.003), with a mean improvement of 56%. The score for pain improved from 4.5±2 to 7±1.2 (p <0.0004) and the overall motor function improved from 11.7±10 to 27.5±17.4 (p < 0.004). The FIM total score improved from 65±21 at baseline to 94±14 at the end of treatment (p < 0.001). A significant improvement was observed also at the Motricity Index for Upper Extremity (p >0.005). All therapists reported appreciating the ARAMIS approach both for its advantages in logistics and organization in the clinical-rehabilitative procedures and for the responses obtained.

Conclusions. The pilot study documents the patients' capability of undergoing a full-length rehabilitation treatment by ARAMIS, with good tolerance and satisfaction. The observed improvement after treatment was comparable to the reports in the scientific literature concerning the standard and robot-assisted rehabilitation procedures. Albeit preliminary, these results support the suggested potentialities of robot-mediated rehabilitation treatments of these patients and the hypothesis that improvement in motor abilities after brain injury follows the proximal-to-distal progression, with a variety of finalized and functionally relevant motor actions requiring adequate control.

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MONITORAGGIO TRAMITE PET TOTAL BODY DI CASO CLINICO DI SPONDILODISCITE

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Introduction. Spondylodiscitis is an infection of two adjacent vertebral bodies and their intevertebral disc space. The most frequent disease locations are cervical and lumbar vertebras mostly at the L3-L4 and L4-L5 level, that are considered the site with higher probability of infection and the most frequent sympton is pain. Most studies describe concentration of 18 F-FDG in locations of infection or inflammation but today the role of PET with 18 F-FDG in patients with spondylodiscitis is studies by few authors.

Materials and methods. The aim of this study is to assess, starting from a clinical case, the potential role of the PET/TC in clinical menagement in a patient with spondylodiscitis at the moment of diagnosis during treatment. The patient is a seventy four years old woman, who is affected by spondilodiscitis; she was studied at the beginning with traditional techniques (CT with and without contrast medium and lumbar X ray) and treated with antibiotic therapy for four weeks as long as the pain and high levels of inflammation index in blod examination, the patient was been valued by Pet Total Body that allowed us to give a correct indication to continue antibiotic therapy and to decide an appropriate rehability project.

Results. The first Pet Total body showed the presence of an excess of radio-drug in lumbar region involving the body of L3 and L4 more evident in intervertebral space. The PET studio indicated the presence of the illness at high metabolic activity compatible with spondylodicitis in active phase. After a mouth of antibiotic therapy the second Pet showed a significative reduction of the extension and entity of fixation of the abnormal accumulation of radio-drug between L3 and L4 in particular at vertebral bodies level. About two mouths later and a cycle of antibiotic therapy of four weeks, another PET was requested to control the evolution of the illness. The PET study showed an ulterior reduction of the abnormal accumulation of radio-drug in the L3-L4 passage.

Conclusions. Pet total body is a non invasive examination with few collateral effects and, differently from MNR and aimed biopsy, without false positive or negative results, that can be used later in spondylodiscitis follow-up. This exam cannot be used on a wide scale at the moment because of the high costs of this method and low number of this apparatus present in our territory. The application of this method is reserved at the moment for clinical cases in which there is an uncertain diagnosis or where there are controindications to effect other kinds of control.

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PROTOCOLLO CONDIVISO PER LA GESTIONE DELLA CANNULA TRACHEOSTOMICA NELLE GRAVI CEREBROLESIONI ACQUISITE

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Introduction. Le raccomandazioni della 1^ Conferenza Nazionale di Consenso sulle Gravi Cerebrolesioni Acquisite di Modena 2000 indicavano come la cannula tracheostomica non rappresenti una controindicazione al trasferimento delle persone con GCA nelle unità di riabilitazione intensiva. La tracheostomia trova indicazione nella fase acuta della GCA, in quanto favorisce la ventilazione meccanica e il suo svezzamento, riduce lo spazio morto e le resistenze respiratorie, diminuisce la necessità di sedazione, riduce i tempi di intubazione, controlla il rischio di inalazione, favorisce la gestione delle secrezioni bronchiali, assicura la pervietà della via aerea. Di contro, nella fase post acuta riabilitativa, la presenza di cannula tracheale induce un importante disagio per il paziente, rende impossibile la comunicazione verbale, aumenta la probabilità d'infezioni, riduce, soprattutto se cuffiata, il normale movimento d'innalzamento della laringe, complicando ulteriormente la dinamica della deglutizione in genere già compromessa dalla lesione cerebrale e riduce la fisiologica espansione degli spazi alveolari e conseguentemente l'efficacia degli scambi gassosi. La 3^ Conferenza Nazionale di Consenso "Buona pratica clinica nella riabilitazione ospedaliera delle persone. con Gravi Cerebrolesioni Acquisite" tenutasi a Salsomaggiore nel novembre 2010, ha rilevato come le evidenze a supporto di procedure e protocolli in uso nella gestione della cannula tracheostomica nel setting di riabilitazione post acuta siano molto limitate. Nella survey condotta in occasione della stessa Consensus, nella maggioranza dei centri italiani, durante la prima fase del ricovero in riabilitazione, è comune l'uso della cannula cuffiata, che viene sostituita successivamente con quella non cuffiata. Per quanto riguarda i criteri di decannulazione, nella maggior parte dei casi la rimozione della cannula viene eseguita dopo un periodo di 72 ore a cannula chiusa, con monitoraggio clinico e della saturazione periferica di O2. Una fibroscopia tracheale preliminare viene eseguita nel 53% dei casi. La Giuria della stessa 3^ Conferenza di Consenso, nel documento finale, raccomanda di procedere "*alla decannulazione in soggetti con adeguato livello di coscienza, dopo valutazione clinica della tolleranza alla chiusura della cannula (per periodi progressivamente più lunghi fino ad almeno 48 ore consecutive) e quando siano rispettati i seguenti criteri: saturazione di O2 > 92% in aria ambiente, sufficiente efficacia della tosse con riduzione e/o capacità di autogestione delle secrezioni, assenza di infezioni e Rx torace negativa, efficacia almeno parziale della deglutizione, assenza di ostruzione delle vie aeree superiori, soddisfacenti condizioni di nutrizione*". Viene inoltre sottolineato "*come la decannulazione sia possibile anche in casi selezionati di pazienti in stato vegetativo o di minima coscienza, dopo aver verificato la presenza di una ragionevole efficacia tosse e della deglutizione automatica*". D'altra parte stante l'estrema esiguità di letteratura specifica per popolazione e setting assistenziale, tra le indicazioni per la ricerca la Giuria ha consigliato "*studi di approfondimento dei criteri di decannulazione per massimizzare il recupero e diminuire i rischi connessi*".

Materials and methods. Questa sollecitazione è stata raccolta da un gruppo multicentrico di strutture riabilitative dedicate alle persone con gravi Cerebrolesioni acquisite e dai coordinatori del Master "Grave Cerebrolesione Acquisita: progetto riabilitativo con approccio interdisciplinare" dell'Università di Modena e Reggio Emilia (UNIMORE). Le strutture coinvolte in questo progetto sono state sette e precisamente:

- Neuroriabilitazione Ospedale San Sebastiano Correggio (RE).
- Unità Gravi Cerebrolesioni Centro Cardinal Ferrari (Fontanellato PR).
- Unità Gravi Cerebrolesioni dell'Ospedale Riabilitativo di Alta Specializzazione di Motta di Livenza (TV) e dell'Ospedale di Treviso.
- Unità Gravi Cerebrolesioni Presidio Ausiliatrice (TO).
- Unità Gravi Cerebrolesioni Fondazione Don Gnocchi Sarzana (SP).
- Unità Gravi Cerebrolesioni Ospedale San Giorgio, Ferrara.

Con la supervisione della stessa metodologa della ricerca che ha supportato i lavori dell'ultima Conferenza di Consenso, sono stati organizzati una serie d'incontri in cui sono state confrontate, in modo sistematico, le procedure di decannulazione e le specifiche istruzioni operative, seguite nei vari centri evidenziando e condividendone analogie e differenze.

Results. Il tutto è stato poi riassunto in due algoritmi decisionali condivisi, uno per la decannulazione a partire da cannula cuffiata e uno a partire da cannula non cuffiata, ciascuno dei quali caratterizzati da snodi decisionali critici per i quali sono state redatte delle precise ed omogenee istruzioni operative di esecuzione dei test clinici o strumentali.

Conclusions. Le successive tappe di sviluppo prevedono la pubblicazione formalizzata di tale protocollo ed istruzioni operative condivise e la successiva realizzazione di studi multicentrici di validazione della procedura anche per

confronto con accertamenti strumentali come la Fibro-tracheo-laringoscopia e la valutazione fibro-endoscopica della deglutizione.

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VALUTAZIONE CON GAIT ANALYSIS E POSTUROGRAFIA IN PAZIENTI SOTTOPOSTI A TRAINING RIABILITATIVO PER DISEQUILIBRIO DOPO EXERESI DI SCHWANNOMA VESTIBOLARE

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Introduzione. Lo schwannoma vestibolare, comunemente noto con il termine neurinoma dell'acustico, è un tumore benigno dell'angolo ponto-cerebellare che si sviluppa a partenza dalle cellule di Schwann dell'VIII nervo cranico. Il disequilibrio è uno dei sintomi più comuni e in alcuni casi permane anche dopo l'intervento di asportazione della lesione, compromettendo moderatamente o gravemente la qualità di vita del soggetto.

Scopo. del lavoro.

L'obiettivo primario è stato comprendere per mezzo di questionari, scale di valutazione dell'equilibrio e metodi strumentali, se la modalità di training proposta fosse utile a ripristinare un pattern motorio fisiologico, incrementare il livello di stabilità e di conseguenza la sicurezza dei pazienti nello svolgimento delle attività quotidiane. Attraverso la Gait Analysis è stato inoltre studiato lo schema del passo in questi soggetti con la finalità di osservarne eventuali anomalie e strategie motorie durante la deambulazione, individuando parametri oggettivi e misurabili che potessero risultare indicativi per il disequilibrio. Materiali e metodi. I pazienti inclusi nello studio erano stati precedentemente sottoposti ad intervento di rimozione di schwannoma vestibolare. Dalla compilazione del Dizziness Handicap Inventory (DHI-I), Berg Balance Scale (BBS) e Scala Tinetti (POMA), tra i soggetti individuati sono stati ottenuti punteggi che hanno permesso di identificare una casistica di 10 pazienti con significativo disequilibrio; su tali soggetti il grado di disabilità è stato valutato prima e dopo la presa in carico riabilitativa attraverso Gait Analysis, posturografia e test bipodalici di stabilità posturale e rischio caduta con pedana stabilometrica a feedback visuo-propriocettivo, usata anche durante le sedute di trattamento, sia in modalità statica che dinamica. Risultati. La casistica sottoposta agli esami strumentali e al training riabilitativo comprendeva una popolazione con età media di 54 anni. In questi pazienti il punteggio medio del DHI-I era di 57.33% (SD = 19.89), con maggiore compromissione della componente fisica della scala, seguita dalla funzionale e dalla emotiva rispettivamente. Dopo il trattamento il punteggio medio complessivo è stato 31.11% (SD = 11.53), mostrando un miglioramento statisticamente significativo rispetto al questionario iniziale. Alla Gait Analysis pre-trattamento le acquisizioni basografiche inducono a ipotizzare che, avendo tutti i soggetti dello studio come lato dominante il destro, un deficit vestibolare omolaterale comprometta maggiormente lo schema del passo, con un aumento dei cicli anomali superiore a destra, aumento del singolo supporto soprattutto controlateralmente e prolungata fase di appoggio del tallone su entrambe le parti. I pazienti con lesione vestibolare sinistra invece tentano di conservare un pattern di cammino che si avvicina alla normalità grazie al lato destro dominante e integro. Altri parametri relativi al disequilibrio sono risultati essere la dispersione della curva goniometrica, l'iperattivazione muscolare dell'arto inferiore e la coattivazione degli antagonisti tibiale anteriore e gastrocnemio laterale. La cadenza del passo è aumentata da una media di 44.97 cyc/min (SD = 8.52) a 53.21 cyc/min (SD = 9.32) dopo il trattamento ($p<0.01$), rientrando nel range di normalità. Conclusioni. Dal confronto dei risultati ottenuti prima e dopo il periodo riabilitativo si osserva che tutti i pazienti presentano un significativo miglioramento dell'equilibrio. Ciò evidenzia l'importanza di aumentare il livello funzionale del sistema propriocettivo in modo tale che le afferenze provenienti dal sistema vestibolare del lato sano, integrandosi con un'elaborazione propriocettiva più accurata e con le informazioni visive, possano vicariare gli input mancanti e garantire maggiore stabilità posturale e dinamica nello svolgimento delle normali attività del paziente. Lo studio con la Gait Analysis dopo il trattamento ha evidenziato il ripristino del pattern motorio fisiologico e un evidente aumento della cadenza del passo, indice di maggior sicurezza nella deambulazione.

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HEALING GARDENS: PROMOTING HEALTH QUALITY IN A SPECIALIZED INTENSIVE REHABILITATION HOSPITAL

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Introduction. Studies have shown that exposure to the natural environment has an independent effect on health and health-related behaviors (1). Healing Gardens (HG) are green spaces specifically designed for hospitalized patients with different diseases and disabilities. A growing amount of evidences suggests that nature elements can increase health of patients with different diseases. In particular, improved mood, reduction of disabilities, better maintenance of cognitive and functional skills, improved engagement and social interaction, lower stress, and reduced occurrence of negative behaviors have been described (2). Nevertheless, only few studies have measured outcomes using a quantitative research method making difficult to interpret, quantify, and generalize the results; in particular, a small amount of researches reported power calculation, explicated the inclusion criteria, used an adequate randomization procedure and designed the study in order to control that the two groups were similar at baseline and that the outcome assessor were blind to the treatment. The aim of the study is to analyze the efficacy of a rehabilitation performed in a HG on functional, quality of life and psychological aspects in post-acute neurological and orthopedic patients hospitalized in a rehabilitation division.

Materials and methods. We will collect functional, quality of life and psychological data from patients who will be hospitalized in our rehabilitation division and who will perform standard physiotherapy. This group will be considered as a control group for the second phase of the study, in which we will collect the same data from patients who will perform physiotherapy in the HG. The duration, frequency and type of exercises will be comparable between the two groups. Each patients will be evaluated at the admission and at the discharge with these scales: Funtional Indipendence Measure (FIM) and Modified Barthel Index as measure of disability; SF-36 as a measure of quality of life; CBA-H and Geriatric Depression Scale as a measure of anxiety and depression symptoms.

Conclusions. The benefits of perform the rehabilitative treatment in a natural environment specifically designed for the rehabilitation of post-acute neurological and orthopedic patients should be better investigated in order to develop person-specific protocols and increase the evidence and measurement of positive outcomes.

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UNA MIGLIORE PERFORMANCE FISICA IN INGRESSO IN UN SETTING RIABILITATIVO COSTITUISCE UN FATTORE PREDITTIVO DI UN MAGGIOR RECUPERO CLINICO E FUNZIONALE IN PAZIENTI CON BPCO.

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Introduction. La bronco pneumopatia cronica ostruttiva (BPCO) rappresenta una delle cause più importanti di mortalità e morbosità nei paesi industrializzati; è stato stimato che la BPCO che nel 1990 rappresentava a livello mondiale la sesta causa di morte diventerà la terza nel 2020 (1). La BPCO è causa di importante disabilità che consiste in una riduzione nella capacità di eseguire sforzi fisici con successive limitazioni delle attività della vita quotidiana e con un impatto significativo sulla qualità di vita. La riabilitazione polmonare (PR) costituisce una trattamento raccomandato per determinare un miglioramento di capacità di esercizio fisico, dispnea e qualità della vita indipendentemente dal livello di ostruzione delle vie aeree (2). Lo scopo dello studio è di analizzare l'efficacia di un ciclo di riabilitazione polmonare in

pazienti con BPCO su caratteristiche cliniche, funzionali, qualità della vita e stato emotivo e di identificare i fattori predittivi di un miglior outcome.

Materials and methods. Partecipano allo studio 21 pazienti con diagnosi di BPCO con un età superiore a 65 anni ospedalizzati in una struttura di riabilitazione. La riabilitazione polmonare è stata eseguita in sedute individuali della durata di 45 min. due volte al giorno per 5 giorni alla settimana, per 40 giorni (per un totale di circa 55 sedute). L'intervento fisioterapico comprende esercizi di disostruzione bronchiale e di allenamento allo sforzo. Le misure di outcome sono: i) scale cliniche: Medical Research Counsil, MRC; 6 Minuts Walking Test, WT6M; ii) scala di autonomia: Barthel Index; iii) scala di qualità di vita correlata alla salute: Saint George Respiratory Questionnaire, SGRQ; iv) scale dell'umore: Geriatric Depression Scale e State Anxiety Inventory.

Results. I risultati mostrano una differenza significativa nel confronto tra i punteggi ottenuti in ingresso e alla dimissione nelle scale che misurano: la dispnea (MRC p<.000001), la performance fisica (WT6M p<.047), il grado di autonomia (Barthel Index p<.00005) e la qualità di vita (SGRQ p<.004). Non vi sono differenze significative nelle scale che valutano l'umore. Da un'analisi di correlazione emerge inoltre che una migliore performance fisica in ingresso (misurata attraverso il WT6M) è associata a un maggior miglioramento della dispnea -valutata come differenza di punteggi tra ingresso e dimissioni nella scala MRC- e ad un maggior livello di autonomia in dimissione.

Conclusions. La riabilitazione polmonare influisce positivamente su caratteristiche cliniche, funzionali e di qualità di vita correlate alla malattia in pazienti con BPCO. Inoltre, le capacità funzionali in ingresso sembrano essere un buon predittore del raggiungimento di migliori outcome a seguito del ciclo riabilitativo. Uno studio longitudinale permetterà di analizzare se la riabilitazione polmonare abbia effetti positivi a lungo termine, quali il numero e la gravità delle riacutizzazioni e la sopravvivenza.

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EFFETTI DELLE CORRENTI INTERFERENZIALI SUL MICROCIRCOLO E SUL DOLORE IN PAZIENTI CON ISCHEMIA CRITICA

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Introduction. L'ischemia critica degli arti inferiori (CLI) è una manifestazione dell'arteriopatia periferica (PAD) ed è caratterizzata da dolore cronico (> 2 settimane) a riposo agli arti inferiori e lesioni ischemiche cutanee associate (ulcere o gangrena). I pazienti con CLI sono ad alto rischio di amputazione e mortalità per patologie cardiovascolari; inoltre presentano una peggior QoL correlata alla sintomatologia dolorosa ed alla limitazione nella deambulazione[1]. Il trattamento dei pazienti con CLI è multidisciplinare e gli obiettivi sono la prevenzione di eventi cardio- e cerebrovascolari ed il miglioramento dei segni e sintomi legati agli arti inferiori. Interventi medico-riabilitativi includono la cessazione dell'attività tabagica, l'effettuazione di esercizi fisici secondo programma strutturato e l'utilizzo di terapia farmacologica. Tuttavia tali interventi risultano ancora scarsamente supportati da evidenza scientifica[2].

Obiettivo dello studio. Valutare l'efficacia del trattamento con correnti interferenziali (IFT) in associazione a trattamento medico-riabilitativo. L'applicazione di IFT trova razionale nella capacità di modulare il tono vasale in relazione alle frequenze utilizzate e nella possibilità di ridurre il dolore mediante neuromodulazione[3].

Materials and methods. Soggetti: 16 pazienti (12 m e 4 f) affetti da CLI, non candidati a trattamento chirurgico, randomizzati in 2 gruppi.

Trattamento: il gruppo sperimentale è stato sottoposto a trattamento riabilitativo (45', 1/die per 10 giorni) in associazione a terapia medica (alprostadil 40 mcg x 2/die per 10 giorni) e IFT. Il gruppo di controllo è stato sottoposto a solo trattamento medico-riabilitativo.

Modalità di applicazione di IFT: 2 poli all'altezza del piatto tibiale e 2 poli alla caviglia sull'arto sintomatico; spazzolamento tra 1 e 100 Hz ogni 20", intensità media di 15 mA, per 15' per 10 giorni.

Parametri considerati: flusso all'arteria femorale, indice caviglia braccio (Indice di Winsor), flusso del microcircolo cutaneo al piede (a riposo e con test funzionali) e controllo del dolore (consumo di farmaci e punteggio scala VAS). La valutazioni sono state effettuate mediante Laser-Doppler del flusso microcircolatorio (a riposo, durante stimolo del riflesso venulo-arteriolare e dopo ischemia) prima del trattamento con INT, 20 minuti dopo la prima seduta e 6 ore dopo l'ultima seduta nel gruppo sperimentale; nel gruppo di controllo sono state effettuate prima del trattamento e dopo 10 giorni dal termine. Indice di Winsor, flusso all'arteria femorale e valutazioni del dolore/consumo di farmaci sono state effettuate all'inizio ed al termine del trattamento. I dati sono stati espressi come media ± DS, è stata effettuata un'analisi della varianza (ANOVA; SPSS, SPSS Italia srl, Italy) seguita da post-hoc t test per dati appaiati ($p<0.05$).

Results. Il gruppo sperimentale ha mostrato un incremento del flusso microcircolatorio (laser Doppler) a riposo dopo la prima seduta, della riserva microcircolatoria (iperemia postischemica) e un recupero del riflesso venulo-arteriolare dalla prima seduta. Si è registrato un decremento significativo nell'utilizzo di farmaci analgesici e della percezione del dolore in entrambi i gruppi, ma significativamente maggiore nel gruppo sperimentale.

Conclusions. L'applicazione di IFT all'arto inferiore di pazienti con ICL potenzia la riserva microcircolatoria e la vasoregolazione cutanea, migliora il controllo del dolore e riduce il consumo di farmaci analgesici.

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VALUTAZIONE DI DIFFERENTI INDICI PROGNOSTICI DI SOPRAVVIVENZA NELLA SLA: UN DATO DI PARTICOLARE RILIEVO DAL PUNTO DI VISTA RIABILITATIVO.

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Introduction. È stato visto che la riduzione della funzionalità respiratoria nei pazienti affetti da SLA rappresenta un fattore altamente predittivo di mortalità. Pertanto la valutazione ed il trattamento delle disfunzioni respiratorie nei pazienti diventa di fondamentale importanza nel migliorarne la sopravvivenza. Alcuni studi scientifici sostengono che un adeguato trattamento dei disturbi respiratori, in particolare l'utilizzo della ventilazione meccanica non invasiva, migliora la sopravvivenza più di ogni altra terapia attualmente disponibile.

Materials and methods. È stato condotto uno studio di Coorte retrospettivo o storico su 184 pazienti affetti da SLA ricoverati dal 1 settembre 1993 al 31 ottobre 2011 presso la S.C.D.O. di Medicina Fisica e Riabilitazione dell'Azienda Ospedaliera San Luigi Gonzaga di Orbassano (To) in regime di Day Hospital o Degenza. Lo scopo dello studio è stato quello di correlare i dati clinico-funzionali e di terapia riabilitativa delle problematiche respiratorie con i dati di sopravvivenza nei pazienti affetti da SLA nell'intento di definire eventuali indici prognostici di sopravvivenza. I dati sono stati raccolti direttamente dalle cartelle cliniche, mediante opportuna scheda di rilevazione. Sono stati indagati diversi possibili determinanti:

- Caratteristiche individuali: sesso, età del paziente all'esordio della malattia.
- Caratteristiche di malattia: tipo di esordio (bulbare o spinale), parametri di funzionalità respiratoria (VC, FVC, MIP, MEP), valori dell' EGA, data dell'eventuale decesso.
- Caratteristiche di terapia: latenza in giorni tra l'esordio e la diagnosi, l'utilizzo della ventilazione meccanica non invasiva (NIMV), della ventilazione meccanica invasiva (VMI), dell'in-exsufflator (apparecchio d'assistenza meccanica alla tosse), della PEG e la durata in giorni del loro utilizzo.

Results. La sopravvivenza media rilevata nella popolazione dello studio (5,06 + 5,04 anni - il valore elevato della deviazione standard è dovuto alla dispersione del campione) è risultata migliore rispetto ai dati presenti nella letteratura (da 1 anno e 8 mesi ai 4 anni). Tale dato può essere dovuto al fatto che i pazienti presi in studio sono stati tutti trattati presso un centro di riabilitazione intensiva ad alta specializzazione neuro-cardio-respiratoria nel quale il paziente viene sottoposto a cure e specialisti ad approccio multi ed interdisciplinare. Bisogna però tenere presente l'eventuale effetto dell'utilizzo della VMI nell'ottenere questo risultato in quanto la VMI è l'unica terapia in grado di aumentare la sopravvivenza fino allo stato clinico della sindrome "locked-in". Infatti nella nostra casistica la percentuale dei pazienti sottoposti alla VMI (24,45%) è generalmente superiore alla percentuale riscontrata nei vari articoli della letteratura. Bach nel 2004 riferisce che in alcuni paesi, per ragioni etiche, la VMI viene proposta in meno di 10% dei pazienti SLA, pur esistendo invece alcuni articoli su casistiche limitate che rilevano percentuali molto più alte di utilizzo della VMI nei pazienti SLA (ad esempio 40,74%).

Conclusions. Alcune caratteristiche individuali, cliniche e di terapia riabilitativa sono risultate essere indici prognostici positivi di sopravvivenza. Tra queste la giovane età, il periodo di latenza tra l'esordio e la diagnosi compreso

tra i 18 e 24 mesi, il valore del FVC > 80 % del predetto nel momento della presa in carico del paziente e l'utilizzo dell'in/exsufflator, migliorano la sopravvivenza in modo statisticamente significativo. Un dato di particolare rilievo dal punto di vista riabilitativo è costituito dal fatto che l'in/exsufflator migliora la sopravvivenza. Infatti in letteratura si tratta di una delle prime segnalazioni di questo tipo riferita ad una casistica piuttosto ampia di pazienti affetti da SLA.

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LA NEUROSTIMOLAZIONE FUNZIONALE PER IL RECUPERO DELLA MANO NEI PAZIENTI AFFETTI DA ESITI DI STROKE: UNO STUDIO PRELIMINARE

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Introduction. In questo lavoro viene presentato uno studio preliminare sugli effetti della elettroneurostimolazione funzionale della mano in pazienti affetti da esiti di stroke ischemico in fase subacuta e cronica. L'elettrostimolazione è una metodica già utilizzata da diversi anni in diversi campi di applicazione e con risultati che sembrano essere promettenti per il recupero neurofunzionale. Nella fattispecie è stata utilizzata una ortesi funzionale di nuova generazione con indossaggio anatomico precablato.

Materials and methods. Il protocollo prevede due campioni di studio costituiti da pazienti, affetti da esiti di stroke con paresi all'arto superiore e assenza o ridotta motilità della mano, in fase subacuta e in fase cronica. Sono stati trattati dieci pazienti di ambo i sessi (7F e 3M), per venti minuti/die, cinque giorni la settimana, per quattro settimane consecutive. L'apparecchiatura utilizzata è uno stimolatore a voltaggio costante bifasico, simmetrico a singola fonte di corrente, distribuita su cinque elettrodi di superficie in maniera specifica designata per attivazione funzionale della mano. Sono state utilizzate due diverse modalità con esercizio di apertura e flesso estensione della dita e opposizione del pollice, tipo presa a pinza, con frequenze di 36 Hz durata: 10 livelli da 0,01 mS a 0,35 mS; voltaggio 115 rms; 58 mA rms. Onda portante: sinusoidale, bilanciata. La valutazione dei risultati è stata eseguita all'ingresso e alla dimissione tramite la somministrazione della subscale relativa ai "Movimenti attivi della mano" della scala Fugl- Meyer inerente la mano, la scala visuo-analogica per il dolore, un questionario di gradimento.

Results. Si sono rilevati, in generale, risultati positivi, sia in termini di incremento dello scoring alla valutazione finale, sia in termini di capacità di generalizzazione degli effetti ottenuti durante lo svolgimento delle ADL. Si è evidenziato un buon miglioramento, per i pazienti in fase cronica, in tutti gli item, mentre per i pazienti in fase subacuta l'incremento si riferisce in particolare all'estensione delle dita e all'opposizione del pollice. Inoltre, in tutti i pazienti sono stati rilevati scomparsa dell'edema e della percezione del dolore. Migliorato notevolmente il tonotrofismo muscolare. Infine, dal questionario di gradimento è emersa una totale adesione al trattamento proposto. Non sono stati rilevati eventi avversi.

Conclusions. I risultati ottenuti in questa prima fase del lavoro sono da considerarsi preliminari. Continua l'applicazione del protocollo per l'ampliamento del campione e la successiva analisi dei dati, allo scopo di dare evidenza scientifica allo studio iniziato.

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FUNCTIONAL OUTCOME AND FACTORS PREDICTING ARM MORBIDITY IN WOMEN AFTER BREAST CANCER SURGERY

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Introduction. Arm and shoulder impairments after breast cancer surgery are commonly observed in clinical practice, with reported rates ranging 7-80% for shoulder morbidity (3.8-73% for reduction shoulder range of motion), 9-68% when pain and sensory deficit are considered and 6-63% regarding the presence of lymphedema[1]. Arm morbidity has been also demonstrated to negatively influence women QoL, with a consequent psychological distress[2]. Rehabilitative treatments have been resulted effective in prevention and treatment of upper limb dysfunction after breast cancer surgery[3]. Aims of this study: to describe the functional outcome in a population of women after breast cancer surgery and to identify clinical factors predicting arm morbidity.

Materials and methods. 240 women who underwent breast cancer surgery were evaluated soon after surgery (T0) and at 1-3-6-12 months of follow-up (T1-T3-T6-T12). Patients age, type of breast surgery, lymph node management, chemiotherapy, radiation to the axilla, breast reconstruction, the presence of neurologic and rheumatologic diseases and a history of trauma or degenerative disease of the shoulder were recorded. A complete clinical assessment was performed for each patient; shoulder range of motion (ROM), upper limb strength (MRC scale), the presence of lymphedema, a "fibrous band of tissue" in the axillary area, sensory deficit, pain (VAS) and impigment sign were considered as outcome measures. Patients with functional impairment and/or upper limb lymphedema underwent to specific rehabilitation programs. For the descriptive analysis, patients were grouped according to the type of breast surgery and lymph node management (group 1: patients with lumpectomy and sentinel node biopsy; group 2: any other breast surgery, with or without lymph node removal, no breast reconstruction; group 3: mastectomy and breast reconstruction, with or without lymph node biopsy or dissection). To examine differences within and between all groups Student's t-tests and Wilcoxon tests were employed. Multiple analysis of variance (MANOVA) was performed to investigate factors predicting arm morbidity. Results were considered significant if p-values were <0.05. Analyses were performed with the Statistical Package for Social Sciences (SPSS).

Results. Statistical analysis showed a significant improving trend over time for group 1 and 3; patients in group 1 had a significant better outcome than the others, no significant difference was found between patients in group 2 and 3. Lymphedema was more frequent in group 3; sensory deficit affected more than 50% of patients in group 2 and 3, even at T12; a "fibrous band" was more frequent at T0 and in group 3, with a decreasing rate in all groups over time. At T0-T1, shoulder ROM was predicted by type of breast surgery, breast reconstruction and by lymph node management; upper limb strength was predicted by type of breast surgery and by the presence of neurologic disease or degenerative shoulder disease; sensory deficit was predicted by age and by type of breast surgery; pain was predicted by type of breast surgery and lymph node management; a positive impingement sign was predicted by upper limb traumatic events, radiotherapy and by shoulder degenerative disease.

Conclusions. A better knowledge about functional outcome and the identification of factors predicting upper limb disfunction could contribute to provide better rehabilitatition strategies, to improve allocation of resources and to reduce disability, resulting in a better QoL in women after breast cancer surgery.

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ROBOTIC GAIT TRAINING VERSUS EQUAL INTENSITY TREADMILL TRAINING IN PARKINSON DISEASE: A RANDOMIZED CONTROLLED TRIAL

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Introduction. There is a lack of evidence about the most effective strategy for training gait in mild to moderate Parkinson disease. The aim of this study was to compare the effects of robotic gait training versus equal intensity treadmill training and conventional physiotherapy on walking ability in patients with mild to moderate Parkinson disease.

Materials and methods. Sixty patients with Parkinson disease (Hoehn and Yahr stage 3) were randomly assigned into three groups. All patients received twelve, 45-minute treatment sessions, three days a week, for four consecutive weeks. The Robotic Gait Training group (n=20) underwent robot-assisted gait training. The Treadmill Training group (n=20) performed equal intensity treadmill training without body-weight support. The Physical Therapy group (n=20) underwent conventional gait therapy according to the proprioceptive neuromuscular facilitation concept. Patients were evaluated before, after and 3 months post-treatment. Primary outcomes were the 10-meter walking test and the six-minute walking test.

Results. As to the primary outcomes, robotic gait training and equal intensity treadmill training were found more effective than conventional physiotherapy after treatment, as well as no significant difference was found between robotic gait training and treadmill training. Findings were confirmed at the 3-month follow-up evaluation. Only patients who underwent robotic gait training obtained clinically meaningful improvements in the 10-meter walking test (0.28±0.08m/ s) and the six-minute walking test (84.75±25.85m) after treatment.

Conclusions. Our findings support the hypothesis that robotic gait training may be more clinically effective for improving walking ability than equal intensity treadmill training and conventional physiotherapy in mild to moderate Parkinson disease**.**

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L'EVOLUZIONE DEL BURDEN DEL CAREGIVER NELL'ASSISTENZA DI PAZIENTI CON DISORDINI DELLA COSCIENZA CRONICI.

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Introduzione. I pazienti con Disordini della Coscienza (DdC) cronici impongono un carico assistenziale molto elevato (Chiambretto, 2006). Il familiare del paziente con DdC vive un marcato distress psicologico che compromette la sua qualità di vita, sviluppando, in diversi casi, delle vere e proprie sindromi di rilevanza clinica (Chiambretto, 2008;Guarniero, 2011). L'obiettivo del presente studio è descrivere l'evoluzione del burden in un piccolo campione di caregiver di pazienti con DdC cronici durante le diverse fasi del ricovero in una struttura di neuroriabilitazione (ammissione in reparto, degenza e dimissioni).

Materiali e metodi. 50 caregiver primari (38 F; età media=45,3; range 21-74) di pazienti affetti da DdC cronici (26 pazienti in Stato Vegetativo e 24 pazienti in Stato Minimamente Cosciente; età media=56.4; range 30-73; durata di malattia in mesi=9,5; range 6-24) hanno completato: Caregiver Burden Inventory (CBI), Caregiver Needs Assessment (CNA), Scala 6 del CBA, Medical Outcame Study Social Support Survey (MOS-SSS), Beck Depression Inventory (BDI), STAI di stato e di tratto (X,Y), questionario socio-demografico. Dopo la valutazione all'ingresso nell'Unità di neuroriabilitazione sono stati eseguiti due follow-up di controllo, con una cadenza di circa 4 mesi.

Risultati. I caregiver primari sono soprattutto mogli (46,2%) e madri (30,8%), raramente figli (15,4%) o padri (7,7%); le ore dedicate all'assistenza sono in media 7,3 al giorno. In tutti i soggetti si rileva una drastica riduzione della qualità di vita e il quasi completo abbandono delle attività precedenti. L'86% dei caregiver presenza di sintomi depressivi (BDI-II) ed il 78% di ansia (STAI-X). Il 36% dei caregiver incontra i criteri per il Prolonged Grief Disorder, e mostra maggiori sintomi depressivi, distress psicofisico (CBA-scala 6), ansia di stato ed elevati punteggi al CNA. Il confronto tra i punteggi dei questionari utilizzati nelle diverse rilevazioni ha mostrato la stabilità dei punteggi delle scale utilizzate ed un'aumento significativo del punteggio del sovraccarico emotivo (CNA).

Conclusioni. L'assistenza prolungata di un familiare con DdC determina una significativa riduzione della qualità di vita e spesso configura vere e proprie sindromi da stress prolungato, con sentimenti depressivi, elevati livelli d'ansia e distress psicofisico, che tendono a rimanere stabili nel tempo e di fronte ai quali il caregiver non riesce a trovare un efficace adattamento.

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CORRELAZIONE TRA IL DETERIORAMENTO COGNITIVO E I DISTURBI DELLA DEGLUTIZIONE NEI PAZIENTI CON DEMENZA PRIMARIA.

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Introduction. Le demenze cosiddette primarie, nella fase avanzata, possono generare complicazioni come febbri e polmoniti spesso caratterizzate da un ridotto periodo di sopravvivenza[1]. Questi sintomi sono maggiormente presenti nei casi di rapida evoluzione dei disordini corticali e sottocorticali. Uno studio retrospettivo ha evidenziato come la valutazione precoce di questi sintomi, compresa la valutazione della deglutizione può determinare un aumento della sopravvivenza[2]. Tra le complicanze la più grave rimane la polmonite, prima causa di morte[3]. La valutazione completa di tali disturbi può determinare una modificazione delle abitudini nutrizionali, al fine di prevenire fenomeni di aspirazione alimentare e garantire una migliore prognosi "quoad vitam". Scopo di questo studio è di capire se esiste una correlazione tra il deterioramento cognitivo e i disturbi della deglutizione al fine di predire i rischi di aspirazione nei pazienti con demenza cosiddetta primaria.

Materials and methods. Presso un reparto di riabilitazione per pazienti post acuti sono stati testati 13 pazienti affetti da problematiche ortopediche in assenza di diagnosi neurologiche di tipo cerebrovascolare, neoplastico, malattie demielinizzanti o extrapiramidali. Le patologie neurologiche sono state escluse mediante esame obiettivo neurologico e nei casi dubbi mediante TAC encefalo. Utilizzando come prima valutazione la scala DOSS per la disfagia e il Mini Mental State Examination (MMSE) per i disturbi cognitivi, sono stati arruolati 9 pazienti i cui risultati dei tests effettuati erano al di fuori della norma, tralasciando i pazienti risultati nei range di normalità. I soggetti reclutati sono stati valutati con testistica neuropsicologica finalizzata ad esaminare le abilità attentive, mnesiche, visuospaziali e linguistiche mentre per la disfagia è stata applicata la scala MISA ed un esame clinico approfondito. I punteggi ottenuti sono stati confrontati statisticamente mediante test di Mann-Whitney, comparando in particolare le funzioni cognitive con i le singole sottoscale della MISA, al fine di capire se esiste una correlazione tra le due compromissioni.

Results. Nei confronti effettuati, in un campione ancora esiguo, sono emerse delle correlazioni con una tendenza statisticamente significativa. In particolare il confronto tra le funzioni prassiche e gli items relativi alla autonomia nella alimentazione, quest'ultima confrontata anche con le abilità attentive ha dato risultati interessanti (entrambi per $p<0.06$). Le stesse funzioni cognitive confrontate con gli items relativi alla gestione e alla ingestione dei liquidi hanno determinato gli stessi risultati. Non si sono avute correlazioni significative per i confronti tra le funzioni mnesiche e tutte le altre sottoscale della MISA (posizionamento, gestione di solidi e ingestione di solidi), così come tra le funzioni attentive e prassiche con della MISA. Viceversa risultati con tendenza alla significatività statistica si sono avuti nel confronto tra i tests di fluenza verbale e la gestione ed ingestione di liquidi.

Conclusions. I risultati ottenuti spingono a continuare l'indagine. La estrema vicinanza dei risultati alla significatività statistica spinge a considerare utile una prosecuzione. Il lavoro della Langmore[1], quasi unico del suo genere, ha dimostrato una buona correlazione tra problematiche cognitive e demenze frontotemporali. Tale indagine, che da sempre costituisce il cruccio di chi si occupa non solo di problematiche cognitive che di disfagia, può avere risvolti utili nella pratica clinica. Se, proseguendo il lavoro, tali tendenze fossero confermate, bisognerebbe gestire con maggiore attenzione i pazienti affetti da demenze e prevedere una possibile evoluzione dei disturbi deglutitori anche in assenza di patologia neurologiche strutturali.

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FURLONG HIP ARTHROPROSTHESIS: FUNCTIONAL 7-YEAR FOLLOW-UP ANALYSIS OF A PATIENT POPULATION

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Introduction. In the last years the number of hip arthroplasty is constantly increased. Orthopaedic surgeons'attention now focuses on materials used for primary (mechanical) and secondary stability (osteo-integration of components) through the concept of "biological fixation" (1,2). The aim of this work was to analyze clinical, functional, and radiologic long-term outcome in patients receiving hip replacements with biological fixation.

Materials and methods. 205 hip arthroplasties were implanted in 182 patients between January 2000 and June 2006. All patients received the Furlong® prosthesis: a ceramic-coated acetabular cup, with the addition of cancellous screws and a straight stem coated with hydroxyapatite ceramic (3)**.** Clinical, functional, and radiographic assessments were performed before surgery, at 3 months-6 months-1 year after surgery, and thereafter annually. Number and type of complications were recorded. Harris Hip Score (HHS) was used for evaluation: mean values of the HHS were assessed in our series of patients, and in patients grouped by sex, age, BMI, operated side, and indication for arthroplasty.

Results. There were 78 men (38%) and 127 women (62%), with a mean age at surgery of 60.5 years (range 13-87). The follow-up period varied from 2 to 7 years. There were 22 cases (10.73%) of drop- out. Mean HHS was 45.5 before surgery, 94.85 at 1 year, 98.8 at 7 years. The mean value of HHS showed an improving statistically significant trend in comparisons made at 3-6 months, 6 months, and 1 year follow-up ($p< 0.001$; Mann-Whitney test). Comparisons between men and women showed no significant differences before surgery. A significant difference appeared at 3 ($p < 0.001$) and 6 months after surgery ($p = 0.04$; Mann-Whitney test), with better results for men. There were no significant differences at later assessments, indicating that men make a more rapid but not necessarily better recovery than women. Patients treated for primary coxarthrosis showed a significant difference compared to the groups of patients treated for other indications (i.e. necrosis of the femoral head, congenital hip dysplasia, and arthritis), having a slower recovery up to 4 year after surgery. No significant differences were found in functional results comparing the dominant or contralateral side operated. Patients older than 70 years had a worse functional recovery than the other younger groups. Weight had a negative effect on functional recovery in the first 2 years after surgery, but inter-group differences progressively decrease thereafter. Patients subdivided by degree of periarticular calcification did not show significant differences. In 205 implants, we found a total of 25 complications (12.19%), including 19 early (9.26%) and 6 late (2,93%) complication. We observed 3 cup loosening a no cases of stem mobilization.

Conclusions. Hip replacement with biological fixation is a reliable and reproducible surgical technique, which can be applied with excellent functional results both in young patients with severe secondary hip arthrosis and in old patients. Low rate of cup loosening and no cases of stem mobilization show that Furlong original design and biological fixation give it long-lasting stability in young patients and in patients with initial osteoporosis. The 7-year results are quite satisfactory from both a clinical and radiographic point of view, confirming that medium and long-term results of cementless total hip replacement tend to stabilize because there is a lack of late reactions, which are more common in cemented implants.

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OBESITY AND REHABILITATIVE OUTCOME IN STROKE

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Introduction. Overweight is a well-known risk factor for stroke (1,2). However it is still unclear the correlation between patients' weight and rehabilitative outcome. The aim of this study was to evaluate the eventual role of patient's weight as prognostic factor in stroke rehabilitation.

Materials and methods. An observational cohort study was designed and conducted during a 10 months period, in an intensive neurorehabilitation unit. Each patient was evaluated at admission and after 60 days. The Inclusion criteria were diagnosis of stroke and stable clinical conditions. The exclusion criteria were: previous cerebrovascular disease, dysphagia, spasticity, cognitive impairment (Short Portable Mental Status Questionnaire - SPMSQ > 2), pressure ulcers. Patients' enrolled had a HSS score of 7 (no walking ability). 43 (19W-24M) out of 124 patients, consecutively admitted, were enrolled. Anthropometric data and comorbidities were collected. Validated evaluation scales (Motricity Index - MI, Trunk Control Test - TCT) were used to investigate motor recovery and disability and autonomy in ADL (Barthel Index - BI). The patients' weight was obtained using a balance for disabled and the height with an height derived index (leg measure) (3). Patients enrolled were divided in 2 groups based on Body Mass Index (BMI) at admission: normal-weight (BMI<25) and over-weight (BMI>25). The groups were homogeneous about comorbidities and anthropometric data. Weight, BMI, motor recovery, autonomy in ADL, disability and their correlation were evaluated.

Results. The normal-weight group included 24 patients (13W-11M), mean age 69.3 years (range 37-89). The over-weight group included 19 patients (6W-13M), mean age 69.5 years (range 53-86). In normal-weight group, the mean weight passed from 60.4 Kg (range 44-80) to 58.9 Kg (range 46-74) and mean BMI from 22.7 (range 18-25) to 22.4 (range 19.9-25). In the over-weight group, the mean weight passed from 77 kg (range 60-94) to 74 kg (range 60-95) and the mean BMI from 28.4 (range 25.5-34) to 27.2 (range 25.5-34). No patient changed group during study period. MI, TCT and BI showed a significant ($p<0.05$) improvement within both groups, but not between groups, during the study period. The correlation between BMI and the MI, TCT and BI scores showed a weak negative result (-0.13, -0.15 and -0.13 respectively). A strong correlation (r=0,62) between MI and BI scores was found.

Conclusions. MI, TCT and BI scores showed a significant improvement in both groups. There is a weak correlation between BMI and MI, TCT and BI scores. Therefore, these data indicate that the BMI cannot be considered as a prognostic factor in stroke rehabilitation and that it is not able to predict motor recovery and autonomy in ADL. Moreover, the correlation between MI and BI scores indicates that the autonomy in ADL is directly correlated to motor recovery.

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LA COMPLESSITÀ CLINICA NELLA RIABILITAZIONE DEL PAZIENTE OPERATO DI PROTESI DI ANCA O DI GINOCCHIO: STUDIO MULTICENTRICO PROSPETTICO OSSERVAZIONALE.

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Introduzione. A fronte di un'ampia condivisione sulle componenti ed il timing del trattamento fisioterapico dei pazienti con atroprotesi totale d'anca (PTA) o di ginocchio (PTG), la conoscenza sui fattori che influenzano i percorsi clinici di questi pazienti rimane scarsa e frammentaria. Questo studio si propone di descrivere i percorsi riabilitativi dei pazienti dopo PTA o PTG e di evidenziare i fattori di complessità clinica associati agli esiti a breve periodo.

Soggetti e metodi. Studio prospettico osservazionale su 847 pazienti (65% donne, età media 72 + 9 anni) ricoverati consecutivamente in 6 strutture di

riabilitazione specialistica della Liguria dopo intervento primario di PTA o PTG. Per descrivere i percorsi clinici e gli esiti della riabilitazione è stato applicato il sistema IPER 2 (Indicatori di Processo Esito in Riabilitazione). IPER 2 è un sistema standardizzato di indicatori binari e misure validate disegnato per tipizzare la complessità clinica (premorbosa, medica ed infermieristica) dei pazienti, l'intensità e la multimodalità dei processi di cura e gli esiti del trattamento riabilitativo (1).

Risultati.

Complessità pre-intervento. Il 48% dei pazienti aveva comorbilità significativa prima dell'intervento: il 46% presentava 2 o più malattie croniche in trattamento, insufficienza cardiaca o respiratoria severa (2.5%) e/o demenza (1.2%).

Complessità all'ammissione. Il tempo intercorso tra l'ammissione in ortopedia e l'ammissione in riabilitazione è stato di 13+19 giorni. Ad esclusione del dolore (84%), il 37.6% dei pazienti presentava uno (26.7%) o più (12.9%) marcatori di complessità medica o infermieristica. Depressione (19.6%), malnutrizione (11.1%), infezioni (7.2%), ulcere da pressione (4.6%), incontinenza urinaria (9.2%) e catetere vescicale (4.4%) sono risultati i marcatori più frequenti.

Complessità di transizione. Il 21.8% dei pazienti ha avuto un decorso complicato da uno o più eventi clinici avversi: infezioni urinarie (9.2%), non urinarie (6.7%) e/o eventi non infettivi (8.6%). Le cadute hanno riguardato l'1.2% dei pazienti.

Esiti. La lunghezza della degenza è stata di 17+7 giorni. Alla dimissione il 94.4% dei pazienti era in grado di deambulare autonomamente, con autonomia completa (64.4%) o ridotta (29.9%). Stratificando i pazienti per numero di marcatori di complessità clinica, abbiamo ottenuto 4 sottogruppi: nessun marcatore (35.5%), uno (37.9%), due (16.4%), da tre a cinque marcatori (10.2%). Questa stratificazione ha identificato gruppi di pazienti con esiti significativamente differenti per lunghezza di degenza (p<0.00), incidenza di eventi clinici avversi (p<0.00), dipendenza funzionale e velocità del cammino (p<0.00).

Conclusioni. La stratificazione dei pazienti con PTG o PTA per numero di marcatori di complessità clinica all'ammissione ha identificato sottogruppi a differente lunghezza di degenza, incidenza di eventi clinici avversi ed esiti funzionali. I marcatori di complessità clinica possono costituire una metrica per analisi finalizzate alla costruzione di sistemi di classificazione dei pazienti predittivi dell'assorbimento di risorse e degli esiti della riabilitazione.

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TRATTAMENTO RIABILITATIVO NELLA OSTEOGENESIS IMPERFECTA: A CASE REPORT

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Introduction. L'Osteogenesis Imperfecta (OI) è una rara malattia genetica causata da un difetto di sintesi del collagene di tipo I. La diagnosi avviene in genere in giovane età e rarissime sono le forme riconosciute in età adulta. Mentre è documentata l'efficacia di un trattamento riabilitativo pediatrico ad oggi non esistono protocolli per il trattamento fisiokinesiterapico nell'adulto. Nel presente lavoro viene proposto un percorso riabilitativo di un uomo di 54 anni con OI.

Materials and methods. Il paziente giungeva all'ambulatorio fisiatrico per algie alle spalle, un quadro di ipotrofia muscolare e cammino macrobasico. In anamnesi: fratture multiple da traumi minori, sostituzione bivalvolare, osteoporosi, ipoacusia, sindrome vertiginosa, depressione reattiva, nessuna malformazione ossea evidente. Conferma diagnostica di OI con esami genetici nel 2011. Dopo valutazione spirometrica e test cardiopolmonare, sono stati eseguiti alla presa in carico (T0) ed alla fine del percorso (T1): valutazione funzionale globale con SF-36, test del cammino (6MWT), power grip test con dinamometro Jamar, valutazione dell'equilibrio su pedana stabilometrica, analisi del cammino con accelerometro, valutazione del dolore globale con scala VAS. Sulla Base delle valutazioni cliniche e funzionali (VO2 Max, 6MWT, Spirometria), è stato impostato un programma incrementale di esercizi personalizzati nelle aree di equilibrio, rinforzo muscolare e cardiofit.

Results. I punteggi ottenuti alla valutazione iniziale (T0) e finale (T1) sono stati sottoposti a valutazione statistica con test T di Student considerando significativo un valore di P≤0,05. È stato evidenziato un miglioramento statisticamente significativo della forza di presa palmare a destra (P=0,0042) e a sinistra (P=0,0142), della velocità del cammino (P=0,025) e della lunghezza del passo (P=0,0198). Alla stabilometria il gomitolo è diventato meno ampio e più compatto con diminuzione delle oscillazioni latero-laterali (P=0,0143) ed aumento di quelle antero-posteriori (P=0,0044). Inoltre è stata notata una variazione significativa della sintomatologia dolorosa (Punteggio VAS: T0=50; T1=20) e dei punteggi finali alla SF-36 nelle tre aree della salute fisica, generale e psicologico-emotiva.

Conclusions. I risultati del Power Grip Test e dell'analisi del passo testimoniano un miglioramento complessivo espressione del maggior vigore fisico del paziente certamente correlato all'incremento dell'impegno muscolare. L'interpretazione dei risultati della stabilometria risulta particolarmente complessa a causa delle vertigini croniche e delle precedenti distorsioni recidivanti della caviglia che possono spiegare un'alterazione dell'equilibrio a carico della componente vestibolare e propriocettiva, la diminuzione del dolore alla VAS è indice di buona tollerabilità del programma proposto. Pur partendo da una condizione di fragilità iniziale, il programma di esercizi mirato, con carichi progressivi e a basso impatto ha consentito un miglioramento della condizione fisica scevro da effetti collaterali e rischi, come documentato dalla variazione dei parametri iniziali e del punteggio alla SF-36. Il paziente ha dimostrato un'ottima compliance, l'intero percorso ha sortito effetti positivi soggettivi sull'umore e sull'ansia ed ha permesso di superare potenziali ostacoli all'esercizio quali ipoacusia e vertigini.

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SAFETY GUIDELINES AND FALL PREVENTION IN REHABILITATION CARE FACILITIES

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Introduction. Patients, regardless of care setting, deserve a safe and comfortable environment. According to the literature, a high percentage of patients fall during hospitalization in different types of care facilities. The purpose of the proposed guideline is to provide a uniform set of recommendations for caregivers in hospitals, rehabilitation and long term care facilities to use when assessing patient needs for different restrictions and mobility devices.

Materials and methods.

Study design: Cohort study.

Setting: Bayt Balev Rehabilitation Hospital, Bat-Yam.

Population: Patients at the Bayt Balev Rehabilitation Hospital.

Measurements: As a result of safety and quality of treatment intervention at Bayt Balev Rehabilitation Hospital, fall prevention guidelines were implemented. The main outcome evaluation was the percentage of falls per year at the Bayt Balev Rehabilitation Hospital before and after the implementation of the proposed guidelines.

Results. Progressive introduction of different safety devices in disabled patients proved to be useful in decreasing the number of falls during Rehabilitation.

Conclusions. During the intervention time a 15% decrease of in-patient falls was registered in the Geriatric Rehabilitation Department. 54% less falls were registered in 2011 compared to the previous year in the General Rehabilitation Department. These safety guidelines reduce the cost of care and improve the quality of service in rehabilitation care facilities.

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EFFICACY OF KINESIO TAPING IN CHILDREN WITH HEMIPLEGIC CEREBRAL PALSY: RANDOMIZED, DOUBLE BLIND, CONTROLLED, CLINICAL STUDY

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Introduction. Limitation in functions of upper extremity in children with hemiplegic cerebral palsy is an important problem that affects their life. Rehabilitation of upper extremity is very important in these children. There are various methods for this issue and one of them is kinesio taping.

Materials and methods. This study is a double blinded randomized clinical trial. 22 children with hemiplegic cerebral palsy were included in the study. Patients were randomized into therapy and control groups. Patients were taped once per three days and 3 times totally. Spasticity assessment, range of motion evaluation, box and block test, nine hole peg test and measurement of hand grip strength were performed in the beginning, 3rd, 7th, 10th, 20th and 30th days. Child health assessment questionnaire was completed at the beginning, 10, 20. and 30. days. Patient and doctor satisfaction were assessed per each visit.

Results. Mean age of the patients was 8.8±2.4 in therapy group; 8.3±2.4 in control group and 77.3% of patients were male. There was no statistically significant difference in measurements of spasticity and range of motion in both of the groups. Similarly, in the results of hand dexterity tests; box and block test and nine hole peg test there was no significant difference between the groups, but in both groups, the differences in the groups were statistically significant. No significant difference was found in results of hand grip strength, child health assessment questionnaire, patient and doctor satisfaction.

Conclusions. According to positive changes that were detected in the evaluation of fine and gross motor abilities, kinesio taping provides a positive effect that increases children's attendance to therapy, because of this reason it can be used in routine of rehabilitation process.

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LOW-LEVEL LASER THERAPY FOR THE TREATMENT OF POSTMASTECTOMY LYMPHEDEMA

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Introduction. Secondary arm lymphedema is a chronic and distressing condition which affects a significant number of women who undergo breast cancer treatment. Although there are different conservative methods for treatment, no therapy completely cure this condition. The aim of the study is to investigate the effects of low level laser therapy among patients with post mastectomy lymphedema.

Materials and methods. Thirty three women having post mastectomy unilateral lymphedema were included. Volumetric values were calculated by measuring arm rounds of the cases. Hand muscles strength and pain evaluations were also done. Cases divided into two groups by simple matching method. Pneumatic compression and low-level laser therapy were applied to the first group and pneumatic compression and placebo laser were applied to the other group. Each group were treated 5 days per week for three weeks, one day apart, were administered a low level laser. Cases were evaluated before, at the end of and at the first month of the treatment.

Results. A significant reduction in volumes of arms suffering from lymphedema was revealed in both groups. No significant difference was revealed between two groups ($p>0.05$). There was a significant improvement of muscle strength in each group ($p<0.05$), the groups were significantly different at the end of the treatment ($p<0.05$), nevermore there was no significant difference at the end of the first month after treatment between the groups. Pain levels of both two groups were relieved significantly ($p<0.05$). There was also significant difference in controls at the end of the treatment and the first month of the treatment.

Conclusions. It is revealed that low-level laser therapy beside pneumatic compression was not clinically efficacous among the patients with postmastectomy lymphedema.

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COMPARISON OF THE UNAFFECTED EXTREMITIES OF CHILDREN WITH OBSTETRIC BRACHIAL PLEXUS INJURY WITH THE DOMINANT EXTREMITIES OF HEALTHY CHILDREN

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Introduction. Obstetric brachial plexus injury, one of the major problems in the childhood, is a peripheric nerve lesion affecting child's individual development. So far the lesion defined, many treatment modalities were developed and a number of studies comparing the effectiveness of these treatment methods were progressed. The aim of our study was to compare the unaffected extremities of children with obstetric brachial plexus injury with the dominant extremities of healthy children.

Materials and methods. Fifty three children with obstetric brachial plexus injury were included into the study. Age and gender matched fifty one healthy children were also defined as a control group. In order to evaluate each group, box and block test for gross motor evaluation, nine hole peg test for fine motor evaluation and dynamometer for grip strength hands and. fingers were used.

Results. The results of box and block test and nine hole peg test showed that there was an statistically significant difference between patient and control groups. However, there was no statistically significant difference on hand and finger. grip strength. As a result, when the participants were categorized according to age, in comparison with healthy children, participants in the age range of 4-8 years were not good at fine motor skills, but in the advanced age (range of 9-13), the difference was disappeared.

Conclusions. When the children with obstetric brachial plexus palsy start the school, we must keep in mind that they are not able to use their unaffected arm as effective as their peers. Thus, their rehabilitation program must be reorganized in this respect.

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THE EFFECT OF INTERMITTENT SERVICAL TRACTION IN PATIENT WITH CHRONIC DEGENERATIVE DISC DISEASE

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Introduction. Degenerative disc disease is a common problem of the aging spine and physical modalities are used widely in the treatment of this disease. There are so many different reported results in the literature showing the efficacy of traction. The present study aims to show the efficacy of traction usage when added to other physical therapy modalities in patients with chronic disc disease.

Materials and methods. Sixty patients who had a complaint of neck pain and diagnosed with chronic cervical degenerative disc disease were enrolled to this study. Patients randomized into two groups, there were 30 cases in each group. We performed transcutaneous electrical nerve stimulation (TENS) and ultrasound (US) as the primary physical therapy modalities for both of the groups. Intermittent traction was added to treatment only in treatment group. Isometric exercises were given to the patients in both groups as a home regime after treatment. Physical therapy was performed 5 days per week, for 2 continuous weeks, 10 sessions. All patients completed; Visual analogue scale (VAS), Neck Pain and Disability Score (NPAD), BECK Depression scale (BDS), Neck Pain Questionnaire (NPQ), patient and physiotherapist satisfaction assessment form. Results were assessed before treatment, after treatment, after one and three month of treatment.

Results. There was a statistically significant improvement at VAS, BDS, NPQ and NPAD intragroup in each group at the end of the treatment, 1st and 3rd month controls. According to intergroup assessment there was a significant improvement at BDS, NPQ and NPAD in treatment group, there was no significant improvement at VAS. Satisfaction of patients and physiotherapists was statistically better in the 3rd month control of the treatment group.

Conclusions. As a result; in patients with chronic degenerative disc disease, traction application is more efficient on pain, disability and well-being when added to classical conservative treatment such as electrical stimulation (TENS) and deep heat therapy (US).

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EFFETTI DEL TRAINING DI BILANCIAMENTO POSTURALE CON PEDANA OSCILLANTE A PERNO CENTRALE IN BAMBINI CON DANNO ACQUISITO DEL SNC. STUDIO PRELIMINARE

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Introduction. Soggetti che hanno subito un danno acquisito del SNC presentano una difficoltà specifica ad attivare e regolare il timing della contrazione muscolare che comporta una difficoltà nella competenza di bilanciamento posturale. Questa condizione determina un degrado funzionale di altre funzioni adattive sostenute dal bilanciamento posturale (visione funzionale, alimentazione, raggiungimento/afferramento manuale, passaggi posturali, ecc.). Lo scopo del presente studio è delineare una metodologia di valutazione e di training del bilanciamento posturale del tronco che mostri un evidenza di incremento

della funzione posturale e delle competenze da questa sostenute nel trattamento riabilitativo post-acuzie.

Materials and methods. Abbiamo selezionato un campione omogeneo di 7 bambini con danno acquisito del SNC e disturbi specifici nel bilanciamento posturale in posizione seduta. I criteri di inclusione sono stati: 1)Danno del SNC ai origine acquisita (Trauma cranico, post-neoplasici, post-stroke) 2) Controllo del tronco <3 sec. I bambini sono stati valutati in posizione seduta, senza il supporto delle braccia, su un panchetto della misura adeguata che permettesse il range al ginocchio di 90° e un adeguato appoggio plantare. Tutti i bambini sono stati valutati con i seguenti test specifici per la valutazione della posizione seduta: A) Sitting Assessment for Children with Neuromotor Dysfunction (SACND) che misura la qualità della posizione seduta in due moduli: Statico e Raggiungimento manuale. Ciascun modulo valuta a) Tono Posturale b) Stabilità Prossimale c) Allineamento Posturale d) Bilanciamento B) Dimensione B (posizione seduta) della GMFM. I bambini sono stati sottoposti a un training di 45 minuti 5 giorni a settimana per un tempo variabile (dalle 9 alle 21 settimane). Il training è stato calibrato secondo le competenze e le caratteristiche specifiche del singolo soggetto, con una di complessità a difficoltà crescente. Per il training è stata usata una pedana oscillante a perno centrale a 3 gradi di libertà con caratteristici elementi elastici di richiamo in grado di creare un campo di forze "centripeto antigravitario" che annulla i movimenti a scatto, smorza le oscillazioni indesiderate e riporta la pedana sempre in piano. È inoltre fornita di dispositivi di regolazione indipendenti del precarico degli elementi elastici, variabili in base al peso del bambino e alle caratteristiche del training richiesto.

Results. Tutti i b. infatti mostrano netti miglioramenti complessivi per quanto riguarda la dimensione D della GMFM. Nello specifico Item 34 della GMFM tutti i b. ottengono un punteggio pari a 3 (seduto sulla panca mantiene la posizione senza il supporto delle braccia e senza appoggio plantare per 10 secondi). Tutti i bambini mostrano un miglioramento negli item di stabilità, allineamento, tono e bilanciamento che riguardano l'area atta alla valutazione del mantenimento della posizione seduta (Sacnd M).

Conclusions. Pur nella consapevolezza del campione esiguo, i dati raccolti sulla possibilità di un training specifico multicomponenti sul bilanciamento funzionale relativo a Compiti, Contesti, Perturbazioni, Calibrazione della Pedana segnalano un incremento di competenze del bilanciamento posturale maggiori e in tempi più rapidi rispetto ad un approccio tradizionale.

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DAL DIRE AL FARE: L'IMPORTANZA DELLA FORMAZIONE INTERDISCIPINARE NELL'APPRENDIMENTO DELLA CORRETTA VALUTAZIONE E DEL TRATTAMENTO DELLA DISFAGIA

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Introduction. La disfagia è tuttora un argomento poco conosciuto, pur esponendo il paziente a importanti rischi. È fondamentale l'individuazione precoce del disturbo con attuazione di percorsi specifici di trattamento e adeguata sinergia dei componenti il team. L'importanza delle ripercussioni della mancata identificazione e dell'adeguato trattamento della disfagia hanno portato la costituzione, all'interno della Ausl di Piacenza, del Gruppo Disfagia, interdisciplinare e multiprofessionale e all'elaborazione di un corso di formazione accreditato ECM: dato l'alto indice di iscrizioni al corso è stato necessario prevedere 7 edizioni. L'obiettivo è quello di conoscere le dimensioni del problema, acquisire informazioni di base per valutare e riconoscere segni e sintomi della disfagia per intervenire in modo precoce ed efficace evitando frequenti e gravi conseguenze come la malnutrizione, le polmoniti ab ingestis e l'isolamento sociale.

Materials and methods. Il corso è destinato a personale medico, infermieristico, tecnico e non sanitario (educatori e assistenti sociali). Il gruppo dei docenti è costituito dai componenti il Gruppo Disfagia interdisciplinare: fisiatra, otorinolaringoiatra, pneumologo, dietologo, geriatra, neuropsicologa, logopedista, fisioterapista, infermiere. Sono previste 6 ore di lezioni teoriche frontali e 2 ore di lezioni pratiche divisi in piccoli gruppi. I contenuti della prima parte prevedono la definizione del problema disfagia (linee guida, fisiopatologia, epidemiologia), la descrizione delle complicanze, la spiegazione delle modalità di valutazione e trattamento con individuazione delle competenze specifiche dei diversi operatori coinvolti. La parte pratica riguarda l'addestramento alle principali manovre infermieristiche (igiene cavo orale, pulizia cannula, broncoaspirazione), fisioterapiche (postura del pz, riduzione ipertono) e logopediche (valutazione, esecuzione del test dell'acqua, scelta delle consistenze). Per verificare le competenze preesistenti e l'efficacia del corso è prevista l'esecuzione di un pre-test anonimo identico al test finale di valutazione dell'apprendimento comprensivo di 10 domande tra cui: conoscenze di fisiopatologia della deglutizione; valutazione della disfagia; gestione di cannule tracheostomiche con cuffiatura; somministrazione farmaci in pz portatori di PEG; postura durante l'alimentazione.

Results. I partecipanti alle 3 edizioni del corso finora effettuate sono stati 137 con prevalenza di infermieri (84) seguiti da medici (17), fisioterapisti (14) e logopedisti (7). L'analisi dei risultati pre-test evidenzia una media del 46% di risposte corrette; in particolare le domande con maggior percentuale di errore sono relative a: fisiopatologia della disfagia, valutazione strumentale, cuffiatura cannula, somministrazione farmaci e postura durante l'alimentazione. Alla somministrazione del test di valutazione dell'apprendimento a fine corso le risposte corrette raggiungono la media del 90%. Dall'analisi dei questionari di gradimento emerge che la quasi totalità dei partecipanti giudica molto rilevanti gli argomenti trattati e molto efficace il corso per la propria formazione continua.

Conclusions. I dati relativi alla media dei risultati pre e post-corso con statisticamente significativa efficacia di apprendimento e agli indici di gradimento confermano la necessita' di un addestramento teorico-pratico alla disfagia rivolto a tutti gli operatori sanitari di carattere interdisciplinare.

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IL TRATTAMENTO RIABILITATIVO DELLA FIBROMIALGIA: EFFICACIA A CONFRONTO FRA TRATTAMENTO COMBINATO DI TRAINING AEROBICO PIU' GRUPPO DI AUTO-MUTUO-AIUTO VERSUS SOLO TRAINING AEROBICO

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Introduction. La fibromialgia (FM) è una malattia ad eziologia ignota diagnosticata in accordo ai criteri dell'American College of Rheumatology (ACR). Si è voluto verificare l'efficacia di un trattamento riabilitativo combinato di training aerobico e gruppo di auto-mutuo aiuto ad orientamento cognitivo-comportamentale vs. solo training aerobico.

Materials and methods. Lo studio si è svolto tra aprile e maggio 2011 presso l'U.O. di Medicina Riabilitativa dell'ospedale di Piacenza, hanno partecipato 12 pz. di sesso femminile di età compresa tra 40 e 70 anni con diagnosi di fibromialgia primaria. Il gruppo sperimentale era formato volontariamente da sei pz. disposte, oltre ad effettuare il training aerobico, a partecipare agli incontri di Auto-Mutuo-Aiuto; altre sei componevano il gruppo di controllo (solo trai-

ning aerobico). Le sedute di training aerobico erano a frequenza bisettimanale per un totale di quattordici; gli incontri di Auto-Mutuo-Aiuto avevano cadenza quindicinale. Il training aerobico prevedeva 3 esercizi iniziali di stretching per 6' complessivi, uso di cyclette per 20' a. seduta a carico incrementale fino al raggiungimento dell'80% della potenza massima espressa nel. test da sforzo cardiorespiratorio (strumento di valutazione pre-trattamento) e 6' finali di stretching. Per verificare l'efficacia di un trattamento rispetto all'altro, le pz. sono state sottoposte al Test da Sforzo Cardiopolmonare (CPET) e al 6MWT prima e dopo il periodo di trattamento, inoltre è stato chiesto loro di compilare il Fibromyalgia Impact Questionnaire (F.I.Q.).

Results. I risultati dei test sono stati analizzati statisticamente sia tra gruppi diversi, sia con uno studio longitudinale all'interno degli stessi gruppi (confronto tra risultati pre e post-trattamento). Gli strumenti utilizzati per l'analisi statistica sono i seguenti: An.o.va e An.o.va per dati appaiati (entrambi utilizzati per il confronto dei dati parametrici come test da sforzo e 6MWT); test di Mann-Whitney e test dei segni per ranghi di Wilcoxon (per i dati non parametrici del questionario). Dall'analisi è emersa significatività statistica per i dati raccolti al termine del periodo di trattamento nel test da sforzo, a favore del gruppo sperimentale rispetto al gruppo di controllo. Nello studio longitudinale tra i dati raccolti prima e dopo il trattamento è risultato statisticamente significativo il miglioramento all'interno del gruppo sperimentale nello svolgimento del 6MWT. Nel gruppo sperimentale le sedute di auto-mutuo aiuto hanno probabilmente contribuito a migliorare la motivazione e l'adesione al trattamento. Le risposte del questionario non hanno mostrato significatività statistica, probabilmente a causa dell'interferenza del quadro psicologico al momento della compilazione, variabile in rapporto all'umore del pz. e al basso numero dei partecipanti.

Conclusions. Le indicazioni statistiche avute dal gruppo sperimentale nel test da sforzo e nel 6MWT, unite alle sensazioni positive riferite dalle partecipanti, suggeriscono un interesse per la ripetizione del lavoro con un numero maggiore di pz. e di sedute riabilitative, utilizzando criteri più scientifici per la randomizzazione dei gruppi. Sicuramente dal lavoro si rimarca l'importanza, in linea con la Letteratura esistente, di un approccio terapeutico alla sindrome fibromialgica a carattere multimodale (training aerobico, interventi ad orientamento cognitivo-comportamentale, ecc.) e mai limitato ad un solo tipo di trattamento.

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ROBOTICS AND ITS INTRINSIC OPERATOR DEPENDENCE: ADVANTAGE OR DISADVANTAGE?

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Introduction. In the course of the past decade, various promising therapeutic instruments for use in rehabilitation medicine have arisen from the field of applied robotics. Many of these are also on offer as adjuvant solutions for saving on therapeutic resources. Erigo® is a small tilting table based on the principle of the static table but equipped with an integrated robotic stepping system, which makes it possible to achieve the simultaneous passive mobilisation of the lower limbs during the progressive tilting phase. Precisely this solution is of valuable assistance today in the rehabilitation of patients with the typical disturbances that result from prolonged immobilisation after suffering serious brain injuries. A pilot study on healthy young subjects (Czell D. *et al.* 2004) promoted the usefulness of Erigo® in the early phase of recovering a passive upright posture. A small study carried out on six patients with spinal injuries above T5 classified as ASIA-A (quoted in Colombo *et al.* 2005) found that the technique was also well tolerated in this homogenous population with lesions of the CNS. Another study on nine patients affected by outcomes of severe cranio-encephalic trauma with their deficits in a stabilised clinical phase concludes (Luther 2008) that, with progressive tilting up to an angle of 70°, there would be better antagonism of the typical phenomena of orthostatic cardiovascular deregulation if the session were to be integrated with cyclical passive stimulation of the lower limbs.

Objectives. The aim of this case report is to evaluate the cardiovascular tolerance of two young subjects affected by serious pyramid syndromes (both spastic and ataxic) following brain injuries, with a view to confirming the observations of the earlier studies. The study had a secondary aim too, namely that of evaluating the totality of the human resources needed to ensure the correct application of the "Erigo® protocol", which was defined internally for the two patients considered.

Materials and methods. The study involved two patients, aged 52 and 43 years, who were observed throughout all the treatment sessions with Erigo® (lasting 30 minutes) for a period of one month. The data was collected using a form designed internally for the purpose, containing information on both clinical parameters, i.e. cardiovascular parameters (PA, SAO2, FC), pain parameters (VAS scale), undesired effects ("adverse events") and training parameters (such as frequency of steps, force, duration of exercise and number of steps) and parameters concerning the device's settings (such as height of thigh and range of movement). For the definition of the training and setting parameters, the researchers took as their point of departure the indications contained in the Erigocontrol user manual, version 3.10 (March 2005), provided free-of-charge to the healthcare personnel of the company producing the device (Hocoma AG). Throughout the whole duration of the study, the two therapists (one of whom was qualified in the use of the Erigo® and experienced with it and the other a non-qualified trainee or therapist) followed both the patient and kept records of all the parameters mentioned above. During each physiotherapeutic treatment session, they entered the records into the monitoring form every 10 minutes. At the end of the study, data was also collected and analysed regarding the preparation times and the necessary resources deployed from the moment of the patients' arrival in physiotherapy unit to the effective commencement of the session (30') and from the end of the session until the patient was handed back to the paramedical personnel.

Results. The first of the two patients included in the study received 290 minutes of treatment with the Erigo® robotic equipment and the second one 270 minutes. By the end of the training period, the first patient had completed a mean of 779.3 steps in each session, compared with 914.0 steps by the second patient. The mean frequency of steps (i.e. speed), on the other hand, was 14.0 ±14.0 steps/minute for the first patient, compared with 29.6±3.5 steps/minute for the second patient. In the case of the first of the two patients considered, the appearance of symptoms of orthostatic intolerance during the administration of the "Erigo® protocol" led to the immediate, precautionary interruption of the session on five occasions, even when the table was still only tilted at a small angle. The prompt interruption brought about the quick resolution of the symptoms on each occasion without calling for any further medical measures of support or checks. The critical evaluation of the comparison between the two curves of arterial pressure highlights that the baseline cardiovascular parameters measured at T0 in this subject are already pathological (non-symptomatic systolic hypotension). However for the first patient compared, they are within the norm, considering that he did not present any type of intolerance. In the post-acute rehabilitation phase, too, asymptomatic arterial hypotension in a subject with "deconditioning syndrome" after suffering a serious brain injury ought to be considered as an intrinsic risk factor and, consequently, as a counter-indication to treatment with the Erigo® table. Nonetheless, it is possible that further studies involving a larger number of patients with this clinical typology might contribute to identifying the most appropriate rehabilitation protocol for improving the degree of tolerance, thereby limiting dropout risks. The analysis of the data also made it possible to establish that the mean time taken for preparation and setting up the Erigo® equipment in the case of the two patients considered was approximately 15 minutes. Moreover, considering the relative clinical-functional and medical complexity of the two cases studied and with the aim of pointing to clinical counter-indications that might potentially emerge during the preparation phase or arise during the administration of the treatment, the active presence of the specialist rehabilitation doctor had been envisaged for the first session.

Conclusions. Although the number of cases dealt with is not statistically significant, we can nonetheless still put forward certain considerations. In the present case report, the robotic passive stimulation of the lower limbs produced clinical confirmation of the principal indication for Erigo® (reconditioning and/or maintenance of the physiological reactions of cardiovascular compensation in patients with hypomobility and unable to actively maintain an upright posture). In our two cases as well, the subjective and cardiovascular tolerance was satisfactory. In our opinion, the confirmation or negation of the indication for treatment with Erigo® cannot always be fully appreciated at the patient's bedside. The high clinical-rehabilitation complexity, on the one hand, and the lack of homogeneity of the syndrome and functional frameworks of the neurorehabilitation spectrum, on the other hand, make it necessary for this rather to be the object of an interdisciplinary evaluation by the specialist doctor and the expert physiotherapist when preparing the session. That brings with it a better use of human resources and optimises the use of the time of the available treatment team. Reconsidered in the light of a possible future rationing of funds in the field of rehabilitation, it is particularly the "operatordependence on experts" of the robotic methodologies that is postulated as a promising adjuvant means from the point of view of saving resources, so that it ought at least not to be opened to debate again.

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SUPPORT FOR THE SYRIAN WAR VICTIMS

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Purpose. To find the best method to rehabilitate the casualties of the Syrian crisis, by taking opinions, suggestions and support from the Cooperation committee.

Introduction. Since march 2011 and the syrian people have been suffering because they decided to change the dictatorship regimen what's so called arab spring, like other countries (egypt, tunisia and libya). as a reaction from the security forces many of them were shoot died, others were injured, and more than million have become homeless. The Syrian community tried to help those sufferers but the catastrophe was beyond their capabilities so they sought help and support from other humanitarian organizations. From the medical care standpoint, there are many medical organizations and associations but the main and the most recognized body is Syrian Expatriate Medical Association (SEMA). SEMA is a non-governmental non-profit organization, was established by Syrian doctors and other health professionals to help their people inside and outside Syria. Many projects have started but none of them is clearly devoted for Rehabilitation. Major Impairments and diagnoses lead to disability:

- Amputations.
- Spinal Cord Injury (SCI) including tetra- and paraplegics.
- Traumatic Bain Injury.

Current Situation:

The disabled are located in different locations, the main areas are:

- Inside Syria.
- The Syrian refugee camps in Turkey.
- The Syrian refugee camps in Jordan.
- In Lebanon.

The medical care focuses on saving life and treating the acute conditions hence minimal effort is being provided to the medical rehabilitation aspect which was discussed in the last SEMA monthly meeting in June 2012 and the board suggested to prepare a proper plan rehabilit.

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ESPERIENZE DI RIABILITAZIONE MULTISPECIALISTICA: FISIATRA, MEDICO DEL LAVORO, INAIL

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SERVIZI DI FISIATRIA OCCUPAZIONALE ED ERGONOMIA DEGLI ISTITUTI SCIENTIFICI DI PAVIA [1] E DI MONTESCANO (PV) [2] DELLA FONDAZIONE SALVATORE MAUGERI-IRCCS; SEDE INAIL DI PAVIA [3]; CENTRO PROTESI INAIL-BUDRIO [4]; SCUOLA DI SPECIALIZZAZIONE IN MEDICINA DEL LAVORO, UNIVERSITÀ DEGLI STUDI DI PAVIA [5] E UNITÀ OPERATIVA DI MEDICINA DEL LAVORO [6], FONDAZIONE SALVATORE MAUGERI-IRCCS, PAVIA

Gli infortuni sul lavoro e le malattie professionali sono una piaga che le moderne società occidentali, seppur tecnologicamente avanzate, hanno evidenti difficoltà a prevenire, a trattare ed a riabilitare con tempestività ed efficacia. Le attuali strutture riabilitative neuromotorie ospedaliere, sia pubbliche, sia private accreditate, presentano notevoli difficoltà a rispondere ad una domanda che, pur con oscillazioni annuali e con necessità magari diverse fra loro, resta però sostanzialmente elevata. Presso l'Istituto Scientifico di Pavia-Montescano della Fondazione Maugeri è stato sperimentato un modello di intervento polidisciplinare (fisiatra, medico del lavoro, neurofisiologo, radiologo, ecc.) e multiprofessionale (terapista occupazionale, fisioterapista, ergonomo) per la riabilitazione ed il reinserimento dell'infortunato sul lavoro in stretta collaborazione con la sede INAIL locale e la Cattedra di Medicina del Lavoro dell'Università, anche sulla base di lavori scientifici svolti in questi anni in collaborazione con il Centro Protesi INAIL di Budrio che hanno riguardato la valutazione delle capacità funzionali e residue. Questo percorso per il reinserimento lavorativo si sviluppa su diverse fasi e comprende potenziamento della forza e della resistenza, attività specifiche di terapia occupazionale per la ripresa della funzionalità e della gestualità lavorativa, allenamento aerobico, eventuale prescrizione ed assegnazione di ausili, sopralluogo al domicilio ed al posto di lavoro. Un elemento particolare è costituito dalla valutazione funzionale finale, i cui scopi sono: studiare le "capacità residue" e le "capacità sostenibili" del soggetto, fornire elementi utili al medico del lavoro per la verifica di idoneità, contribuire ad un reinserimento "mirato", fornire parametri utili per la prevenzione e la progettazione ergonomia. I principali aspetti del disabile che vengono indagati sono: livello della disabilità, abilità motorie (articolarità, forza, resistenza), funzioni cognitivo–verbali, sensibilità e funzioni sensoriali, componenti psicologiche ed emotive, necessità di ausili, aspetti di tipo educativo-professionale, possibilità di trasporto autonomo, motivazione. Nel lavoro viene presentato tale modello, i criteri seguiti per l'attività, le innovazioni tecnologiche utilizzate per le valutazioni di idoneità, i risultati e le prospettive di sviluppo. Anche alla luce dei nuovi scenari legislativi tale modello di attività risulta efficace dal punto di vista sanitario-riabilitativo, sostenibile dal punto di vista economico e quindi efficiente nel suo complesso.

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ACTIVITY AND ACTION SPORTS AFTER TOTAL KNEE PROSTHESIS

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Introduction. The return to high level sports and an effective (or good) functional recovery are important factors for many patients after a knee replacement. Analyzing the different types of training, proper stretching and muscular strengthening programs it's useful to determine how to improve clinical outcomes and athletic ability, preventing accidents and protecting the prosthesis. The purpose of this study is to analyze the correct rehabilitation program based on the allowed activities or not indicated in sports studies in sports studies.

Materials and methods. The analyze of literature data was developed in PubMed, Medline and the Cochrane Central Registry of Controlled Trials. Keywords reference were: knee arthroplasty, replacement, prosthesis, sports activity, level, sports activity level, high-impact sports. The limits set for this review were: humans, time (10 years old).

Results. The end of the study was march 2012. It was possible identify many protocols based on different functional demands of patients with total knee arthroplasty. The recommended sports activities for patients with total knee replacement are: cycling, swimming, ballroom dancing, archery, walking and golf. Some activities are activities allowed only to experts skill level: low-impact aerobics, cycling, bowling, canoeing, hiking, horseback riding, fencing, tai chi. Some high-impact sports are not recommended because they are very dangerous for people with knee replacement. Rehabilitation exercises and muscular strengthening specific allow a shorter patient recovery, at the high level activities too.

Discussion. The analyze of these articles evidenced the importance of a specific postoperative rehabilitation programs, early and intensive (from the use of continuous passive motion to physical therapy) in order to improve the return back to sport, but also to decrease complications and prevent injuries. However, in the literature, there are not studies comparing different protocols effectiveness with evidence based medicine after total knee, nevertheless most studies are retrospective or with short follow-up.

Conclusions. Sport is not forbidden for patients whit total knee replacement, but be aware that not all sports are allowed. The prognosis and return to sport are influenced by a proper patient education about the risks of each activity and the teaching of a correct and constant rehabilitation. It is necessary to validate specific protocols for each sport, related to each patient needs and abilities.

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LA GESTIONE DEL RISCHIO INFETTIVO LEGATO ALL'ASSISTENZA A LIVELLO DEL DIPARTIMENTO DI RIABILITAZIONE: IMPLEMENTAZIONE DI UNO STRUMENTO COMUNICATIVO CENTRATO SUL PROFESSIONISTA E VALUTAZIONE

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Introduzione. Nel corso dell' ultimo decennio la presa in carico riabilitativa dei pazienti, come già richiamato dalle Linee guida ministeriali per la Riabilitazione del 1998, è stata realizzata precocemente sin dalla primissima fase, e cioè quando il paziente è ricoverato nei reparti per acuti. La necessità del più

precoce possibile trasferimento in "*ambiente riabilitativo esperto*", non appena la situazione del paziente lo consenta, è ampiamente condivisa tra gli esperti e sostenuta da evidenze scientifiche. Tale trasferimento "precoce" comporta un outcome funzionale migliore ed una minore durata complessiva della degenza. La presa in carico clinico-riabilitativa risulta complessa in quanto i pazienti spesso hanno avuto o hanno ancora infezioni da germi difficili o sono colonizzati da microrganismi selezionati durante la permanenza nei reparti intensivi. Fatte questo premesse, siccome la fase acuta della riabilitazione è spesso costellata da complicanze infettive (1,2), che ne condizionano il decorso e la durata della degenza, diventa fondamentale pianificare un percorso formativo sulle infezioni ospedaliere stratificato sul personale dell'intero dipartimento e che faciliti il trasferimento delle conoscenze e il relativo processo di cambiamento.

Materiali e metodi. Nel corso del 2011 è stato analizzato a livello dipartimentale, di concerto con il C.I.O. aziendale, il bisogno formativo sulle infezioni ospedaliere da parte del personale sanitario: ciò, ha condotto alla progettazione di un Percorso Formativo di più moduli dedicato ad argomenti di politica di controllo delle infezioni definite con le coordinatrici. Il Dipartimento di Riabilitazione è strutturato sui 3 presidi ospedalieri aziendali: 1) Presidio riabilitativo Borsalino in cui sono allocate le S.C. di Unità Spinale e Unità Gravi Cerebrolesioni Acquisite, la S.C. di Medicina fisica riabilitativa di 2° livello, la SSD di riabilitazione Cardio-respiratoria e il D-H, per un totale di 100 p.l..2) Attività di Servizio Recupero Funzionale presso il Presidio "Civile" sede di DEA di 2° livello e 3) presso il Presidio Pediatrico "C. Arrigo" sulle infezioni ospedaliere. Ad una giornata di formazione di 6 ore hanno fatto seguito dei Focus Group (F.G.) esplorativi (in totale 18); hanno partecipato 150 professionisti Facente parte del Dipartimento di Riabilitazione, suddivisi in 55 fisioterapisti, 39 infermieri, 31 O.S.S., 14 medici, 8 logopedisti, 2 coordinatrici e 1 amministrativo. I F.G.hanno avuto una composizione multiprofessionale, a struttura verticale, diversamente posizionati lungo l'asse gerarchico. Ogni discussione è stata preceduta da un braistorming e gli incontri sono stati registrati previa autorizzazione dei partecipanti. Ad ogni incontro erano presenti un conduttore ed un osservatore, e tutti gli incontri sono stati condotti con la modalità di facilitare la relazione fra i partecipanti sec. Euli.

Risultati. I temi emersi nei 18 F.G. in ordine di prevalenza sono stati: a:*Comportamenti degli operatori legati alla formazione dell'abitudine, a regole organizzative* (334 citazioni) legate alla conoscenza, ad alcuni pensieri comuni, abitudini e consuetudini, al senso di autoprotezione, al concetto del rischio e/o dell'apprendimento dall'errore, a conoscenza delle regole organizzative e del loro rispetto, a dubbi. b) *Variabili nel contesto, sia strutturale che culturale che influenzano la gestione del rischio infettivo* (205 cit.) come situazioni che riguardano gli operatori, come ambiente strutturale, come "cose" a disposizione, come ambiente intorno al paziente e/o situazioni che lo riguardano, come organizzazione a tutti i livelli. C) il lavaggio delle mani (164 cit.) e l'utilizzo di guanti (139 cit.); d) *Pulizia e disinfezione dell'ambiente e delle cose presenti* (111 cit.); *importanza di avere informazioni sul paziente* (118 cit).e) *informazione ed educazione dei familiari e/o vicini dei pazienti ricoverat*i (74 cit.); f) *Utilizzo del DPI* (61 cit.); g) Oggetti che passano di stanza in stanza, di pz in pz e ambienti comuni (50 cit.); h) isolamento (44 cit.); i) la divisa (43 cit.); l) smaltimento corretto dei rifiuti (39 cit.); Educazione/informazione del pz (39 cit.). *et al.*ia. Il rischio del bias sulla desiderabilità sociale è stato premiato dall'esito delle discussioni (diversi punti di vista, piacevolezza del clima,.).

Discussione. L'obiettivo dei F.G. era quello di riflettere sulla esperienza formativa e di rivalutarne la ricaduta. La modalità dei F.G. ha permesso di vivere una esperienza formativa, sia personale sia di gruppo che ha favorito la fissazione delle informazioni aiutandole a trasformarsi in "cambiamenti" e ha favorito la riprogettazione del corso stesso. La modalità in F.G. ha permesso di migliore la competenza comunicativa sia concettuale che di relazione all'interno dell'Equipe e con i pz e/o parenti. Il cambiamento culturale è passato da impossibile a… difficile, ma possibile.

Conclusioni. Le infezioni ospedaliere sono entrate a parte del bagaglio culturale riabilitativo sia per la loro incidenza, che per il loro impatto sui tempi e sui costi della degenza. Appare importante in questo ambito investire sulla formazione del personale. La modalità di realizzazione della formazione in F.G. può riflettersi in modo positivo sul processo di cambiamento.

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UN CASO CLINICO DI OSTEOPOROSI SEVERA SECONDARIA A MALATTIA DI CUSHING

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Introduction. La sindrome di Cushing è caratterizzata da una serie di manifestazioni cliniche dovute ad iperincrezione di cortisolo, tra le quali: ipertensione arteriosa, diabete mellito, astenia, amenorrea osteoporosi e conseguenti fratture patologiche.

Materials and methods. Nell ambulatorio dedicato all' osteoporosi della nostra unita' operativa ci interessiamo di osteoporosi sia primitiva che secondaria e in particolare di osteoporosi severa con fratture di femore e vertebrali. Il caso clinico qui presentato riguarda una donna di 70 anni con sindrime di Cusching in adenoma del surrene destro con fratture vertebrali (VCFs) in osteoporosi severa secondaria. In anamnesi patologica remota diagnosi di S. di Cusching a maggio 2008 dopo 3 anni dall' insorgenza di ipertensione arteriosa e diabete mellito II insulino trattato; a luglio 2008 surrenectomia destra e terapia sostitutiva con cortisone acetatoa 37.5mg al giorno in associazione alla politerapia per ipertensione e DM; inoltre dorso lombalgia da almeno 10anni in protrusioni discali multiple. Nell' ambito degli accertamenti per S. di Cusching eseguiva MOC femorale con T-score < -3 RX rachide dorso lombare che evidenziava cedimento della limitante superiore di D7 e frattura a cuneo di D8. Presso endocrinologia di riferimento iniziava terapia con Alendronato 70 mg alla settimana senza eseguire ematochimici per metabolismo fosfo calcico e senza integrazione di calcio e VITD. A fine agosto 2009 dolore al rachide con frattura D9 evidenziata alla RMN come frattura recente. Fine dicembre 2009 eseguiva cifoplastica D9, terapia antiriassorbitiva e corsetto. Nel gennaio 2010 arrivava alla nostra attenzione per fisioterapia, per corretto inquadramento e terapia della patologia ossea. Eseguiva ematochimici di 1° e 2°livello con evidenza di anemia, lieve IRC e iperparatiroidismo secondario a deficit di VITD (101ng ml). Eseguiva RX che evidenziava VCFs severe D7 D 8 D9 trattata con cifoplastica; valutate scala VAS per il dolore, FIM per l' autonomia nelle attività di vita quotidiana, SF36 per la qualità di vita. Sospesa terapia con Alendronato, eseguito bolo di colecalciferolo di 300.000 e mantenimento con 800 U.I. al giorno e teriparatide.

Results. A 24 mesi dalla terapia con teriparatide controllata RX senza evidenza di nuove fratture vertebrali, buon controllo del dolore e benessere soggettivo. Dopo 24 mesi la paziente ha iniziato terapia con alendronato 70 mg/ 1 volta alla settimana in NOTA AIFA 79.

Conclusions. In conclusione questo caso ribadisce l'importanza di un corretto approccio diagnostico e terapeutico nell' osteoporosi severa. Appare sempre più necessario che un reparto di riabilitazione specialistica abbia una sezione dedicata al metabolismo osseo. Inoltre nel tempo verrà valutato se nell' osteoporosi secondaria al Cusching l'approccio con l'anabolico e poi con l' antiriassorbitivo è corretto. In letteratura non sono pubblicati casi di Cushing trattati con teriparatide.

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MALATTIA DI PARKINSON: RESTITUIRE PARTECIPAZIONE CON IL GIOCO

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Introduction. La malattia di Parkinson colpisce in genere individui di età superiore ai 40 aa., di ambo I sessi. Ha una incidenza di 20 casi su 100.000 abitanti, ma ha sopratutto una prevalenza del 4 % nella popolazione totale. È una patologia ad andamento cronico ingravescente che limita fortemente la partecipazione alle attività della vita quotidiana e di relazione. (1). La qualità del movimento nel Parkinson è DOPA -dipendente, ma con la riabilitazione migliora in particolare l'equilibrio ed il rischio di caduta. L'esercizio dovrebbe divenire attività abituale nella vita del parkinsoniano ed essere gradevole e facilmente riproducibile, anche a domicilio. Scopo di questo lavoro è stato valutare come una attività ludica, praticata con una console di facile utilizzo domestico possa migliorare l'equlibrio attraverso il gioco, utilizzando correttamente il gambling, emozione spesso negativa nel parkinsoniano, ma che correttamente canalizzata può restituire partecipazione.

Materials and methods. Abbiamo arruolato 12 pazienti con Parkinson idiopatico (5 F e 7 M) con età media di 73,44 aa. Tutti I pazienti avevano la malattia da più di 5 anni, tutti erano stati sottosti alla scala di Hoehn e Yahr (2) e presentavano uno score compreso fra 3 e 4, nonché deficit di equilibrio. Tutti I pazienti sono stati valutati al baseline (T0) mediante BERG balance Scale (3), è stato poi analizzato l'item 2 relativo alla paura di cadere senza appoggiarsi, e l'item 14 relativo alla capacità di appoggio monopodalico. Tutti I pazienti hanno effettuato 10 sedute consecutive di un'ora ciascuno con la Balance board della consolle Wi addizionata di un programma scaricabile (Marble/game) che contiene giochi di equilibrio. Alla fine delle 10 sedute (T1) è stata nuovamente eseguita la valutazione proposta al T0. È stata infine eseguita analisi statistica con metodo non parametrico per campioni appaiati, utilizzando il programma SPSS vers. 18.

Results. Tutti I 12 pazienti arruolati sono migliorati significativamente rispetto al baseline sia per quanto attiene al punteggio complessivo della BERG balance Scale ($p< 0.002$), sia per l'item 2 (paura di cadere) ($p<0.01$),

sia per l'item 14 (capacità di mantenere l'appoggio monopodalico (p<0.004). Tutti I pazienti hanno gradito molto il lavoro motorio svolto giocando.

Conclusions. Questa attività può realizzare una nuova modalità di attività fisica adattata, semplice, economica da svolgersi al domicilio. Volta in particolare al recupero dell'equilibrio, è utile anche come stimolo cognitivo, per l'apprendimento del gioco, la motivazione, lo stimolo dei riflessi e delle reazioni di equilibrio e paracadute. Il gambling tipico dei parkinsoniani, può essere così una emozione canalizzata positivamente, per il miglioramento della performance della. deambulazione e per una più attiva partecipazione.

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KNEE PAIN PATTERN IN OA WITH ROLE OF QUADRICEPS WEAKNESS IN PAIN ENHANCEMENT

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Pain is the primary clinical symptom in OA. Mechanisms contributing to knee pain in OA are not well-understood, for the same degree of radiographic abnormality, different degrees of pain are experienced. Sustained mechanical and inflammatory stimuli in the joint may lead to central or peripheral sensitization. This sensitization can be measured by pressure pain threshold (PPT). Muscle weakness adversely affects the ability to control joint movements. Muscle weakness is an early and frequent finding in knee OA. Some studies suggest that quadriceps weakness is an independent risk factor for the onset of OA in the patellofemoral but not the tibiofemoral joints in rabbits. Body weight plays an important role in decreasing quadriceps muscle mass and reduced quadriceps strength relative to body weight may be a risk factor for knee OA in Women. In women but not in men, quadriceps weakness was associated with increased risk for tibiofemoral and whole knee (TF and PF) JSN *(Segal et al. 2010).* Greater quadriceps strength protected against cartilage loss at the lateral compartment of the patellofemoral joint, a finding that requires confirmation. *(Stefanik et al. 2011).* Quadriceps weakness Increases joint load during walking, Increases the risk of OA progression, and mediates the effect of obesity. Further details on the effect of muscle weakness on the patellofemoral joint as well as tibiofemoral joint will be discussed in details in this paper.

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LA COMUNICAZIONE NEL PAZIENTE AFFETTO DA SCLEROSI LATERALE AMIOTROFICA: STUDIO SPERIMENTALE SULL'UTILIZZO DEL COMUNICATORE OCULARE IN 17 PAZIENTI

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Introduzione. Parlare Parlare di riabilitazione nell'ambito di malattie neurologiche aventi carattere rapidamente progressivo, come la Sclerosi Laterale Amiotrofica, costringe ogni riabilitatore ad un radicale cambiamento della prospettiva: in questo caso, infatti, la riabilitazione non può restituire integrità funzionale, ma può contrastare l'evolutività patologica ed il degrado funzionale mediante strategie adattive di tipo vicariante. Per tali motivi mantenere un'abilità, seppure limitata, per un periodo di tempo più lungo rispetto all'evoluzione attesa di malattia, rappresenta già un successo da non sottovalutare, con importanti ricadute sulla qualità di vita: in particolare perdere la possibilità di comunicare per gravi difficoltà a carico dell'apparato fono-articolatorio, rende ancor più penosa e mal sopportata la condizione di disautonomia motoria globale, relegando il soggetto colpito da patologia degenerativa al quasi totale isolamento. Questo studio si è proposto l'obiettivo di valutare l'utilizzo del comunicatore oculare in pazienti affetti da Sclerosi Laterale Amiotrofica, al fine di vicariarne nel modo più semplice e immediato possibile la perdita funzionale in ambito comunicazionale.

Casistica, materiali e metodi. Nel nostro studio sono stati arruolati N°17 pazienti, 10 maschi e 7 femmine, affetti da Sclerosi Laterale Amiotrofica bulbare o spinale, di età compresa fra i 35 e i 63 (età media di 46,47 anni), che avessero già in uso un comunicatore simbolico. Tali pazienti sono, poi, stati sottoposti a valutazione mediante l'indice IPPA (Individually Prioritised Problems Assessment), realizzato per misurare efficacia e utilità degli ausili tecnologici, risultato particolarmente sensibile per il nostro scopo; inoltre, è stato appositamente creato un questionario composto da 7 domande, basato su una scala analogico-visiva, per valutare gli aspetti più specifici e particolari propri del software di comunicazione.

Risultati. L'analisi dei dati raccolti tramite il questionario IPPA dimostra la capacità dell'ausilio informatico nel risolvere i problemi di comunicazione dei pazienti intervistati: infatti a fronte di un valore massimo di 16,25 e minimo di 6 sono stati ottenuti valori medi di miglioramento pari a 10,40, testimoniando grande utilità ed efficacia dell'ausilio nel garantire una buona autonomia funzionale sul piano della comunicazione.

Conclusioni. Il numero dei pazienti su cui si basa l'analisi dell'efficacia dell'ausilio è sicuramente poco rilevante dal punto di vista statistico, essendo composto da un campione di soli 17 soggetti, tuttavia il gruppo appare assai significativo a causa della difficoltà di approcciare pazienti a così rapido peggioramento clinico, i cui dati positivi rappresentano un ottimo viatico per intensificare tali interventi in favore di pazienti affetti da SLA, possibilmente abbassando il costo dell'ausilio, auspicando un maggiore impegno da parte delle grandi società produttrici di software nel rispondere alle esigenze di ogni disabile e nel garantire a tutti l'accessibilità a costi contenuti ad ausili utili a migliorare l'autonomia funzionale in tutti i suoi aspetti, motori e cognitivi: quanto detto al fine non di aggiungere anni di vita, ma vita agli anni di sopravvivenza di ogni individuo.

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TURBE DEGLUTITORIE IN FASE ACUTA OSPEDALIERA IN PAZIENTI AFFETTI DA STROKE: STUDIO SPERIMENTALE SU 20 CASI

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Introduzione. La nostra trattazione si propone di delineare l'importanza delle turbe deglutitorie nei pazienti colpiti da stroke, sottolineando la necessità di prevedere un coinvolgimento di tutte le figure professionali del team di cura, seppure in momenti diversi e nel rispetto delle precipue competenze, garantendo al soggetto la precoce definizione di segni di disfagia, tali da condizionare lo stato nutrizionale e, conseguentemente, lo stato di salute generale, con ripercussioni negative potenzialmente foriere anche di danni irreversibili fino all'exitus. Non stupisce, pertanto, che nelle Linee Guida SPREAD aggiornate al 2011, il precoce riconoscimento di turbe deglutitorie (disfagia per solidi/liquidi) sia previsto già nelle prime 24 ore di ricovero, in caso di conservata coscienza del paziente, o fortemente raccomandato quanto prima sia possibile in caso di scarsa collaborazione del soggetto nei primi giorni di degenza, sottolineando l'importanza ai fini della prognosi "quoad vitam" del rilievo di eventuali segni disfagici.

Casistica, materiali e metodi. Il nostro lavoro mira, pertanto, a proporre una semplice scheda di rilievo di turbe della deglutizione o dei relativi segnali indiretti, tali da consentire una precoce identificazione dei pazienti disfagici e la conseguente attivazione da un lato del team riabilitativo, dall'altro di misure preventive della temibile polmonite ab ingestis, evento ancora responsabile di numerosi decessi durante la fase ospedaliera. Sono stati arruolati 20 pazienti di età compresa tra 61 e 92 anni, di cui 10 maschi e 10 femmine, tutti colpiti da primo episodio di ictus ischemico e valutati in seconda-terza giornata e, successivamente, in settima-decima giornata di ricovero presso le UU.OO. di Geriatria e Neurologia del P.O. di Matera, mediante scheda di valutazione infermieristica, messa a punto con il Medico Fisiatra, per valutare l'effettiva presenza di turbe deglutitorie e fornire indicazioni sulle modalità più appropriate di alimentazione, per quanto attiene sia la consistenza e qualità del vitto, sia per la via di somministrazione.

Risultati. Dalle valutazioni effettuate emerge una sostanziale conferma dei dati in letteratura, inerenti la prevalenza della disfagia nei pazienti di età più avanzata. Altro dato importante è la **totale invariabilità** del quadro deglutitorio in quei pazienti che hanno presentato "ab inizio" un quadro funzionale più grave, confermando l'importanza dello stesso a fini prognostici anche per quanto attiene la deglutizione e richiedendo, pertanto, l'applicazione di gastrostomia percutanea (PEG). Sono, poi, emerse importanti criticità inerenti il vitto giunto ai pazienti, sottolineando gravi incongruità tra quanto indicato dal personale di reparto e gli operatori addetti alla preparazione dei pasti, con possibile esposizione dei degenti a rischio di ab ingestis.

Conclusioni. Dalla nostra breve disamina si evince con chiarezza l'importanza non solo di una precoce identificazione delle turbe deglutitorie, ma anche l'imprescindibile necessità di coinvolgere varie figure nella sorveglianza del paziente, partendo dal personale medico, infermieristico e riabilitativo, fino al care giver, cui riservare costante formazione "sul campo", rendendolo valido alleato del team riabilitativo nella sorveglianza e verifica nutrizionale.

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NEUROPATIA BILATERALE DEL NERVO INTEROSSEO ANTERIORE DA PROLUNGATO USO DI BASTONI CANADESI

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Abstract. Viene presentato un raro caso di neuropatia bilaterale del nervo interosseo anteriore (AIN) da eccessivo sforzo muscolare nell'uso protratto di bastoni canadesi dopo un intervento chirurgico di sostituzione protesica dell'anca. Il paziente giunge alla nostra osservazione dopo un anno dall'esordio della sintomatologia senza alcun segno di recupero della neuropatia.

Introduzione. La sindrome da compressione del AIN all'avambraccio è rara ed inoltre viene spesso misconosciuta. L'esame elettromiografico eseguito sulla base del sospetto clinico è indispensabile al fine di una corretta diagnosi. L'approccio terapeutico iniziale è di tipo conservativo ed il trattamento chirurgico sembra essere utile solo nei casi refrattari.

Aspetti clinici. Giungeva nel marzo 2012 alla nostra osservazione un uomo di 55 anni, di professione cuoco, in buona salute e senza storia di patologie a carico dell'apparato muscolo scheletrico o del sistema nervoso. Il soggetto presentava una storia clinica di lussazione dell'anca destra e susseguente danno a carico delle strutture articolari tali da richiedere circa dieci mesi prima una intervento di protesizzazione d'anca. Il paziente riferiva che dopo circa un mese dall'inizio della deambulazione con bastoni canadesi ha cominciato ad accusare difficoltà nella flessione del pollice e dell'indice di entrambi le mani. Non riferiva di aver avuto o di avvertire in atto alcun deficit sensitivo o disturbo parestesico. Il soggetto riferiva inoltre, relativamente al primo mese di deambulazione con bastoni, una lieve dolenzia bilateralmente in regione dell'avambraccio come da tendinopatia infiammatoria diffusa che riteneva essere probabilmente correlata al costante e continuativo utilizzo di bastoni canadesi. Tale sintomatologia era maggiormente presente la sera. Alla nostra osservazione il paziente accusava grande difficoltà nello scrivere ed in tutte quelle attività che richiedevano l'uso della pinza pollice-indice, l'impossibilità a effettuare con il pollice e con l'indice il segno di "OK" formando una"O" rotonda e la difficoltà a mantiene un foglio di carta tra il primo dito e il secondo dito senza estendere pollice e indice. All'esame clinico veniva evidenziato un deficit funzionale del muscolo flessore lungo del pollice, del flessore profondo dell'indice e del terzo dito e del muscolo pronatore quadrato. L'esame elettromiografico evidenziava una isolata neuropatia del nervo interosseo anteriore bilaterale e segni di parziale denervazione a carico dei muscoli flessore lungo del pollice e dell'indice, minimi segni di denervazione presenti anche all'esame del muscolo pronatore quadrato. Gli esami radiografici prescritti escludevano fratture, lussazioni, neoformazioni ossee. L'esame di risonanza magnetica e d'esame ecografico, eseguiti bilateralmente in regione dell'avambraccio e della mano, escludevano lesioni tendinee ed alle strutture peritendinee.

Discussione. La sindrome del nervo interosseo anteriore, detta anche sindrome di Kiloh-Nevine, sembrerebbe essere poco frequente ed inoltre talvolta misconosciuta. Il rischio di sviluppare questa condizione è rappresentato dagli sport od occupazioni che richiedono movimenti ripetitivi e faticosi dell'avambraccio e del polso (in particolare la rotazione del polso e della mano) come canottaggio, sollevamento pesi, body building, tennis, squash, falegnameria. Scarsa preparazione fisica, riscaldamento inadeguato prima della pratica o del gioco o patologie come il diabete mellito, l' ipotiroidismo o neuropatie generalizzate potrebbero favorirne l'insorgenza. Talvolta la AIN è causata dalla compressione del ramo interosseo anteriore del nervo mediano in seguito ad un trauma al gomito, spesso associato ad emorragia dei muscoli profondi. Altre cause di lesioni del nervo possono essere la lesione del nervo stesso in seguito a una frattura ossea (pseudo neuropatie anteriori interossee), forme infiammatorie tronculari focali, fenomeni trombotici o tumori (spesso di origine sinoviale). Sono state descritte anche cause iatrogene come in esito ad artroscopia del gomito. La sindrome è spesso erroneamente confusa con una lesione legamentosa delle dita o con patologie a carico del plesso brachiale. Nel nostro paziente si è ipotizzato che lo sforzo prolungato per il costante e prolungato utilizzo di stampelle canadesi abbia provocato la lesione del nervo. Il paziente utilizzava stampelle con bracciale all'avambraccio circa un centimetro al di sotto del gomito. Tali stampelle richiedono una buona forza muscolare dei muscoli dell'avambraccio e della mano.

Conclusioni. Non è esattamente noto quali fattori biomeccanici portino allo sviluppo di patologie secondarie dell'arto superiore nei soggetti che usano dispositivi per scaricare il peso corporeo, sedie a rotelle, bastoni e deambulatori. La nostra esperienza ci porta a ritenere che il carico sulle articolazioni degli arti superiori utilizzando stampelle possono rappresentare un importante fattore di rischio per le neuropatie da compressione, ma riteniamo che ulteriori studi sono necessari per affrontare la causa-effetto tra il carico effettivo comune e lo sviluppo di disturbi muscolo-scheletriche e neurologici a carico degli arti superiori. Il nostro è un caso singolare, ancora in osservazione, in cui la neuropatia focale ha coinvolto insolitamente il nervo interosseo anteriore ed insolitamente si è verificata bilateralmente.

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EXTRACORPOREAL SHOCK-WAVE THERAPY EFFECTS ON CELL PROLIFERATION AND COLLAGEN SYNTHESIS OF PRIMARY CULTURED HUMAN TENOCYTES

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Introduction. Extracorporeal Shock-Wave Therapy (ESWT) is currently used to treat musculoskeletal disorders and shock wave stimulation has been previously analyzed on cell lines or animal models, although the specific mechanisms inducing clinical benefits are still largely unknown.

Purpose. To investigate the effects of exposure to a range of energy levels (0.08, 0.14 and 0.17 mJ/mm^2) and impulses (500 and 1000) of ESWT, which are known to provide clinical benefits.

Materials and methods. Tissue biopsies from semitendinosus tendon were collected from 3 patients undergoing arthroscopic Anterior Cruciate Ligament (ACL) reconstruction, to establish primary cultures of human tenocytes. Cell viability, overall cell morphology, cell proliferation and collagen synthesis following ESWT have been evaluated.

Results. The dose of 0.14 mJ/mm2 at the amount of 1000 impulses was selected, representing a good balance between the in vitro cell viability and the therapeutical efficacy. A shock wave-mediated growth promoting effect was measured by the MTT (tetrazolium) colorimetric assay and by the proliferation marker Ki67. Lastly we found a significant increase in collagen (mainly type I) synthesis by ESWT-tenocytes compared to control cells.

Conclusions. Our results demonstrate, for the first time to our knowledge, a growth promoting effect of ESWT on primary cultured human tenocytes and a collagen synthesis, at the dose selected for both experimental and clinical efficacy.

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CLIENT-THERAPIST RELATIONSHIP WITH THE NEW TECHNOLOGIES

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A short analysis of the recent literature based on the publication dedicated to the therapies with new technologies highlights that many kinds of systems are used, a large range of disease are focused and different therapeutic functions are adopted. Using new communication systems require important modifications in the language and in the rules of the communication. That modification has effects on the rules of the therapeutic alliance, that is the base of a good adherence to a rehabilitation project. For this reason it is essential to know the normal mechanisms that govern the client-therapist relationship and their evolution with the new technologies. Three arguments are pointed out about the evolution of the relationship: bio-psycho-social model, therapeutic function of the technologies, rehabilitation engagement.

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I RISULTATI DELLA CONSENSUS CONFERENCE SULLA RIABILITAZIONE NEUROPSICOLOGICA DELL'ADULTO

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La relazione congressuale vuole presentare la metodologia, i risultati e le criticità emerse nella preparazione della "*Consensus Conference* per i disturbi neuropsicologici acquisiti dell'adulto". I processi cognitivi ed emotivo-motivazionali possono essere alterati da lesioni o disfunzioni cerebrali di diversa

origine, modificando il comportamento, la condizione di salute della persona, le sue relazioni familiari e la sua integrazione sociale, riducendo la sua autonomia globale nella vita quotidiana. Le potenzialità di recupero del paziente cerebroleso – supportate da modificazioni plastiche del sistema nervoso, ben documentate anche nella persona adulta – stanno alla base di ogni programma riabilitativo dei deficit cognitivi ed emotivo-motivazionali. Le principali associazioni e società scientifiche italiane interessate alla "riabilitazione neuropsicologica" hanno affrontato questi problemi promuovendo tale "*Consensus Conference* per i disturbi neuropsicologici acquisiti dell'adulto", per discutere le evidenze empiriche sull'efficacia della "riabilitazione neuropsicologica" e i suoi metodi, i modelli organizzativi, le figure professionali coinvolte e i percorsi formativi universitari. In particolare, all'interno dell'"area tecnico-scientifica e di ricerca", gli esperti hanno proceduto alla revisione delle evidenze scientifiche utilizzando il modello pro- posto dal gruppo SPREAD, messo a punto dal *Centre for Evidence-Based Medicine* di Oxford. Lo SPREAD si basa su una procedura avanzata di *evidence-based medicine,* che tiene in considerazione metodologie diffuse internazionalmente, considerando come *gold standard* il trial clinico randomizzato (Randomized *Clinical Trial,* RCT) e, come livello più elevato di evidenza, la "meta-analisi". La scelta della metodologia SPREAD, solida e affidabile, presenta tuttavia delle limitazioni se applicata al caso della ricerca in riabilitazione neuropsicologica. Per esempio, la cecità dell'operatore e del paziente non è possibile nei trattamenti comportamentali, come sono tipicamente quelli neuropsicologici; i risultati ottenuti dallo studio di "casi singoli" sono spesso rilevanti sul piano teorico e di studio-pilota, ma poco generalizzabili. Il lavoro dei gruppi si è focalizzato sulle domande critiche identificate dal Comitato Scientifico promotore della *Consensus* e, attraverso l'analisi della letteratura scientifica sulla riabilitazione neuropsicologica, ha portato alla stesura di revisioni sistematiche secondo gli standard della *evidence-based medicine.* Questi documenti tecnici, assai dettagliati, rappresentano una base essenziale per determinare quali raccomandazioni formulare rispetto:

- alla valutazione e alla riabilitazione neuropsicologica dei disturbi del comportamento e dei deficit cognitivi ed emotivo- motivazionali (a carico di processi quali l'attenzione e le funzioni esecutive, la programmazione del movimento, il linguaggio, la memoria, la cognizione spaziale, le abilità numeriche).
- in persone affette da esiti di malattie cerebrovascolari,
- trauma cranico lieve e moderato,
- grave cerebrolesione,
- demenze,
- sclerosi multipla, e altre malattie neurologiche causa di disabilità neuropsicologica.

Nell'analisi delle evidenze si è prestata attenzione sia a misure di *outcome,* per valutare il livello di menomazione causato dal disturbo, sia a misure di tipo funzionale del livello di capacità del paziente di svolgere atti di varia complessità, quali le scale di attività nella vita quotidiana. Infine è stato verificato, qualora il dato fosse disponibile, se i risultati ottenuti fossero mantenuti a un follow-up a distanza di almeno 6 mesi dalla fine del trattamento. Oltre agli aspetti tecnico-scientifici sull'evidenza di efficacia dei possibili interventi, la *Consensus Conference* ha affrontato anche le implicazioni sociali della disabilità secondaria a disturbi neuropsicologici, gli aspetti organizzativi e normativi e i percorsi formativi universitari per gli operatori coinvolti nella "riabilitazione neuropsicologica".

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TELEREHABILITATION OF POST TRAUMATIC BRAIN INJURY ATTENTIONAL DISORDERS

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Introduction. The therapeutic approach to disabilities resulting from brain trauma, provides rehabilitative training which continues for many years after the onset of the trauma and if suspended can cause a progressive regression of subjects performance [1]. The recent use of new computer technology has created a series of applications for telemedicine, which have been applied to rehabilitation. The scientific literature on the application of telemedicine in rehabilitation has already produced many scientific papers and literature reviews that highlight some advantages of the method [2]. Various scientific studies reveal how telerehabilitation is undoubtedly more advantageous than the conventional method because it allows you to provide specialized services even in the most disadvantaged areas infact these areas are far from densely populated centers where are concentrated better services due to availability of equipment and professionalism. In general therefore, the possibility of providing a web rehabilitation services allows you to provide quality services without the drawbacks intrinsic to rural areas, causing a positive effect on quality of life and reducing healthcare costs [3]. Within this context, we evaluated whether the results from the administration of specific rehabilitation tools for attentional function to a group of patients with disorders of cognitive function caused by severe acquired brain injury, were equivalent to those obtained by the administration of the same exercises with conventional methods.

Materials and methods. Our study involved 14 patients, aged between 18 and 55 years, with severe TBI.All patients were without dementia (MMSE up to 24), impairment of comprehension (token test greater than 1), neglect (bell test up to 15) and did not use or abuse alcohol or drugs. All patients sustained tests for attention impairment (attentional matrices, trail making test, MIDA, Stroop) disability (Rivermead) and quality of life (SF36). All assessments were performed at baseline, after the first fifteen days of conventional treatment, again after 15 days of treatment via the web and, finally, after another 15 days of conventional treatment. The conventional trainings provided one session of one hour for three days per week for two weeks. The rehabilitation trainings, provided two sessions of 15 minutes each, with an interval of one hour, every morning for two weeks. Specific software for the rehabilitation of attentional disorders were given during both conventional and via web treatment.

Results. The study data were processed using SPSS version 13.0. Patients collaboration was excellent in both conventional and web treatment, with adherence to 90% of the sessions, except for two patients with severe behavioural disorders. All tests show statistically significant improvement in performance during the web treatment period except MIDA and TMT part A and part B. In particular the evaluation of the Rivermead Memory Test shows a general improvement in performance throughout the treatment period, highlighting a statistically significant increase of performance over the period of web treatment.

Conclusions. From our data, we observed that the telerehabilitation seems to be at least equally effective to conventional treatments, but is less expensive and produces less discomfort for patients.

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REHABILATION OF A PATIENT WITH BILATERAL PARESIS OF THE N. PERONEUS CASE REPORT

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Objective. Demonstrate the effectiveness of physical therapy for female patient with bilateral paresis n.peroneus in relation to the time when the lesion occurred.

Introduction. Lesion n. peroneus appears as a result of the nerve damage (injuries, fractures, mechanical pressure) or the existence of discus herniae.

Methodology. Female patient R.B., 45 years old, a manager. At the first examination at the physiatrist is due to weaknesses of both feet and difficulty in walking with the help of the peroneal plastic orthosis on the right foot. She operated 20 years ago discus hernia L4-L5 due to the decline (fall) of the left foot which backward again after the surgery. 2 years ago, she had an accident when occurs the weakness of the right foot. Physical therapies haven't been carried out. She started with the physical therapy in policlinic stationary. The first check and check-up was done after the therapy. Electro stimulation (E2 form, then the form E1), then 15 min of electroplating longitudinal, upward, then15 min of hydro galvanization and at the end kinesiotherapy. Electrotherapy carried out twice by 15 therapeutic procedures, with a break of two weeks between therapies. Kinesiotherapy has been continuosly.

Results. *Right foot* – First EMNG performed few months before physical therapy.

- First Check: rough driving force of DF foot (MMT = 2), foot dorsiflexion actively 5-10 degrees. Control EMNG, done in the first months during therapy indicated: radicular lesion of L4-L5-S1 of the moderate degree.
- Check up: rough driving force DF foot (MMT = 3 +), foot dorsiflexion actively 20 degrees.

Left foot - first EMNG wasn't done. EMNG after therapy indicated radicular lesion L4-L5-S1of serious degree.

- First Check: rough driving force of DF(MMT = 2 +), foot dorsiflexion actively 10 degrees.
- Check up: rough driving force of DF (MMT = 4), foot dorsiflexion feasible active 20 degrees.

Conclusion. After conducting of physical therapy, with previous clinical picture of severe n.peronus paresis, it comes mutually the recovery and walk without support on the right foot.

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CONTINUOUS PHYSICAL THERAPY FOR AXILLARY AND MUSCULOCUTANEUS NERVE LESIONS

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Goal. To arhieve rapid and efficient recovery of one or more nerves after their traumatic lesion through everyday physical therapy.

Introdution. *Lesions n axillary and n. musculocutaneus appears* usually as a result of the nerve damage (fractures, injuries).

Metodology. Patient O.B.,32 years old had fracture cavitas glenoidalis of left shoulder blade (scapula) and lesion of axillary and musculocutaneus nerves. We started with Physical Treatment after 20 days of injury. Active movements in left shoulder were impossible, while passive movements were in full size.M. Biceps brachii reflex was absent. *EMNG:* Partial lesion of axillary and musculocutaneus nerve. *MRI*: Rupture of Rotator Cuff, partial lesion of upper part of glenohumeral ligament and Hill-Sach lesion of humeral head. We used Electrotherapy (classical Electrostimulation, mono-bipolar, Tens stimulation,Interferential current, Diadynamic current, galvanization,Sonotherapy (Ultrasound), Laserotherapy, Magnetic therapy, Individual Kinesitherapy (individual Gym) –twice a day. *Daily for three months* (continuosly, without pause).

Results. *After Two weeks*: Full active abdution, EMNG:good reinnervation of m biceps brachi, but not ful reinnervation of m deltoideus. *After three month*: Full active movements in left shoulder, mild asymmetry in shoulder blades and hipotrophia of muscles supraspinatus, infraspinatus and teres minor.

Conclusion. Nerve lesions, especially those caused by trauma, need specific relationship between patient, medical doctor and physiotherapist with *everyday follow-up* through whole rehabilitation treatment. That can we achieve with continuous physical therapy, which leads to a rapid and efficient recovery of axillary and musculocutaneus nerve lesions.

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OSTEOPOROSIS: THE IMPORTANCE OF CLINICAL RISK FACTORS

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Osteoporosis is defined as a systemic skeletal disease characterised by low bone mass and micro architectural deterioration of bone tissue, with a consequent increase in bone fragility and susceptibility to fracture. Recently, there is a very common concept that is, before the patient election for any pharmacological intervention, it should be considered not only bone mineral density measurements, but also ten years fracture risk assessment tool which is called FRAX. FRAX® is a computer-based algorithm (http://www.shef.ac. uk/FRAX) developed by the World Health Organization Collaborating Centre for Metabolic Bone Diseases and first released in 2008. The algorithm, intended for primary care, calculates fracture probability from easily obtained clinical risk factors in men and women. The output of FRAX is the 10-year probability of a major osteoporotic fracture (hip, clinical spine, humerus or wrist fracture) and the 10-year probability of hip fracture. Probability is calculated from age, body mass index and dichotomized risk factors comprising prior fragility fracture, parental history of hip fracture, current tobacco smoking, long-term oral glucocorticoid use, rheumatoid arthritis, other causes of secondary osteoporosis and excessive alcohol consumption. Femoral neck bone mineral density (BMD) can be optionally input to enhance fracture risk prediction. Fracture probability is computed taking both the risk of fracture and the risk of death into account. The risk of hip fracture and probably of other osteoporotic fractures varies remarkably around the world. The difference in incidence between countries is much greater than the differences in incidence between sexes within a country. Indeed, a greater than tenfold difference in hip fracture incidence has been reported in different countries, which is much larger than the errors arising in such studies. In addition, the risk of death varies between countries, which contributes to the heterogeneity in fracture probability. For example, the 10-year probability of a hip fracture in Turkish women aged 65 years and a T-score of –2.5 SD are estimated at 0.5% (FRAX, version 3.6), whereas a woman from Sweden at the same age and T-score is given a hip fracture probability of 4.8%. FRAX is a tool for calculating osteoporotic fracture risk, and it makes it possible to determine the intervention threshold in patients with low bone mass.

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DRIVING AFTER STROKE

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Strokes (resulting from cerebrovascular accidents) are a common cause of disability and the most common reason for driving assessment referrals. They have a number of causes, clinical presentations and recovery patterns but most people seen for driving assessment have hemiplegias / hemipareses. The whole spectrum of factors – medical, visual, physical, cognitive and in car findings – which influence fitness to drive and outcome of driving assessments are found among people who have had a stroke. The range of in car findings mirrors the diversity of issues encountered in the pre drive assessment, but the correlations are only modest. Many people manage to drive an unadapted car, but only simple alterations to vehicles such as automatic transmission, steering wheel spinner and left foot accelerator are usually required by others. Driving assessment has to pay particular attention to the presence of persisting problems with:

– Vision.
– Fits (apart from during the acute episode), unpredictable faints or dizzy turns and other unexplained loss of consciousness.
– Memory, concentration, reasoning ability or visuospatial problems such as a tendency to bump into objects.
– Poorly controlled spasms in a paralysed limb.
– Slow reactions.
– Speech and language problems which reflect a serious comprehension deficit associated with severe difficulties reading written and diagrammatic road signs. Difficulty with speaking is not a barrier to holding a licence.

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ORTHOTIC MANAGEMENT OF STROKE PATIENTS

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Stroke survivors face long-term consequences that are usually complex and heterogeneous. Many of them have walking problems and impaired function of upper limb. One of the methods we can use in the rehabilitation is use of appropriate orthoses. There is a recommendation C that use of orthoses for the lower and upper limb should be considered in the management of stroke patients and that qualified orthotist should be included in rehabilitation team. Reviewing the literature the main problems are poor description of orthoses and different terminology used. For lower limbs, we mainly use ankle foot orthoses (AFO). They can be prefabricated or custom made. Custom made can be non-articulated or articulated. There is no evidence on the effectiveness of prefabricated AFO in stroke patients. Non-articulated improve ability to transfer weight onto affected leg in stance phase, walking speed and cadence. They are appropriate for patients with moderate to severe foot abnormality, such as equinus, valgus or varus, or a combination and also for those with mild recurvatum or instability of the knee. Articulated AFO improve walking speed and cadence. They are mainly used for patients with dorsiflexion weakness only. For all the alignment at terminal stance/pre-swing is critical and will influence step length, gait symmetry, speed and energy consumption. There is also weak evidence that shoulder supports are an adjunct to physiotherapy. In conclusion, orthoses can improve functioning of stroke patients.

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MORBIDITY ASPECT IN SPINAL CORD INJURY PATIENTS: THE EXPERIENCE OF SPINAL UNIT AT KING HUSSEIN MEDICAL CENTER

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Introduction. Spinal Cord Injury (SCI) is one of the most devastating injuries that afflict young people at the height of their social and working life. It is a multi-system injury which leads to a significant morbidity and mortality. This study aims to investigate the frequency of medical complications in Spinal Cord Injury (SCI) patients, their relation to risk factors and demographic characteristics.

Materials & Methods: The medical records of 190 patients with SCI who were admitted from March, 2006 to March, 2010 to the Spinal Unit at King Hussein Medical Center were enrolled in this study. The clinical features of Spinal Cord dysfunction were classified according to the International Standards of Neurological and Functional Classification of Spinal Cord Injury proposed by the American Spinal Injury Association (ASIA). We included patients who had SCI presenting class A, B, C and D as defined by ASIA Classification System with different levels of injuries (cervical, thoracic and lumbar) due to traumatic and non-traumatic causes. Their demographic data and causes of injury were analyzed. The causes of morbidities surveyed were cardiovascular, respiratory, renal complications, pressure sores, spasticity and neurogenic pain.

Results. A total of 190 cases were reviewed. The majority were predominantly males (80%). The male/female ratio was 4:1 the mean age at the time of injury was 32 years range from (13 - 70 years). The vast majorities were

traumatic causes (88%) and road traffic accidents were the main cause of their injury. non-traumatic causes were recorded in 12% of the cases. Of all the morbidities studied, pain was the dominant cause (45%) followed by urinary tract infection (30%), pressure sores (25%), spasticity (23%), thromboembolic complications (18%) and respiratory complications (10%).

Conclusions. The most common causes of morbidity were pain followed by urinary tract infection and pressure sores. Effective prevention strategies should be applied as early as possible to reduce their occurrence in SCI patients. This study showed that traumatic causes and particularly road traffic accidents are the leading cause of spinal cord injury in Jordan.

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LA CONSULTA DEI MEDICI IN FORMAZIONE SPECIALISTICA IN IGIENE E MEDICINA PREVENTIVA SITI (SOCIETÀ ITALIANA DI IGIENE, MEDICINA PREVENTIVA E SANITÀ PUBBLICA) - UN ESEMPIO DI RETE SPONTANEA DI PROFESSIONISTI

GIMIGLIANO A. [1] - CEREDA D. [2] - FRANCHINO G. [3] - BIANCO M. [4]

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Introduzione. La Consulta dei Medici in formazione specialistica è un organo della Società Italiana di Igiene, Medicina Preventiva e Sanità Pubblica (SItI), la cui mission, come recita l'Art. 1 del proprio regolamento è: "promuovere il confronto e la crescita delle Scuole di Specializzazione in Igiene e Medicina Preventiva e favorire la discussione delle diverse problematiche di competenza Igienistica, di Sanità Pubblica e di Management Sanitario". Si è costituita nel 1998 e progressivamente si è integrata con le attività della Società Scientifica fino ad essere riconosciuta all'interno dello statuto della SItI nel 2012 in qualità di componente ufficiale. Si compone di due rappresentanti per ogni Scuola di Specializzazione, eletti all'interno di ciascuna Scuola. Fra questi sono eletti, in concomitanza del Congresso Nazionale e con mandato biennale, il Coordinatore Nazionale, il Vice-Coordinatore ed il Segretario. Gli obiettivi sono creare e favorire una rete di contatti tra colleghi e promuovere il miglioramento della formazione degli specializzandi in Igiene: la visione complessiva dell'attività è modulata attorno all'idea di "costruire la rete per lavorare insieme". Si riunisce almeno 4 volte all'anno presso le diverse città sedi di Scuola di Specializzazione. In occasione delle riunioni vengono spesso organizzati seminari su tematiche fondamentali per la formazione del medico igienista. Negli ultimi 10 anni sono stati realizzati 47 incontri, di cui in 36 occasioni (77%) con valenza di riunione verbalizzata, mentre 11 occasioni (23%) in concomitanza di attività promosse nell'ambito di interesse della Consulta. Le riunioni verbalizzate si sono svolte in 10/36 occasioni (28%) contemporaneamente a Congressi o Conferenze Nazionali della SItI, in 9/36 (25%) in occasione di momenti formativi, infine 17/36 (47%) si sono svolte in maniera esclusiva. La partecipazione alle riunioni da parte delle Scuole di Specializzazione è in media del 66%; tutte hanno partecipato ad almeno una riunione. Dal 2007 la Consulta ha organizzato 11 momenti di formazione, nel 2008 ha contribuito a fondare una rete Europea di Medici in formazione in sanità pubblica (Euronet) che si è riunita 8 volte. Nel 2010 sono state organizzate le "Giornate degli Specializzandi". Una delle principali attività della "Consulta" è quella di svolgere indagini tra gli specializzandi di Igiene e Medicina Preventiva con l'obiettivo di indagarne le conoscenze e il bisogno formativo riguardo a tematiche ritenute fondamentali per la propria formazione e individuare punti di forza e di debolezza del percorso formativo. La produzione scientifica degli ultimi 10 anni comprende 20 contributi a congressi e 2 articoli; le tematiche affrontate riguardano: la soddisfazione in merito al percorso formativo; le prospettive lavorative, le esigenze formative degli specializzandi in merito alla Salute Globale e Medical Management e altri temi di sanità pubblica (abitudine tabagica, vaccinazione HPV e antinfluenzale).

Conclusioni. La Consulta degli specializzandi SItI può essere considerata un importante esempio di organizzazione spontanea, in quanto ne fanno parte soggetti che mostrano particolare interesse alle tematiche di Sanità Pubblica. È un importante esempio di aggregazione e di confronto fra i giovani medici, infatti, favorisce lo sviluppo delle capacità relazionali che risultano fondamentali nella nuova logica dell'attività sanitaria, non soltanto in materia di Sanità Pubblica, ma anche nella logica di "lavoro di equipe" tipico anche dell'attività riabilitativa. Infine è un esempio di come gli specializzandi possano agire nell'ambito di una Società Scientifica (e non sindacale) per contribuire al miglioramento del proprio percorso formativo.

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IMPINGEMENT DI ANCA: DALLA DIAGNOSI AL TRATTAMENTO RIABILITATIVO.

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Il conflitto femoro-acetabolare, o impingement di anca, è una patologia microtraumatica dovuta all'impatto della giunzione cervico-cefalica contro il bordo dell'acetabolo. Il quadro clinico è caratterizzato da dolore spesso discontinuo, riduzione del ROM articolare dell'anca, diminuizione della forza muscolare. La diagnosi dell'impingement è sicuramente un elemento cruciale sia perché non sempre facile sia perché la sua tempestività determina la prognosi di questa patologia. È stato provato statisticamente che il giovane atleta è il soggetto più frequentemente affetto da conflitto femoro-acetabolare. La localizzazione del dolore è spesso inguinale ma può essere riferito un dolore posteriore, laterale o irradiazioni complesse. Caratteristico il dolore o il discomfort del paziente alla stazione assisa (seduta), più o meno prolungata, o agli esercizi con anca in flessione. Il paziente affetto da impingement ha una ridotta o dolorosa flessione, adduzione e intrarotazione dell'anca. Il test provocativo per impingement anteriore è quasi sempre positivo. Si tratta di una flessione, adduzione e intrarotazione dell'anca a paziente supino. Esistono poi vari altri test clinici provocativi. La diagnosi viene sospettata con i test provocativi e viene confermata attraverso la radiologia convenzionale (bilateralmente) con due proiezioni, una a 45° e una a 90° con paziente supino, anca flessa di 45° o 90° con 20° di abduzione e rotazione neutra (proiezioni di Dunn) e attraverso RM con MdC. Il trattamento è essenzialmente chirurgico, a cielo aperto o tramite artroscopia. In entrambi i casi si provvede a correggere il dismorfismo che crea la condizione di conflitto per ripristinare la massima congruenza articolare, riparare le lesioni cartilaginee e capsulari secondarie e prevenire l'evoluzione degenerativa artrosica. Nel nostro studio riportiamo i risultati ottenuti su 14 pazienti operati (9 sottoposti ad intervento chirurgico a cielo aperto, 5 ad intervento chirurgico artroscopico) in un periodo che va dal settembre 2011 a giugno 2012. A tutti è stato applicato un protocollo riabilitativo standard post osteoplastica femoro acetabolare. Il programma ha avuto una durata di 12 settimane, ha prevede un carico sfiorante immediato associato a una mobilizzazione pendolare attiva e passiva dell'articolazione e a esercizi isometrici per quadricipite e glutei. In questa prima fase la deambulazione è sempre avvenuta con l'ausilio di due bastoni canadesi. Nel corso delle settimane la chinesi attiva e passiva è stata finalizzata al recupero del fisiologico ROM articolare, fino a passare agli esercizi propriocettivi con appoggio bi- e monopodalico, al recupero della forza e trofismo muscolare e della normale deambulazione, per consentire il ritorno alle attività della vita quotidiana e al ritorno in campo dell'atleta.

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PROTESI DI GINOCCHIO A PIVOT MEDIALE: DALLA CINEMATICA ARTICOLARE ALL'OUTCOME RIABILITATIVO

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Negli ultimi anni i numerosi studi condotti sia su cadavere sia in vivo mediante utilizzo di moderne tecniche di imaging, (quali la fluoroscopia e la RMN) hanno consentito di migliorare sia il disegno dell'impianto protesico che la tecnica operatoria.. Inoltre, la necessità di intervenire su pazienti sempre più giovani e le aspettative di vita caratterizzate da performance fisiche sempre crescenti, hanno richiesto nuove conoscenze sia nel campo dei biomateriali che della cinematica articolare, ma soprattutto uno studio più approfondito dei risultati clinici e funzionali, riservando un'attenzione particolare al recupero del ROM articolare, della propriocettività, nonché del ritorno alle normali ADL* dei pazienti trattati. Nel ginocchio normale, il condilo femorale mediale presenta un rollio inferiore rispetto al condilo laterale in fase di deambulazione. La protesi del ginocchio "medial pivot" replica questa meccanica del movimento. Il tipo di congruenza che caratterizza quest'impianto associata al raggio costante consentono sia la realizzazione di un "roll-back asimmetrico" tra il condilo mediale ed il laterale, come avviene fisiologicamente, senza stress, nei movimenti di flesso-estensione, esistendo una tensione uniforme delle strutture legamentose e capsulari periferiche, ed inoltre la possibilità di sacrificare il LCP, ove sia necessario, senza modificare le componenti metalliche dell'impianto. Nel periodo compreso tra gennaio 2010 e dicembre 2010 presso gli Istituti Ortopedici del Mezzogiorno d'Italia di Messina e Reggio Calabria, sono stati arruolati 350 pazienti (165 di sesso maschile, 195 di sesso femminile), di età variabile compresa tra 60 e 80 anni, affetti da osteoartrosi di ginocchio, sottoposti ad intervento di sostituzione protesica totale durante questo arco temporale e valutati contestualmente fino a dicembre 2011; criterio di inclusione l'assenza di patologie internistiche importanti, o gravi deformità

a carico degli arti superiori ed inferiori. Obiettivo del lavoro valutare mediante trial clinico, l'outcome riabilitativo applicato, quale criterio di selezione, ad un gruppo di pazienti sottoposti ad intervento di sostituzione protesica di ginocchio con un impianto protesico capace di ripristinare la fisiologica cinematica articolare e conferire un'elevata congruenza e stabilità articolare, al fine di apportare un ulteriore contributo e chiarimento rispetto all'utilizzo di impianti protesici a pivot mediale.

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MIRROR-NEURON SYSTEM RECRUITMENT BY ACTION OBSERVATION:MULTI-MODAL EXPLORATION OF ITS ROLE IN STROKE REHABILITATION

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Introduction. The discovery of the mirror neuron system (MNS) in primates by Rizzolatti and colleagues was one of the most important achievements in late 20th century neuroscience. Here we aimed to identify a reliable electrophysiological marker of MNS recruitment in humans, that could be used for physiological monitoring of rehabilitation treatment employing action observation (AO).

Method. Our design was a prospective study contrasting the EEG patterns of stroke patients and matched healthy controls. 28 first-event stroke patients and 27 matched healthy controls participated. The intervention was AO in different viewing conditions. The main outcome measures were: (1) behavioral - Fugl Meyer and 'Box and Blocks' tests of upper limb function; (2) electrophysiological - suppression shown at the alpha/mu range during observation and execution of reach and grasp activity.

Results. Execution of arm movement elicited maximal suppression in central sites (over the sensory-motor cortex) at the higher mu range (10-12 Hz). Observation of similar movements elicited maximal suppression in the lower mu range (8-10 Hz), and despite being a visual task, the suppression recorded from central sites was greater than from occipital sites. The effect of viewpoint (in front or at the back of the performer) was more noticeable in central than in occipital sites. In the patient group, AO revealed less suppression in the affected hemisphere compared to the unaffected hemisphere. Suppression in the lower mu range was negatively correlated with lesion extent within the inferior parietal cortex, a region where damage often results in motor-control disorders (apraxia), and where large aggregates of mirror neurons were found in macaque monkeys.

Conclusions. The findings corroborate the notion that mu (8-12 Hz) suppression is a valid marker of MNS activity in humans. However, they point also to a functional distinction between the higher and lower segments of the mu range, where only suppression of the latter seem to be associated with activation of a human MNS. Quantitative EEG combined with standard behavioral measurement of motor activity is an important tool in studies of AO role in stroke rehabilitation.

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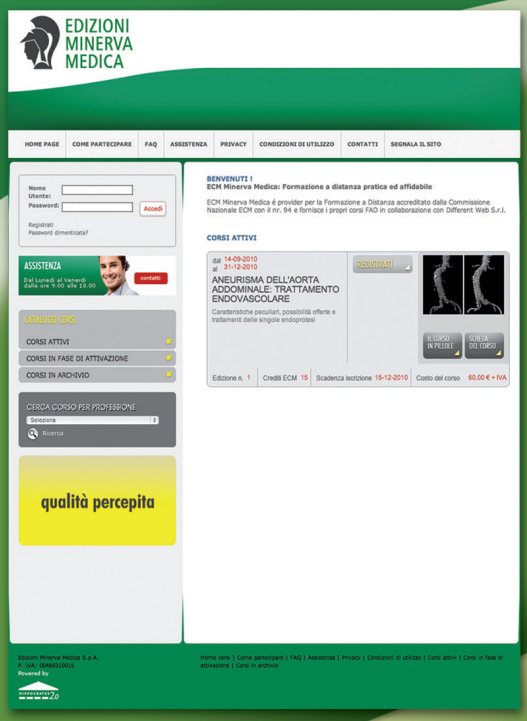

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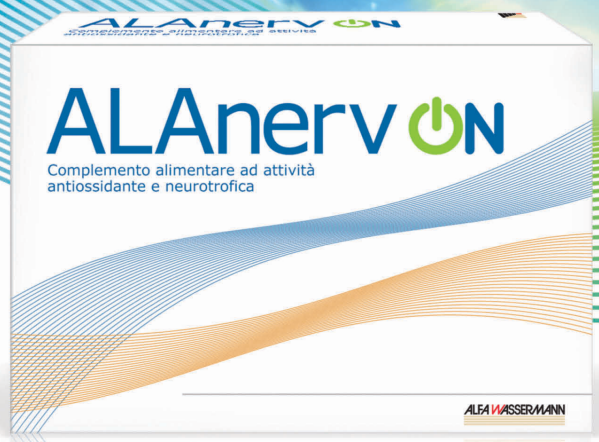

1-2 capsule al giorno
preferibilmente in unica somministrazione

ALFA WASSERMANN