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Developing ClinFIT COVID-19: An ISPRM initiative to scale up rehabilitation for COVID-19 patients and survivors across the care continuum

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Abstract

Introduction: Health systems worldwide are challenged to address the healthcare needs of persons with COVID-19. After the immediate need to mitigate the spread of COVID-19 and scale up relevant healthcare capacities, one major challenge is scaling up rehabilitation to address the functioning limitations experienced by COVID-19 patients/survivors. To meet this challenge, ISPRM has developed a tool for the assessment and reporting of functioning of COVID-19 patients/survivors - "ClinFIT COVID-19", to assist health professionals to optimally address patients' healthcare needs.
Materials and Methods: The multi-step process to develop the ClinFIT COVID-19 category list involves: development of a proposed list of ICF categories, survey of ISPRM members worldwide about the proposed category list, and a post-survey consultation with the ISPRM ClinFIT Task Force.
Results: The final category list for the acute care context contains the seven categories provided to the survey participants (energy/drive functions, sleep, emotional functions, pain, exercise tolerance functions, carrying out daily routine, and walking) plus six categories related to respiration, mobility, and cognition. The post-acute and long-term care versions also contain the seven categories plus additional categories relevant for the specific context. The post-acute version contains 15 categories and the long-term 16 categories.
Conclusion: This talk presents the methodology and results of the multi-step task process to develop the ClinFIT COVID-19 category list.

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IMPROVING BRAIN PROCESSING IN CHILDREN WITH ADHD USING EEG BIOFEEDBACK

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Abstract

The diagnosis and treatment of behaviors associated with attention-deficit/hyperactivity disorder (ADHD) predominantly involves pharmacological or behavioral interventions. Many children experience significant negative side effects (e.g., appetite suppression, insomnia, headaches, stomachaches, irritability, and impaired height) from the initial and continued use of stimulant medication. And behavioral interventions have likewise shown limited long-term effectiveness. Consequently, many parents seek alternative treatments for ADHD, such as neurofeedback (EEG biofeedback).

Using EEG biofeedback interventions, improvements were achieved in auditory and visual attention and response control after 40 sessions of artifact-corrected EEG biofeedback for 51 children ages 6 to 17 with ADHD.

Initially, the majority of these children were identified as having severe to extreme auditory and visual attention impairments based on the Integrated Visual and Auditory Continuous Performance Test (IVA-2 CPT) assessment, which was administered prior to treatment and after 20 and 40 treatment sessions were completed. The EEG biofeedback was administered in 30-minute treatment sessions at least two times per week for a total of either 20 or 40 sessions.

After 20 sessions of neurofeedback significant improvements of both auditory and visual attention and response control were found with small to large size effects. The children continued to improve after an additional 20 sessions, with medium to large size effects after 40 sessions. At completion of treatment, the mean of eight of the nine attention and response control scores fell within the "normal" range.

The results of this study supported the hypothesis that EEG biofeedback would significantly improve both auditory and visual attention of children with symptoms of ADHD. The children's improvement in their auditory and visual attention scores revealed they achieved clinically significant improvements after 40 half-hour treatment sessions. Artifact corrected neurofeedback proved to be a clinically efficacious intervention helping normalize the significant attentional impairments symptomatic of ADHD in children ages 6 to17.

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ITALIAN AND JAPANESE PUBLIC ATTENTION TOWARD BALNEOTHERAPY IN THE COVID-19 ERA

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Abstract

Introduction: Italian and Japanese populations widely use balneotherapy (BT). The interest in BT during coronavirus disease-2019 (COVID-19) era should be investigated. We aimed to exploit Google Trends analysis as a measure of interest in BT in Italy and Japan.

Materials and Methods: Google Trends was queried for the lay terms used by the Italian population to refer to the BT setting (terme + termale), and by the Japanese to refer to BT facilities (温泉 + スパ). The internet searches in 2020 were compared to overlapping time spans in 2016–2019 and were correlated with new confirmed cases/deaths.

Results: From February 23 to June 20, 2020, and from October 4 to December 26, 2020, the Italian searches were statistically significantly decreased; however, the internet searches were not significantly different in June 21 to October 3, 2020, compared to overlapping time spans in 2016–2019.

From March 15 to September 5, 2020, and from November 29 to December 26, 2020, the Japanese searches were statistically significantly decreased; the internet searches were significantly increased in September 13 to November 7, 2020, and were not significantly different in November 8 to 28, 2020, compared to overlapping time spans in 2016–2019.

There were significant negative correlations between the relative search volume and number of new cases (rho=−0.634; p<0.001)/deaths (rho=−0.856; p<0.001) in Italy and the number of new deaths (rho=−0.348; p=0.012) in Japan.

Conclusion: During the early stage of pandemic, the interest was lower, with the decrease of interest preceding the emergency declarations. After this early stage, the interest showed a recovery in both countries. Then, both countries demonstrated a decline in interest, coinciding with the enforcement of new restrictive measures.

The reduction in interest in BT may suggest the need to rethink the role of BT in emergency situations.

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Microbiota of hypersaline waters. Halobacterium, haloarchaea and microalgae, properties for the skin.

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Abstract

Carla Morer (2016), *Gomes et al. (2019)* and *Gomes et al. (2021)* have already studied the different concepts and history of Thalassotherapy, the physical and chemical properties of saline waters and the methods of application of seawater for therapeutic purposes, as well as its derivative products (mud, sand, algae, salt, and aerosols), where climatherapy has a notable influence on treatment (*Maraver et al., 2011*).

The benefits of thalassotherapy for human health are attributed to minerals (*Morer et al., 2017*), either dissolved in seawater or participating in the composition of sea products (*Gomes et al., 2021*).

Minerals are incorporated through the skin by osmosis or inhalation of aerosols. In the case of osmosis, skin contact with water usually lasts from 15 to 20 min and produce modifications in body physiology *(Carbajo & Maraver, 2018)* to which pharmacological properties can be attributed *(El-Amawy & Sarsik, 2020)*.

In hydrology microbial load of saline waters has not been considered important, although we believe that it does not exist, always believed that life in hypersaline media is unlikely; it was not considered capable of exercising physiological activity.

This concept has changed radically *(Carbajo, 2014)*. Hypersaline environments are frequent on the planet *(Spear et al, 2003)*. When a brine is concentrated, fauna is dominated by halotolerant microorganisms, preventing the life of conventional microscopic beings of the water, remaining only moderately halophile organisms (up to about 150 g/kg of salinity) and extremely halophile (with salt concentrations above 250 g/kg) *(Tamez, 2009)*.

The ecology of microorganisms in brines, depending on the characteristics of temperature, saline concentration, and luminosity, is generally constituted by phyto and zooplankton, bacteria, archaea, fungi, and yeasts *(Martí, 2010)*.

These microorganisms generate active substances and under certain conditions of light, temperature, saturation, and pH, they can generate precipitates called "evaporites" that originate an active silt with beneficial properties for skin health *(Revsbech et al., 1983; Van Gemerden, 1993*; *Singh and Singh, 2017*).

Consequently, saline hypertonic media have their own environmentally dependent microbiota, and this microbiota has very important properties for use in dermatological and cosmetic preparations.

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SCIENTIFIC PROGRESS IN THE FIELD OF THERAPEUTICAL THERMALISM FOR "HYDROTHERMAL DEVELOPING COUNTRIES": A INTEGRATED ANALYTICAL APPROACH PROPOSAL (IAAP)

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Abstract

Introduction

Therapeutic thermalism has reached a wide application in the world since Roman age. Important spas centres were born in Europe in order to offer the best therapeutic service to patients and promote the typical local resources. However, there are countries in which the thermalism field hasn't reach high levels in research and economy. The aim of our work is to purpose a general model for promoting new innovation approach in therapeutic thermalism for countries not yet competitive in this area.

Methods

This proposal is based on the participatory methodology and on the integrated analytical approach (IAA). It is possible correlate chemical/mineralogical-structural-biological-surface free energy aspects of peloids and spring waters on each samples and in the same time.

Results

The "hydrothermal developing country" (HDC) term introduced here derives from the definition of "developing country" and identifies a "hydrothermal resources country having a standard of hydrothermal industry well below that possible with hydrothermal research aid; a country that is notyet highly represented in terms of therapeutic thermalism". The HDC can be realized by a specific Therapeutic Thermalism Proposal (TTP) focused on skin as biological element for the evaluation ofthe efficacy of pelotherapy and balneotherapy in HDC. The TTP aim to evaluate the biological maturation process of peloids and the therapeutic properties of active natural substances (ANS) generating during the maturation process. The TTP consider ANS potential active natural ingredients (ANI) for the development of local cosmetic and formulation industry. The TTP aim to give the scientific basis of local therapeutic thermalism trough the interaction between local academic realities and SME with the active participation and interactions of national and local governmental institutions. Direct beneficiaries of TTP are involved in the development enhancing human resources in therapeutic thermalism within the frame of government policies.

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DOES EXTRACORPOREAL SHOCK WAVE THERAPY (ESWT) WORKS IN SPASTICITY POST STROKE?

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Abstract

Spasticity reduces the functional capacity of the patient, limits her/his independence, can lead to contractures, pain and lower quality of life. In recent years, extracorporeal Shock Wave Therapy - eSWT - has been added to the arsenal of spasticity reducing agents.

Based on a review of the current literature, the review article presents the indications, methodology, efficacy and safety of eSWT in people with spastic limbs after a stroke. This therapy has proven to be effective and safe, although its mechanism of action is still unknown. To date, standard parameters of eSWT stimulation in post-stroke spasticity have not been established.

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Minimalism but comprehensiveness in Spine Care; are we giving adequate emphasis ?

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- Chairperson of Prevention Committee of International Spinal Cord Society (ISCoS)
- Helped the ISCoS in publishing a textbook on 'Comprehensive Management of Spinal Cord Injuries' as Editor in Chief.

Abstract

Minimalism is "the concept of focusing on the most essential things in order to provide greater fulfillment. In minimalism, excess belongings, distractions, things to do and time commitments are whittled down to only those providing true value while eliminating things providing mediocre or superficial value".

Conservative treatment is " the state or condition of including all or nearly all elements or aspects of something" or "providing for the full range of personal health services for diagnosis, treatment, follow up and rehabilitation".

The Principles of Minimalism have been along lines of the historic ethical mantra of medicine, "Primum non nocere"

- First, do no harm!
- Second, relieve suffering!
- Third, contain cost!

Minimalism has become increasing by recognized in the spinal injury field : the less treatment that is "done to" the patient and the more the patient is trained to provide self-care strategies, the better the outcome. The clinician requires skills in decision-making regarding when, what and how much direct treatment is needed in each patient and equally important when no treatment is necessary.

The spinal injury care professionals would have to understand that often in spine care "less is more". approach that focuses on education, maximizes patient empowerment and minimizes practitioner-driven intervention is likely to be most beneficial. This would allow the practitioner to focus on the value of care (i.e. outcome per unit cost which would not only benefit patients but also the health care system and society as a whole by helping control costs while expediting early return to a productive life.

In the presentation the following will be discussed

- Minimalism : It's origin
- Application of Minimalism to Spinal Injury Care and its advantages
  - Reducing unnecessary investigations
  - Recognising where no treatment is required
  - Giving an appropriate conservative trial unless contra-indicated
  - Appropriate choice of surgery with minimum intervention and tissue trauma
  - Do no harm
  - Ensuring no compromise on comprehensiveness
  - Whether there is adequate emphasis on Minimalism

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SULFUROUS-ARSENICAL-FERRUGINOUS BALNEOTHERAPY FOR OSTEOARTHRITIS OF THE HAND: RESULTS FROM A RETROSPECTIVE OBSERVATIONAL STUDY

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Abstract

Introduction: Balneotherapy (BT) is one of the most widely used complementary therapy in several rheumatic conditions, and includes a number of different treatment modalities often practiced in health resorts.

Hand osteoarthritis (HOA) represents one of the more frequent OA joint localization and determines an important clinical burden in routine daily activities with consequent reduced quality of life. Preliminary evidence about the use of BT in HOA are promising, but still scarce and inconclusive.

The aim of this preliminary study is to retrospectively evaluate the symptomatic effects of a cycle of mud-bath therapy in HOA patients.

Methods: Two-hundred twelve outpatients with primary bilateral HOA treated with 12 daily local mud packs and generalized thermal baths with a sulfurous-arsenical-ferruginous mineral water added to usual treatment were included in the study. Each patient was examined at baseline and at the end of thermal therapy (2 weeks). Primary outcome measures were global spontaneous hand pain on a Visual Analogue Scale and the Functional Index for Hand Osteoarthritis score; secondary outcomes were handgrip strength, duration of morning stiffness, Health Assessment Questionnaire, Short Form Health Survey (SF-12), tolerability, and patients' and physicians' global impression of treatment efficacy and tolerability.

Results: Our results demonstrated that the efficacy of mud-bath therapy was significant in all the assessed parameters at the end of therapy, except for the physical component score of SF-12. The thermal treatment was well tolerated. The patient's and the physician's global assessments showed a high level of satisfaction in terms of efficacy and safety.

Conclusions: Our results may suggest a short-term effectiveness of mud-bath therapy in controlling pain and improving functionality in HOA patients, supporting the role of this treatment as a complementary strategy in the management of HOA; however further randomized controlled trials with a long-term follow-up are needed.

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PECULIARITIES OF THE NEW METHOD OF PELOID THERAPY – INFRAPELOIDTHERAPY – IN DIFFERENT PATHOLOGIES IN CLINIC AND EXPERIMENT

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Abstract

Ukraine is characterized by a significant amount of natural healing resources used in rehabilitation, spa and health resort practice, including deposits of therapeutic muds (peloids) of different types. Despite the significant prevalence of mud deposits, the question of their rational and economic use is relevant. The presence of comorbid pathology limits the prescription of heat treatment methods, in particular peloidotherapy by classical methods.

Purpose: study of peloidotherapy in the form of infrapelotherapy in rehabilitation practice.

Results. SI "Ukrainian Research Institute of Medical Rehabilitation and Resort Therapy of the Ministry of Health of Ukraine" conducts a set of physico-chemical, microbiological, experimental and clinical studies of peloids for their use in clinical practice. Experimental studies are performed on intact rats to study the safety profile and in the models of pathological conditions.

The peculiarity of the infrapelotherapy technique: peloid of silt sulfide type of room temperature is applied layer 1-3 mm thick on areas or on the entire body surface. Infrapelotherapy procedures are performed in a specially equipped chamber (room) with infrared light sources; duration of the procedure – 20 minutes.

Clinical effectiveness has been proven by monitoring the patients' state with the following pathological conditions (in the clinical sanatorium "Arcadia" of the State Border Service of Ukraine):

1. osteoarthritis of joints and spine, comorbid with diseases of cardiovascular system;
2. military with the consequences of injuries, back pain of different localization;
3. military with post-traumatic stress disorder.

Conclusions. Based on a set of clinical and functional indicators was found that infrapelotherapy improves the patients' state by restoring the function of joints, increasing physical activity and quality of life. The proposed method has good tolerability, high medical efficiency and is cost-effective due to the low cost of therapeutic mud per procedure compared to the classical method of mud treatment.

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THE EFFECTIVENESS OF THE USE OF A NATURAL MAGNESIUM-CONTAINING AGENT IN MILITARY PERSONNEL WITH POST-TRAUMATIC STRESS DISORDER

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BY-NC-ND Balneo and PRM Research Journal DOI: http://dx.doi.org/10.12680/balneo.2021.452 Vol.12, No.3 September 2021 p: A10

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Abstract

Introduction. The clinical picture of post-traumatic combat stress disorder (PTSD: ICD-10 F43.2) is characterized by a combination of the main signs with symptoms of an acute reaction to stress; personality disorder after a disaster; mental disorders inherent in other neurotic diseases; disorders of the psychotic register. In this regard, there are promising studies of magnesium (Mg^{2+}) preparations as the main element in maintaining the balance of excitation/inhibition processes in the brain. Furthermore, the effect of Mg^{2+} is also aimed at normalizing the stress-limiting system, manifestations of stress, adaptation processes, and the like.

Purpose. To determine the effectiveness of the internal use of the preformed bischofite solution of the Poltava deposit at a dilution of 5.0 g / dm3 (Magnesium oil) in the complex therapy of military personnel with combat chronic PTSD.

Materials and Methods. Service members with PTSD (30 people) were divided into the main (20 people) and control groups (10 people). All patients were prescribed basic drug therapy. Individuals of the main group were additionally prescribed an internal injection of an aqueous solution of the balneological agent "Magnesium oil", in the amount of 5 mg/kg of the patient's body weight, from 100 ml to 200 ml per dose, 40 min before meals, three times a day, for 30 days. In the control group, instead of taking "Magnesium oil", regular drinking water was prescribed in the same regimen. The functional state of service members was assessed using the HDRS (Hamilton psychiatric rating scale for depression) questionnaire.

Results. The initial symptomatology of depressive disorders was within the range of (15.6 ± 3.4) points, which is regarded as a long-term subpsychotic anxiety and depressive reaction. However, in the main group on the 30th day, there was a decrease to (7.6 ± 0.9) points ($p < 0.05$), while in the control group, there were no significant changes - (13.5 ± 3.0) points ($p > 0.05$).

Conclusions. For complex PTSD variants, traditional drug regimens are not effective enough. Internal use of the "Magnesium oil" solution, which exhibits the properties of a balanced antidepressant, significantly contributes to the achievement of a therapeutic result.

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A NOVEL MYOFASCIAL APPROACH IN THE MANAGEMENT OF SPASTIC CEREBRAL PALSY

SHARAN Deepak

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Abstract

Introduction

In spastic muscles, there is an overall disruption in the organization of the myofascial unit and thereby an alteration in the myofascial sequence of a particular segment or a series of inter-connected segments. A novel surgical and rehabilitation approach targeting the myofascia in cerebral palsy (CP) is described.

Materials and Methods

The aim of the study is to assess the functional outcome of single event multilevel lever arm restoration and anti-spasticity surgery (SEMLARASS) and rehabilitation in 500 persons with CP (aged 3-34 years, 57% females). The minimally invasive surgical procedures included Orthopaedic Selective Spasticity Surgery (Intramuscular Release, Controlled Tendon Lengthening), release of deep fascia, myofascia and inter-tendinous fascia, and restoration of lever arm dysfunction using percutaneous osteotomies and external fixators, followed by protocol-based rehabilitation for an average of 6 months. The postoperative rehabilitation approaches focused on the myofascia including Fascial Manipulation, Myofascial Manipulation, Advanced Biomechanical Rehabilitation or "Zero Tonic" Approach, Fascial Distortion Model, etc. in addition to physiotherapy to improve strength and balance including aquatic therapy, body weight supported treadmill training, whole body vibration therapy, hippotherapy, virtual reality-based therapy, EMG biofeedback, functional electrical stimulation, etc.

Results

The pre-operative Gross Motor Functional Classification System (GMFCS) levels were I (4%), II (18%), III (21%), IV (33%) and V (24%). Functional Mobility Scale (FMS), *Gross Motor Function Measure* (GMFM), Manual Ability Classification System (MACS), Paediatric Quality of Life (PQOL) were measured before and after the treatment. The results at a follow up of 2 years showed a significant functional improvement. Median values of GMFCS before surgery and after rehabilitation were 4 and 2, respectively. Significant ($p < 0.05$) improvement was noted in all the domains of GMFM, FMS, PQOL and MACS.

Conclusions

SEMLARASS followed by protocol-based rehabilitation targeting the myofascia results in a significant improvement in gross motor function, ambulation, and quality of life.

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REGION CAUCASIAN MINERAL WATERS - THE CENTER OF HEALTH TOURISM AND REHABILITATION IN THE SOUTH OF RUSSIA

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Abstract

Introduction. Caucasian Mineral Waters is a unique ecological and resort region with an area of about 5.8 thousand km^2. There are 20 mineral water deposits of various types in the region with total operational reserves of more than 16 thousand m^3 per day and about 100 mineral water sources of 14 types of five genetic groups: carbon dioxide-hydrogen sulfide, carbon dioxide, carbon dioxide chloride-bicarbonate sodium (salt-alkaline), radon weak carbon dioxide, nitrogen-carbon dioxide terms. The Big Tambukansky lake, the operational reserves of sulfide-silt mud of which amount to 786 thousand m^3, is located 12 km southeast of the resort of Pyatigorsk.

Among the drinking mineral waters in the conditions of the resort, the most widely used are carbon dioxide and carbon dioxide chloride-bicarbonate sodium (salt-alkaline) mineral waters. In the resort area of the North Caucasus, a systematic integrated monitoring of atmospheric aerosol, as well as small gas impurities NO, NO_2, CO, O_3, CH_4 is carried out at two altitude levels: 860 m above sea level (the park area of a large mountain resort) and at an altitude of 2070 m above sea level (Alpine meadow – background international station). The results are used in the programs of bioclimatic, landscape and medical monitoring to clarify the influence of atmospheric aerosol on the adaptive reserves of the environment and humans. Landscape therapy in the conditions of Kislovodsk is used for rehabilitation programs for diseases of the cardiovascular and respiratory systems of various origins, including postcovid syndrome.

Conclusion. Resort cities have their own rehabilitation profile, which is based on the specifics of their climatic resources and the chemical composition of mineral waters: Pyatigorsk-musculo-skeletal, neurological and pediatric disorders, Kislovodsk-cardio-vascular disorders and respiratory disorders, Zheleznovodsk-disorders of the gastrointestinal tract and the urinary and reproductive system, Essentuki-metabolic syndrome and type 2 diabetes.

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COVID 19 Pandemic & Rehabilitation- The Indian Experience.

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Abstract

The SARS COV 2 virus has created havoc in all countries around the world, especially in a developing country like India. India is the second most populous country in the world behind China with a population of 1.34 billion and is second behind the United States of America in number of total cases infected with the novel virus i(32.2 million with a death of 4.3 lacs as on 24th August 2021). In terms of rehabilitation services, we have a total of approximately 3000 neurologist, 900 Physiatrist, 45k Physiotherapist, 18k Occupational therapist, 35k Speech and Language pathologist & few hundred neuropsychologists. The Poor infrastructure, poverty, lack of investments in healthcare sectors & poor policies has resulted in the collapse of health services including rehabilitation during pandemic. Since chronic rehabilitation services are not covered by insurance agencies, it puts economic burden on the patients and families who have to pay from their pocket.

Neurorehabilitation services are poorly developed in India; there is a gross discrepancy in the demand and supply of services, lack of trained therapist is one factor as majority of them practice in urban areas, though large population lives in rural area where these services are scarce. Neurorehabilitation services are provided in acute health care settings as in patient rehabilitation, outpatient rehabilitation, chronic inpatient rehabilitation, family-based rehabilitation & Community based rehabilitation. The Pandemic has affected neurorehabilitation services at all levels.

Patients admitted in the in-patient department are tested for COVID 19 virus upon admission and relative staying with the patient is also tested to contain the spread of the virus with no additional relatives is allowed in the ward. During Outpatient Rehabilitation, Rehab program must identify the most relevant goals with the reduction of the rehabilitation team's participation as “hands-free” or coaching approach, minimizing direct one to one patient-therapist contact. In case this is not possible, staff must be protected by sufficient protection with personal protective equipment’s (ffp2 masks, gloves and gowns) and therapy should be performed primarily in the patients’ room whenever possible. Patients who are conscious and cognitively sound should be involved in active exercises in the form of functional or task-based training, which can be performed with the help of care giver. Adequate education and counselling should be provided to ensure self-efficacy and adherence to the programs. In case of patients with low risk of fall, therapeutic gym activities can be initiated ensuring a distance of at least two meters between the patient and the therapist. Use of personal equipment and body resisted exercises must be emphasized as much as possible. Use of equipment shared across patients should be avoided as much as possible and If used, appropriate sterilization should be done. The challenges faced by patients are lack of transport services to go to hospitals for outpatient rehabilitation, and closure of most of the rehabilitation departments for in patient and out patients service during the first wave of the pandemic.

Family based rehabilitation must be encouraged & Telerehabilitation should be used as follow up. Although telerehabilitation has a better outcome but challenges are again due to poverty and illiteracy with a smaller number of smart phones with low data to use the services.

In India there are a total of four vaccines which are granted emergency use permission for the common public, namely Covisheild, Cowaxin, Sputnik and Zydus COVd. Since January 2021, the largest vaccination drive in the world has led to complete vaccinations of 10+ crore Indians and partial vaccination of 40+ crore Indians. Large scale vaccination along with proper covid 19 appropriate behaviors will lead to an end of this pandemic and return back to normal medical services which include Rehabilitation well.

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BATHING HABITS, BATHROOM ENVIRONMENT AND QUALITY OF LIFE IN COMMUNITY CENTER USERS IN RURAL AREAS OF JAPAN

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Abstract

Introduction

According to 2020 statistics, the proportion of elderly people is 28.7%, the highest in the world. In the rural and mountainous/coastal areas we surveyed, the proportion of people aged 65 and over was 33.7% and 54.4% respectively, which is more aged than in Fukui City 29.3%. In the rural areas of Fukui City, the proportion of people living together with three or more generations is higher than in larger cities. In the mountainous/coastal areas, most elderly people live alone or only with elderly couples. The Fukui City Council of Social Welfare conducts salon activities for the elderly at local community centers for the purpose of care prevention.

Materials and Methods

In the winter and summer of 2020, we conducted self-administered questionnaires survey on bathing habits, bathing environment and quality of life among participants in salon activities in rural and mountainous/coastal areas of Fukui City.

Results

In winter, 88 respondents (17 males, 71 females) were participated (59 rural areas and 29 mountainous/coastal areas), and in summer 86 respondents (14 males, 72 females) were participated (72 rural areas and 14 mountainous/coastal areas). In winter, more people took baths than showers, and tended to spend more time in hotter water (median: 42°C). In winter, people in the mountainous/coastal areas bathed less frequently than those in the rural areas, and tend to feel the bathroom and changing room were always cold, with a lower proportion using heaters or other heating equipments.

Conclusions

As most respondents in the mountain/coastal areas are over 80 years old, they have poorer ADLs than those in the rural areas, suggesting a problem with the bathroom environment. We will be collecting more participants from this summer.

Acknowledgements

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Possibilities for the internal use of NATURAL mineral waters in the correction of Renal compensation mechanisms at COPD patients

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Abstract

Introduction: Results of recent researches revealed high frequency of renal dysfunctions in COPD patients. Such association and insufficiency of renal compensatory reserve leads to formation of chronic acidosis, which is present already in the early stages of the disease. On the other hand, chronic acidosis is the background for comorbidity. That is why early correction of renal dysfunctions is of high importance in the management of COPD patients.

Materials and Methods: 62 patients with respiratory diseases beyond the acute period of COVID-19 were examined, among them 23 patients had COPD. Renal compensative mechanisms were evaluated by urine pH level, rate of diuresis, titratable acid and ammonium excretion, levels of renal metabolic markers in blood. Diuretic, alkalinizing influence of different balneological types of mineral waters were compared.

Results: Functional and metabolic renal disturbances were found at more than 50% of patients and manifested in mild elevation of uric acid, urea and creatinine concentrations. Decrease of glomerular filtration rate was found in 56,5%, more frequently in COPD patients. In 13% of them, it was 60 ml/min and lower. Almost all patients demonstrated disorders of renal compensation mechanisms of chronic metabolic acidosis - activation of ammonium and titratable acid excretion, acidic urinary pH, disturbances in partial functions of kidneys. These changes were found in more than 1/3 of COPD patients. Ultrasound investigation revealed urostasis (37.3%), nephrolithiasis (27,1 %) and other pathological conditions. It should be noted that these findings were associated with poor clinical manifestations.

Conclusions: Obtained results determine the expediency of supplementing the complex of COPD patient's treatment with drinking natural mineral waters, which have systemic alkalizing and pronounced diuretic features. These waters represent an inexpensive and simple way of alkalizing therapy and method of early correction that could hasten the progression of kidney disease and chronic acidosis at patients with COPD.

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Natural mineral waters in the Service therapy at patients with COPD and gastrointestinal comorbidity

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Abstract

Introduction. There is consistent evidence that comorbidities have a great negative impact in COPD patients. In clinical practice, there is a frequent combination of COPD with pathology of the digestive system. In addition to traditional pharmacological therapy, management of COPD requires a more holistic approach, including the assessment and appropriate treatment of comorbid conditions.

Materials and methods. We examined 23 patients with mild and moderate COPD beyond exacerbation period. Among them - 15 men and 8 women. The age of patients ranged from 43 to 69 years (average 56.9±1.4 years). The complex examination of patients included clinical, biochemical and ultrasonic examination.

Results. Digestive pathology was observed in most patients with COPD, due to common pathophysiological mechanisms and long-term drug treatment, and manifested mainly by chronic gastroduodenal pathology and hepatobiliary diseases. Hepatic transaminases levels were elevated in 56,5% of patients, exceeding the upper reference limit by 64%. Cardiac transaminase was higher than the normal levels by 25,8% in 39,1% of respondents. The ratio of transaminases was below normal in 74.9% of patients, which may indicate a decrease in liver detoxification activity. The predominance of pancreatic hyposecretion, which was associated with a relatively high frequency of elevated blood glucose in 43,5% of subjects, which can be considered as a possible mechanism of insulin resistance and pancreatogenic diabetes mellitus formation in COPD patients.

These disturbances manifested by functional and structural changes – hypotonic gallbladder (57,8 %), presence of hyperechogenic sediment, sludge, stones in its cavity (47,4%), signs of hepatic steatosis, reactive pancreatitis.

Conclusions. The obtained data determine the expediency of supplementing the complex treatment for COPD with drinking natural mineral waters, which have systemic alkalizing features, choleretic and cholekinetic effects – mineral waters of medium and low mineralization and different balneological groups with the presence in their composition bicarbonates, sulfates, silicic acid, boron.

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Variety of blood pressure reactions in patients of Truskavets' SPA and their hemodynamic, autonomic and hormonal accompaniments

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Abstract

Introduction. The influence of balneotherapy at the Truskavets' SPA on the blood pressure (BP) of his patients is still not in the focus of researchers. Therefore, we initiated the project "Neuroendocrine-immune and metabolic mechanisms of the effect of balneotherapy on BP".

Materials and methods. Under an observations were 34 males and 10 females (24-76 ys) patients chronic pyelonephritis and cholecystitis in the phase of remission. Testing was performed twice - on admission and after 7-10 days of standard balneotherapy. The main object of the study was office BP (tonometer "Omron M4-I", Netherlands). Simultaneously the parameters of hemodynamics (echocamera "Toshiba-140", Japan), HRV ("CardioLab+VRS", XAI Medica, Ukraine) and Hormones (ELISA) were determined.

Results. The optimal level of initial systolic BP (range 120÷129 mmHg) stated in 15,9% of cases, high norm (130÷139) in 15,9% too, arterial hypertension (AH) I (140÷160) – in 43,2%, AH II (over 160) in 11,4%, however, in 13,6% of cases the BP was lower than 120 mmHg. According to the results of individual changes of BPm, GPRV and CO, 4 clusters were formed. In 31.8% of patients Pm (mmHg) decreased from 108±3 by 7,4±0,9, in 31,8% from 99±2 by 2,7±0,7, in return in 25,0% increased from 97±3 by 5,7±1,1 and in 11,4% from 100±8 by 18,4±1,7. A significant decrease in Pm is due to a decrease in GPRV to a greater extent than an increase in CO. A moderate decrease in Pm is due to a decrease in CO to a greater extent than an increase in GPRV. A moderate increase in Pm is due to an increase in CO but not GPRV, and a significant increase in Pm is due to an increase in GPRV but not CO. Discriminant analysis revealed that the characteristic feature of the first cluster is the maximum for the sample reduction of testosterone and LFnu and stable entropy of HRV. The second cluster is characterized by the maximum for sample increase in levels of TP HRV, SDNN, Aldosterone and Cortisol and stable level of Triiodothyronine, the third by the maximum increase in calcitonin and LFnu, the fourth by the minimum decrease in testosterone and the maximum decrease in parathyroid activity. The accuracy of the classification is 100%.

Conclusion. The variety of reactions of BP and hemodynamics to balneotherapy is caused by a variety of reactions of autonomic and endocrine systems.

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New health and hygiene prevention needs in the thermalism facilities

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Abstract

"PREVENTING IS BETTER THAN CURING": we hear this phrase repeated over and over again, and now, more than in the past, it has become a must following the pandemic that still affects many places on the planet. We living beings have an absolute need for air and water; but like us, even invisible enemies (bacteria and viruses) have specialized as hydrophilic or aerophilic, and some of these are pathogenic for our health. We must therefore protect air and water from these invisible beings in order to save ourselves.
The concept is simple, but when it comes to applying it, it becomes a problem. Why? There are many factors that affect prevention choices. A first list includes: knowledge; clinical evidence; the reference environment; the climate; the reference structure; the types of technological systems present; the maintenance; the procedures; the application methods; controls and intervention measures; the reduction of the expected risk; costs.
Based on experience, costs come first everywhere. In fact, it is customary to accept a certain level of risk in order to limit the costs of intervention: usually prevention has costs that are not exactly contained and requires energy - even in the long term - that are not concretely seen. Better to spend on activities and achievements that are immediately perceptible.
However, now the sensitivity of the healthcare world and of society in general is changing and it is therefore possible to propose interventions and actions that until recently were considered largely superfluous. Faced with the increase in risks associated with increasingly invisible and unpredictable enemies, the prevention measures must be more effective. That is, they must take a leading role in the entire approach to Public Health (both state and private in all its forms).
In this context, it is not a question of avoiding contracting community or hospital infections, but identifying the intervention criteria that make it possible to prevent any type of attack from pathogens, bacteria or viruses.
The problem is certainly very complex, but for almost a hundred years science has been dealing with prevention criteria to be followed in all possible forms, in particular with reference to advances in microbiology, technology and pharmaceutical chemistry.
To adopt these criteria, the guidelines of the WHO must be followed and, on the basis of local knowledge, appropriate protocols must be adopted to become common practice, applied and managed with great severity.
Prevention does not mean entrusting a chemical product with the solution of the case (always temporary), but having a cultural, technical and scientific approach very different from the traditional one.
The procedures and intervention techniques are then defined that allow to guarantee an excellent effective prevention, well aware that the reduction to zero of the epidemiological risk is perhaps impossible, while a good quality of the prevention techniques that allow to increase the defenses in according to the different needs over time.
What are the points on which to intervene?

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Medical Geology Curriculum: a proposal for teaching undergraduate and postgraduate degree courses

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Abstract

The emergent discipline of medical geology is gradually finding its footing on many campuses of tertiary institutions globally. Certain Universities are teaching it as either a module or complete course at both undergraduate and postgraduate levels of study. Based on its multi-disciplinary nature, curriculums are still being developed to cater for the scope of subjects allied to medical geology. This proposal seeks to integrate medicine, balneology, pharmacy, biology, chemistry, physics, geography, economics, and computer science to geology. It is hoped that this will add up to the global efforts by medical geology researchers towards producing a standard curriculum for the teaching of this new discipline in our tertiary institutions.

Keywords: *Medical geology, curriculum, tertiary, teaching, balneology*

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Medical Geology Curriculum: a proposal for teaching undergraduate and postgraduate degree courses

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Abstract

Introduction

Spa resort treatment also known as balneotherapy is a non-conventional treatment of health conditions using natural mineral water. The water acts as a liquid suspension, carrying a variety of minerals and chemicals into the body. Spa resort treatment treats several health conditions such as dermatological and gynecological conditions using chlorosodic and sulfurous waters. Balneo-clinics also cure diabetes, cancers, hepatitis, blood circulation conditions, bronchia tract ailments, insomnia, fibromyalgia, gastrointestinal disorders and a host of others.Balneotherapymethods of treatment is said to be very effective and do not cause side effects, especially for chronic diseases. The effects of treatment last for a long time, and the treatment costs are relatively low.

Objective

The objective of this paper is to conduct a meta-analysis through a systematic review of studies on cost-effectiveness of spa resort treatment of selected disorders to ascertain the claim that spa resort treatment arecost-effective.

Methodology

Search data base include Research Gate, PUBMED, Web of Science, Scopus, Springer, Science direct, Wiley online library and Google Scholler search materials. The key words used in the search include; cost-effectiveness, spa resort treatment, balneotherapy, cost-effectiveness/benefits, therapeutic benefits etc. A total of 1,500 studies were searched on related cost-effectiveness of spa resort/balneotherapy.

Results

Results shows that there are relatively few papers on cost effectiveness analysis. Cost data seems to be insufficient as some type of costs were not reported.

In addition, reported QUALY measures shows differing conclusions about the effectiveness of the interventions. However, appropriate spa treatments reported a fewer reduction in the need of subsequent health interventions/visits to doctors which shows that spa treatment is effective.

Conclusion

A take home message from the review is that, Spa treatment improves health-related quality of life and is associated with limited incremental costs per patient. There is need for randomized control trial studies to effectively ascertain cost-effectiveness of spar treatment

Keywords: *cost-effectiveness, spar treatment, balneotherapy, review, meta-analysis*

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Neuroendocrine mechanism of immunomodulating effect of balneotherapy on Truskavets' SPA

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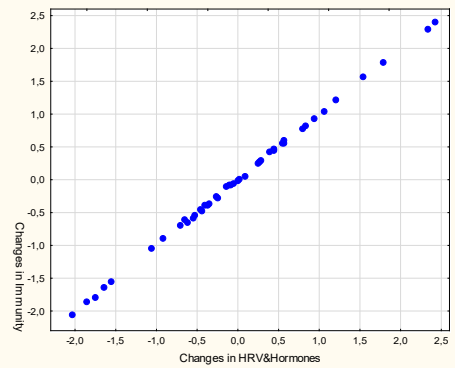
Abstract

Introduction. The main therapeutic factor of Truskavets' spa is bioactive water Naftussya. It owes its name to the presence in its composition of organic substances (C organic 10-20 mg/L), common to oil (in Greek Naphta). Among them are identified paraffins 4,10-4,20; monoolefins 1,67-1,75; dienes and monocycloolefins 0,84-0,85; alkylbenzene 1,55-1,54; alkenylbenzene 0,47-0,46; esters of aromatic acids 1,32-1,33; alkyl phenols 1,14-1,14; polyaromatic hydrocarbons 0,077-0,059; oxygene-containing connections (acids) 1,12-1,14; sulfur-containing connections 0,30-0,31; alkylnaphthalenes 0,53-0,53; unidentified polyaromatic hydrocarbons 0,19-0,20 mg/L. Therefore, there are potential agonists of aryl hydrocarbon receptors, which are expressed, in particular, by immunocytes. Another active principle are autochthonous bacteria, in particular, hydrocarbon-oxidizing (500-60 cells/mL), thionic acid (40-10 cells/mL) and sulfate-reducing (7-3 cells/mL), which are able to interact with intestinal macrophages of GALT with subsequent release of cytokines, which, in turn, activate the vagus terminals and immunocytes. **Materials and Methods**. The object of observation were 44 patients with chronic pyelonephritis and cholecystitis in remission. On admission and after a 10-day course of balneotherapy, the basis of which was the use of Naftussya water (3 mL/kg three times a day), recorded parameters of immunity, heart rate variability and plasma levels of hormones (ELISA). **Results**. An analysis of the canonical correlation between changes in neuroendocrine and immune parameters (Statistica-64). Neuro-endocrine root receives positive factor loads from Cortisol (0,680), VLF (0,285), Triangular Index (0,146), ULF (0,172), SDNN (0,136), Testosterone (0,116) and Triiodothyronine (0,103) instead negative loads from LFnu (-0,242), Parathyroid hormone (-0,167), Amplitude of Mode (-0,111) and LF/HF (-0,095). The immune root is represented directly by Interleukin-1 (0,413), IgA (0,256), $CD22^+$ (0,184), $CD56^+$ (0,169), Pan-Lymphocytes (0,177) and Killing Index vs Staph. aureus (0,141), instead inversely by Monocytes (-0,423), IgG (-0,393), IgM (-0,335), Microbial Count (-0,193) and Phagocytose Index (-0,147) vs Staph. aureus. As a result, the canonical correlation between changes in neuroendocrine and immune parameters was stated as very strong: R=0,9998; R^2=0,9996; $\chi^2_{(440)}$=640; $p<10^{-6}$; Λ Prime$<10^{-6}$. **Conclusion**. Immunomodulatory effect of balneotherapy is realized through the autonomic nervous and endocrine systems.



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Effective conceptual and editorial development of the official journal of our Congress - Balneo and PRM Research Journal

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Abstract

Introduction. This report provides background information and indicative points regarding the Balneo and PRM Research Journal, as the official journal of the National Congress of Physical and Rehabilitation Medicine and Balneology, underlying effective conceptual and editorial developmental steps. Balneo and PRM Research Journal provides a platform for authors to publish their articles as peer-reviewed original papers, systematic reviews, meta-analyses, short communications and letters to the editor in the following fields: Balneology, Physical and Rehabilitation Medicine (PRM), Physio / Kinesiotherapy, Lifestyle and Healthy Ageing, Climatology and Hydrothermal / Aquatic Therapy. The publishing frequency is 4 issues per year in English under creativecommons.org/licenses/by-nc-nd/4.0/ licence. The manuscripts must be accompanied by Conflict-of-Interest Statement, Published Statement of Informed Consent, Published Statement of Human and Animal Rights, Assignment of copyright and authorship responsibilities. Articles can be submitted online on the journal platphorm, or by email: articleonbrj@bioclima.ro. Balneo and PRM Research Journal was recognized, also for this year, by the Romanian College of Physicians for 10 CME credits, based on a yearly subscription.
We consider as general rules those included in the document: Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication - updated February 2006 by International Committee of Medical Journal Editors. After manuscript receipt, the corresponding author will receive a short e-mail confirming the receipt which will contain the registration number, the date the manuscript was received, and the fact that the manuscript was sent for peer-review. The Journal Peer-review Board Secretary chooses aleatory 2 peer-reviewers (from the Peer-review Board) and sends them by e-mail the manuscript. The reviewer's decision (approval with no changes, approval with major/minor changes, rejection), taken on the responsibility of the peer-reviewers, will be immediately communicated by e-mail to the corresponding author by the editor. If the manuscript gets approval with changes, the corresponding author shall send the improved manuscript within 4 weeks. The editor will convey the corresponding author's answer to the peer reviewers. If they are satisfied with the corresponding author's answer, they will send the executive editor the decision of approval for publication of the improved manuscript. If the peer reviewers consider that the corresponding author did not meet/or met poorly the revision requests, they will deny the approval for publication, which will be communicated to the editor.
Results and discussion. The journal's presence in various indexing services, directories and listings: At the present moment, Balneo and PRM Research Journal is part of the International Databases (BDI) as follow: EBSCOhost, CrossRef, DOAJ, Electronic Journals Library (GIGA), National Library of Medicine - NLM, ISI: Emerging Sources Citation Index (ESCI).
Conclusions. The approval for publication once taken by the reviewers, the decision will be communicated in the editorial meeting. Balneo and PRM Research Journal is scientifically supported by the Romanian Association of Balneology and The Romanian Society of Physical and Rehabilitation Medicine and Balneoclimatology.

Keywords: *Balneology, Physical and Rehabilitation Medicine (PRM), Physio / Kinesiotherapy, Lifestyle and Healthy Ageing, Climatology and Hydrothermal / Aquatic Therapy*

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Adaptation of university training and education in balneology - summer school

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Abstract

Romania possesses a wide variety of natural spa resources, in the majority of the resorts of our country. There are currently many therapeutic medical rehabilitation programs for a very wide range of chronic disorders, which include natural therapeutic factors. These resources have been analyzed and studied over time from a mineralogical, physico-chemical, microbiological and pharmacodynamic point of view. Continuous professional training has become essential with the modernization of treatment facilities in spa resorts; also, new necessary competences have been identified in accordance with the introduction of new technologies for the use of spa resources (equipment, procedures) and digital solutions in the field of balneology. The spa industry has new socioeconomic requirements, which is why adapting graduate and postgraduate education training is needed. The summer school will offer the opportunity to acquire, to experiment, with specialists in balneology and medical rehabilitation in spa resorts as well as other specialists, knowledge and new approaches in medical rehabilitation. This initiative aims to improve medical and therapeutic education, to use natural therapeutic factors for the greatest possible benefit, to promote our health and well-being. The summer school will combine theoretical and practical training in the field of medical rehabilitation, through courses dedicated to the attendees, as well as through the organization of interactive workshops. Free and proactive collaboration between universities, spa resorts, economic agents, public administrations may lead to the formation of partnerships with a role in implementing national and international integrated multidisciplinary projects for the sustainable development of spa resorts, in stimulating research, in creating new research centers, all of which resulting in an intelligent use of natural resources.

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Innovation, technology transfer and applied scientific research in balneology

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Abstract

Spa medicine in Romania, through the existing natural therapeutic factors, offers natural remedies for the prophylaxis of some diseases, as well as for the treatment of many chronic disorders. While medical technology, pharmacology and surgery have shown spectacular advances, the results of the use of mineral waters or mofettes as therapeutic agents in certain diseases can be utilized jointly or complementarily. There is growing and increasingly solid published evidence of the benefits of various non-pharmacological strategies in the prevention of inflammatory and infectious pathologies and of their clinical benefits when used therapeutically, but further consolidation of research demonstrating the molecular and cellular basis of the immune mechanisms that support these benefits is required. In this context, there is scientific evidence regarding the effective immunophysiological mechanisms underlying the benefits of two non-pharmacological strategies used on a wide scale in the management of inflammatory and infectious pathologies: physical exercise and balneotherapy. It is important to develop good practice to support research, updated studies and the transfer of innovative solutions to the spa and health prevention sector, as well as to identify models for the improvement of regional and national policies. Also, intelligent specialization, proposed by certain national programs, can be an efficient instrument for the development of spa medicine, placing emphasis on innovation, which can stimulate economic growth, with a beneficial social effect, without negatively influencing the natural environment. With the help of research, new products can be identified and launched by using natural therapeutic factors, as well as health care services and innovative procedures to improve the existing prevention and treatment services.

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NEW APPROACH OF BALNEOLOGY WITHIN CONTEMPORARY DIRECTIONS OF RESEARCH

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Abstract

Introduction. Nowadays classic balneology seems to be obsolete. The purpose of this presentation is to explore topics related to balneology, and bring it in the third millennium.

Methods and materials. To discover new scientific horizons possible to connect with balneology we have investigated different data basis with key words: entropy, energy, information theory, epigenetic, hormesis, ageing, etc. This is not a critical review.

Results and discussions. Physical and biochemical properties of thermal/mineral waters and peloids ask local (tegument) and general physiological adaptive response (homeostasis). To explain how balneal factors act is needed a multi- and trans disciplinary approach. Some questions need to be asked. 1. Can the evaluation of energy, entropy and information exchanges between therapeutic factors and human body increase the knowledge and understanding of balneotherapy effects on human body physiology? 2. Can balneal environment be considered an epigenetic factor? Biosemiotic entropy is an error or deviation from a healthy state and results from errors in copying functional information (mutations) and errors in the appropriate context or quantity of gene expression (epigenetic imbalance). Can balneal cure balance it? 3. Cure duration is long enough that human body receives health information to reset the disturbed parameters, and is this aspect suitable for consideration in the information theory? 4. Is hormesis a pathway to investigate? How does hormesis impact biology, toxicology, and medicine? The hormetic effect can be activated by stressors, which activate cellular signal molecules as gases, the neurotransmitter glutamate, calcium ion, tumor necrosis factor (TNF), etc. and possible by balneal course? 5. It is known that neuroendocrine and immunological responses (both humoral and cell-mediated immunity) are activated during balneotherapy. Are these mechanisms applied in prevention of diseases? 6. They are many other questions waiting for answers.

Conclusions. Trans- and multi disciplinary approach can lead balneology in third millennium.

Keywords: *balneology, entropy, hormesis, epigenetic, heat exchange.*

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THE EFFECTS ON THE PANDEMIC ON MEDICAL PERSONNEL

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Abstract

Introduction. The effect of the pandemic SARS-COV 2 had an impact not only on the patients, but also on the medical personnel treating these patients. Medical personnel were pulled out from their regular activities, making them susceptible to anxiety, stress and fatigue.

Material and method. To analyze the way medical personnel was affected we developed a 15 item questionnaire which we distributed to doctors, nurses and auxiliary medical personnel from The Clinical Regional Emergency Hospital Ilfov. The questionnaire was anonymous and the questions were straightforward and easy to answer. The Regional Emergency Hospital Ilfov became COVID support hospital in July of 2020. All medical and auxiliary personnel from every clinic was redistributed to special COVID departments and were given instructions of equipping and protocols to follow in order to treat COVID positive patients. Many of the personnel had chronic diseases, were elderly or had anxiety which made it even difficult to adjust to the new work environment. A total number of 2162 COVID patients were treated in the Regional Emergency Hospital Ilfov from August 2020 to June 2021. A total number of 105 doctors, 323 nurses and 183 auxiliary medical personnel treated these patients, from which 120 were evaluated by the means of the questionnaire.

Results. The majority of the replies stated that medical personnel were more anxious, had less sleep, more fatigue and had a generally lesser general wellbeing in comparison to working before the pandemic started.

Conclusions. This pandemic generated a lot of disruption in the normal wellbeing of every person, but also had a great negative effect on the medical personnel which treated the COVID patients and we will observe how this fatigue will affect medical practice in the future, after the pandemic is over.

Keywords: *COVID, pandemic, medical personnel, fatigue, anxiety*

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Telemedicine integrated in medical rehabilitation

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Abstract

Introduction. Medical experts predicted as early as 10 years ago that starting with 2010, at least 15% of worldwide health care services would be provided at a distance using telemedicine. The expansion of the fields of medicine at a distance has been possible due to the progress made in the area of communication and information technologies. These can increase the capacity of health care services, improve service provision and allow people to better take care of their health.

Material and method. For our research, we used the PubMed database; we selected and evaluated all articles retrieved following a systematic search. The search was aimed at finding articles published over the past 20 years, from 2000 to 2020, using a certain combination of words. The search terms included telemedicine, telerehabilitation, medical rehabilitation.

Results and discussion. There are many medical specialties that benefit from telerehabilitation: orthopedics (rehabilitation of patients after total hip or knee arthroplasty, etc.), rheumatology (rehabilitation of patients with chronic joint disorders or persistent lumbar pain, for example), neurology (recovery of speech, rehabilitation of the limb motor function lost following vascular accidents or traumas, multiple sclerosis – studies). From the point of view of technology, classical vocal and visual communication methods using the computer, as well as new technologies, where the therapist can guide treatment from a distance via the Internet (verbal communication connection), or even automated devices (robots) allowing the user to develop motor commands followed by the feedback of their execution are used. By using the communication technology during medical consultations, rehabilitation at a distance or at the patient's home can be provided for persons with physical disabilities whose access to such services is difficult for various reasons. However, rehabilitation at a distance raises other barriers such as the lack of standardized criteria for inclusion of patients in a telerehabilitation program depending on the specificity of their disorder, as well as the absence of clinical criteria for evaluating patients at a distance.

Conclusions. Telerehabilitation plays a major role in providing remotely guided rehabilitation for patients with chronic neurological diseases in the future, and has the potential to fill the gap existing in health care services.

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MONITORING LUMBAR PAIN AT THE OFFICE OF THE FAMILY DOCTOR IN PANDEMIC, PERSONAL STUDY

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Abstract

Introduction. Lumbar pain, along other comorbidities, are diseases associated with impact, which require close monitoring, especially in pandemics. If in previous years 40% of patients had an episode of back pain during their lifetime, this percentage increased in isolation.

Materials and methods. Social distancing, physical distancing, associated with the pandemic of fear of personal illness and loved ones, accidental change of sleep schedule, work location, contribute to the appearance of diseases caused by new risk factors or exacerbation of existing ones. The personal study is represented by the monitoring for 6 months in a pandemic of 73 patients with low back pain, using as an investigation technique the questionnaire with 22 items, self-administered online or at the request of trained staff. As a tool of investigation was used the grid of questions, to identify the most common symptoms during this period, the existence of favorable factors, monitoring the lifestyle, adherence and compliance of patients.

Conclusion Sedentary lifestyle, unbalanced diet followed by overweight or obesity, decreased physical condition, occurrence of ocular pathology, stress, excessive use of devices, smoking, excessive alcohol consumption, incorrect stool position, in bed lead to associated pain in the spine and region adjacent.

Lumbar pain is difficult to monitor in a pandemic, due to its low and late addressability. Identifying the existence of risk factors initially ignored by patients, educating a healthy lifestyle, with a healthy diet, active and passive rest, adapted to age and comorbidities, can prevent complications.

The role of the family doctor is to diagnose in time based on clinical and paraclinical data of the disease. Communicating with the patient, motivating him to collaborate with the multidisciplinary team, increasing compliance with therapeutic measures, using programs and guides, software and devices for patients, increase patient responsibility and ensure good case management.

Keywords: *lumbar pain, prevention, monitoring*

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NEURO-MOTOR RECOVERY IN PATIENTS WITH LOWER AMPUTATION DUE TO VASCULAR INJURIES
= CLINICAL CASE =

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Abstract

Introduction. The rate of lower limb amputations secondary to vascular injuries is increasing, and the need for physiatric providers to improve the quality of life of these patients remains very important. Knowledge of potential postoperative complications is crucial for patient assessment, for early rehabilitation care and also for the prognostication of long-term prostethic functional enablement.

Physiatrists need to mantain knowledge about the fast-changing technologies in prosthetics and also to know the complications encountered by prostethic users. All these requires a multifactorial evaluation of cognitive abilities, manual dexterity, and extent of any cardiovascular, pulmonary, musculoskeletal and other neurologic impairments that may affect walking function.

Material and method. In february 2021, an 80-years-old male patient noticed an infection of the V-th finger – the lower left limb, which spread rapidly to necrosis. He presented to the emergency department where, following clinical and paraclinical investigations, he was diagnosed with chronic obliterative arteriopathy and was redirected to the Vascular Surgery Clinic where he underwent bypass surgery. Unfortunately, due to the advanced stage of the disease, the operation failed and he was recommended to have his left lower limb (distal third of the femur) amputated. The patient initially refused surgery but, after two weeks - considering the extensive stage of necrosis and the pain, decided to accept the amputation. The surgery was performed successfully, with no post-operative complications. **Results.** The neuro-motor rehabilitation of the patient through physiotherapy sessions, involved as a first step the medical recovery before prosthesis – wich had the role of preparing the abutment for this transition process, and to mantain the physical condition of the body, which in such a way of situations will suffer. The second step involved a medical recovery of prosthesis adaptation- which had the role of helping the patient to take the first steps again, this time using the foot prosthesis. Re-adaptation to walking conditions and climbing stairs gradually began to become routine activities that the patient easily performs.

Conclusions. Neuro-motor rehabilitation of patients with lower limb amputation is a long-term process that requires the collaboration of a multidisciplinary team, requires a lot of dedication and patience from the patient, familly and from the medical team.

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THE MANAGEMENT OF THE PATIENT WITH MORBUS SUDECK

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Abstract

Introduction: According to National Institute of Neurological Disorders and Stroke, USA, Complex Regional Pains Syndrome or Morbus Sudeck is an excess and prolonged pain and inflamation of the limb, as a result of an injury. MAYO Clinic is defining this syndrome as a form of chronic pain that affects a limb, a condition developed after an injury, surgery, stroke or heart attack. Cleveland Clinic is describing this syndrome as an condition that causes pain, swelling, skin changes as: texture, teperature and color, but also other symptoms to one or both limbs after soft tissue injury, fractures or surgery. Morbus Sudeck has an incidence of 7% among the patients who suffered lower or upper limb fractures, surgery or other types of injuries. Materials and methods: All the necessary materials and information for this article were either taken from the specialised books, printed or checked in online articles or direct discutions with specialised doctors, other medical professional staff, but also support groups. The method used for this article was direct documentation, due to the fact that this syndrome is not that common and the number of patients treated directly (< 5) in the practice was small, in order to do a comparative scaling.Results: As a result of compeling the data from different sources, treatment plans and specialised oppinions, this article shows a common point for all above mentioned: an injury to a lower or upper limb combined with a deficitary imun system will cause this type of response. Conclusions: For a good treatment plan, the specialised doctors and therapists will work together looking the best outcome for their patient during the acute phase, in inflamatory stage, or chronical stage. Key Words: lymphedema, management, complex regional pain syndrome, morbus sudeck, therapy, differential diagnosis, manual lymphatic drainage.

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COMPLEX ASPECTS OF CLINICAL-FUNCTIONAL EVALUATION AND AMBULATORY THERAPEUTIC-REHABILITATION APPROACH IN A YOUNG PATIENT WITH POST STROKE - SPASTICITY AND PERONEAL NERVE PALSY

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Abstract

Introduction. Spasticity, a common post-stroke complication, associated with signs and symptoms of upper motor neuron syndrome (1), occurs with a 35% prevalence one year after brain injury (2), and can be severely disabling in young patients (3), regarding locomotor dysfunction and also regarding quality of life. Stroke incidence in young patients increased in the last decades, being correlated with the increasing substances abuse together with sedentariness, excessive alcohol consumption and smoking (4). Peroneal nerve palsy is the most common cause of neuropathy of the lower limb and in most cases is caused due to nerve lesion in the fibula head area (5).

Materials and methods. We present the complex case of a young male patient, former alcohol and narcotics user, who suffered an ischemic stroke in the right middle cerebral artery teritory along with a posttraumatic paresis of the right peroneal nerve. The patient presents motor deficit – right spastic hemiplegia, right foot drop, locomotion and self-care disorders.

Results. The patient followed medical treatment (antiepileptic, neurotrophic factors, vitamins, antiplatelet) and rehabilitation treatment adapted to the current clinical-functional status (thermotherapy, lasertherapy, magnetotherapy and individual kinesiotherapy), with slow favorable evolution of the improvement of locomotion and quality of life disorders.

Conclusions. Therapeutic-rehabilitation management of the spastic patient with disability due to brain injury and peripheral traumatic neuropathy represents a challenge because it doesn't exists a miraculous treatement (yet) to cure completely these nervous injuries.

Keywords: *post stroke spasticity, peroneal nerve palsy, rehabilitation*

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INTRAVENOUS LOW LEVEL LASER THERAPY OR INTRACELLULAR THERAPY

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Abstract

Soviet researchers E.N. Meschalkin and V.S. Sergiewski first introduced intravenous low laser therapy – IVLLT, about 40 years ago. This therapy has been used worldwide since 2005 due to the large number of studies reporting positive effects on human health. Exposing the blood to a low-power laser beam, with a maximum power of 5 mW, is based on the idea of energising the blood flow, using the different colours of the sunlight spectrum as well as ultraviolet and infrared rays. IVLLT is a minimal invasive and non-medical technique for generating a photochemical response in the cells of dysfunctional or damaged tissues. This type of treatment facilitates applications of laser light, i.e. radiation of different wavelengths available, in precise doses, over a well established period of time, at a recommended frequency. In this therapy, ultraviolet rays, visible light rays and infrared rays are used; depending on the type of laser radiation used, specific results with therapeutic application are obtained in addition to general results. The deeper idea behind introducing the full spectrum of colours into the body is to stimulate the mitochondria. These are the energy factories in the body and it is in the mitochondria that the vital energy, Adenosine triphosphate - ATP, is produced. Inside the mitochondria, at the inner membrane, there are different complexes where ATP is created, and these complexes are stimulated by light waves of different wavelengths and colours.If is possible to keep the mitochondria in power, it is also available to maintain the body energetic and active, so this type of therapy is probably one of the best therapies against ageing. The possibility of laser light treatments of different wavelengths and the setting of different laser frequencies opens up the possibility of distinct treatment strategies as well as a new area of research that is not yet completely assessable.

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NEUROPLASTICITY IN MEDICAL REHABILITATION

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Abstract

Objectives. Neurplasticity is a relatively new in the field of medical rehabilitation and requires increased attention. The approached topic brings to attention actual methods in stimulating the process of neuroplasticity in neurological rehabilitation.

Material and metho. Neuroplasticity can be approached in several ways. However, there are clear steps that must be followed and performed in order to obtain a maximum response. The presented material highlights current techniques through which it is possible to intervene in the stimulation and modeling of the neuroplasticity process by peripheral biofeedback or by central techniques such as magnetic stimulation or the application of continous current.

Results. The data published so far are encouraging. However, it should be noted that the results are all the better as the techniques are started as soon as possible from the onset of the motor deficit.

Conclusions. Current peripheral stimulation techniques with central echo or directly central techniques.Neurolasticity is the main goal in neurological rehabilitation through modern peripheral stimulation techniques with response at the central level or directly by central techniques.

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BENEFITS OF POST COVID-19 REHABILITATION WITH NATURAL ENVIRONMENT FACTORS – CASE PRESENTATION

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Abstract

Although, in most cases, coronavirus disease 2019 (COVID-19) manifests itself as an acute respiratory infection, this pathology can have a very varied clinical manifestation affecting various organs and systems, having a strong impact on the functionality of the affected persons and in the long term it can lead to various disabilities. According to the World Health Organization (WHO) and the Pan American Health Organization, medical rehabilitation can improve health services and treatment outcomes for people with COVID-19, bringing multiple advantages to both infected people and society.

This paper presents a complex case of post-COVID-19 rehabilitation (moderate form) with bilateral acute pneumonia, acute respiratory failure and prothrombotic condition complicated with insulin-requiring diabetes that was admitted at the Balneal and Rehabilitation Sanatorium Techirghiol, for post-COVID-19 sequela recovery therapy. During the admission to Balneal and Rehabilitation Sanatorium Techirghiol, patient followed complex recovery treatment with specific natural environmental factors that included salt water from Techirghiol Lake.

Benefiting from a complex program of respiratory and muscular rehabilitation, the patient had a favorable evolution with increased values of the measurement scales (VAS by 4 points, MIF by 2 points, specific functional scale of the patient by 2 points, MoCA score by 2 points, FAC by 1 point, improvement of walking distance by 50 meters in the 6-minute walking test), there was an improvement in psycho-cognitive, pain and functional status.

This case is an exhaustive example of a clinical and therapeutic approach in post-COVID-19 rehabilitation, using the natural environmental factors available at the Balneal and Rehabilitation Sanatorium Techirghiol. Hidro-kineto therapy in the salt water basin of Techirghiol Lake harnesses the conditions of hydrostatic discharge of body weight, facilitating movement and thus creating advantageous floating conditions for the rehabilitation after COVID-19.

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THE INFLUENCE OF THE ATMOSPHERIC ENVIRONMENT ON THE QUALITY OF LIFE OF THE POPULATION IN SUCEAVA TOWN

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Abstract

Introduction Meteorological factors as well as meteorological elements may influence the quality of life of people in a geographical area. People's response to the action of these factors is shown first physically and then mentally.

The aim of this paper is to analyze how the physical and chemical parameters of the atmospheric environment influence comfort / discomfort and the quality of life for the people in Suceava town and in the neighboring villages.

Material and method. In a geographical sense, the study aims at the metropolitan area of Suceava from where the following were collected: meteorological data (Suceava Meteorological Station - for the years 2019-2020), air chemistry data (stations SV1 and SV2 belonging to the Environmental Protection Agency Suceava - from where data were taken for the five indicators for the period 2009-2020), the sample of patients consulted by doctors in the period 2019-2020 and the respondents at the biometeorological questionnaire (2019-2020). Air chemistry data were analyzed for a longer period 2009-2020, in order to find the major coordinates of air quality for the air environment of the analyzed geographical area. We worked on hourly and daily data in compliance with the technical requirements of data capture, the quality of results and their reporting to national regulations and to the ones of the EU. The diurnal meteorological data come from hourly data of the main meteorological elements monitored at the Meteorological Station in Suceava and that have an effect on the comfort / discomfort and on human pathology: air temperature, relative humidity (from the combination of the two elements we calculated the thermohygrometric index), cloudiness, pressure and wind. The study was conducted over a period of 2 years (2019-2020) and involved 18704 medical consultations registered in the medical registry. In order to fill in the online questionnaire during the two years, we counted for each day of the 731, a variable number of answers (but for each day ≥ 5), from different respondents who live in the metropolitan area of Suceava. In total we recorded 9321 responses. The inadequate responses were eliminated from our calculations.

Results and discussions. After processing statistical data (meteorological, medical, biometeorological), we found that air environmental factors influence: directly or indirectly the state of physical and mental health, but also the one of social relations. The air temperature, its humidity, the atmospheric pressure, the wind speed as well as the chemical composition of the air may influence the physical health but also the mental one, having consequences upon people's general health and quality of life.

Conclusions. The study points out the importance of physical and chemical factors in the atmosphere in protecting people's health and how the quality of their lives is influenced, especially during the episodes or intervals of the year with bad weather. In winter, when it is very cold in Suceava, the population is the most vulnerable to the weather conditions.

Key words: *atmosphere physical parameters, atmosphere environment, quality of life, health conditions*

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THE PRESENT STATUS OF RESPIRATORY REHABILITATION IN ROMANIA

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Abstract

Respiratory rehabilitation in Romanian dates back since the beneficial respiratory properties of the salt mines were discovered. Since then, the balneological resorts with salines started treating a variety of respiratory conditions. Respiratory kinesiotherapy was studied and published in Romanian publications since 1983. Also, there were many studies and publications which shown the effectiveness of physical therapy in lung disorder s such as tuberculosis, chronic bronchitis, asthma and other obstructive and restrictive conditions. Therapies such as TENS, Galvanic current, Ultrasound, phototherapy and magnetic therapy were proven successful in respiratory ailments. However, despite all of the existing research, rehabilitation specialists were reluctant to treat respiratory conditions. Thus, pneumology specialists started to explore more and more the respiratory rehabilitation, practicing it for over 10 years. The only concern we have is that pneumology specialist don't consult or make a team with the rehabilitation specialists. They combine their pneumological devices with kinesiotherapy and local electrical stimulation with small electrical devices on the limb muscles. The kinesiotherapy room is usually small and isn't completely equipped with all the necessary devices. Despite all of these concerns, pneumology specialists treated successfully many chronic patients. Once the pandemic came and the necessity for pulmonary rehabilitation increased, both the pneuomoly and rehabilitation specialists started to explore more and more the respiratory rehabilitation field. We hope that in the future there will exist complex teams of rehabilitation and pneumology specialists in order to perfect the respiratory rehabilitation.

Keywords: *Respiratory rehabilitation, respiratory diseases, physical therapy, kinesiotherapy*

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RESPIRATORY REHABILITATION IN COVID-19 PATIENTS

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Abstract

COVID-19 pandemic has caused dramatic effects throughout the world. The disease can cause major alveolar damage resulting in hypoxemic acute respiratory failure requiring mechanical ventilation in a high proportion of cases. Respiratory rehabilitation is a supervised program that includes health education, exercise training and breathing techniques. It is one of the most effective management strategies to improve shortness of breath, health status and exercise tolerance of patients with lung diseases post-COVID-19. Shortness of breath (dyspnea) and fatigue are the symptoms that are most likely to persist for 2-3 months or longer after a COVID-19 infection. In addition to that, and depending on the severity of the infection, patients may suffer from post-traumatic stress disorder, anxiety, depression and reduced quality of life. Pulmonary rehabilitation focuses on relieving these symptoms or at least helping the patient to cope with them. The symptoms mentioned above can create a vicious cycle by which the patient cannot perform normal daily activities. This inactivity leads to deconditioning, allowing further worsening of the symptoms. Pulmonary rehabilitation helps the patient break this cycle by providing therapy in a monitored environment and geared toward the patient's specific needs. Physical exercises must be adapted to individual needs and limitations of patients; symptoms during physical exercise (such as dyspnea, desaturation, and fatigue) should be taken into consideration; high-intensity exercises are not recommended; patients should receive instruction regarding the physical, psycho-emotional, and nutritional aspects of each stage of rehabilitation; and preventive measures, such as use of alcohol-based hand sanitizers, physical distancing, and personal protective equipment, are essential during the assessment and on-site monitoring of patients at risk of transmitting the virus or at risk of reinfection. Pulmonary rehabilitation is recommended mainly to improve the physical and functional capacity of COVID-19 survivors before and after hospital discharge.

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PULMONARY REHABILITATION IN COPD AFTER SARS-COV-2 INFECTION: CASE REPORT

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Abstract

Introduction. Pulmonary rehabilitation (PR) is the mainstay of post-infection SARS-CoV2 lung sequelae management. The basis of PR programs for the "survivors" of COVID-19 disease is aerobic, endurance and respiratory muscle training, as well as medical education. PR from the rehabilitation sections is currently joined by telerehabilitation.

Material and Methods. Patient R.F., 51 years old, with severe form chronic obstructive pulmonary disease (COPD) and associated cardiac, digestive, ENT and rheumatological pathology, presents to the Respiratory Rehabilitation Clinic for grade IV dyspnea on mMRC scale, cough with mucous expectoration and marked fatigue. Three months ago, the patient was hospitalized in the Intensive Care Unit of the Infectious Diseases Hospital Suceava for severe infection with SARS-CoV-2, with bilateral pneumonia and respiratory failure, where for 8 days he was treated with antibiotics, Tocilizumab, Remdesivir, oxygen therapy (6-8L/min) and supportive therapy, according to the guidelines. The patient in the records of the clinic returns for PR, the evolution being favorable under medication treatment and PR program (respiratory gymnastics, bronchial drainage, training for dosed effort and respiratory muscles, nutritional and psychological counseling, medical education).

Results. After two weeks of hospitalization, the patient shows significant improvement in dyspnea and fatigue, increased exercise capacity and quality of life, continuing at home the PR program, oxygen therapy (4L/min), dietary and pharmacological treatment.

Conclusions. PR in a young patient with severe form of COPD and multiple comorbidities, which overlapped with severe form of SARS-CoV-2 infection, included in the complex PR program, led to a favorable evolution, with rapid social reintegration.

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CORRELATION BETWEEN POSITIVE FUKUDA TEST AND IDIOPATHIC JUVENILE SCOLIOSIS

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Abstract

Introduction. Multiple factors could be involved in the development of idiopathic juvenile scoliosis, including neurosensory pathways and, potentially, an elective disorder of dynamic proprioception. The purpose of this study was to determine whether routine balance tests such as the Fukuda test could be used to demonstrate an elective alteration of dynamic proprioception in JIS and if the rotational component of the test confirmed the direction of the spine curvature.

Material and methods. This is a small retrospective study conducted in the Children's Neurorehabilitation Ward of Techirghiol Balneal and Rehabilitation Sanatorium between May of 2019-May of 2021. There were 45 files checked, 29 girls and 16 boys, ages varrying between 9 and 17, Cobb angles between 15º and 34º, in 39 cases the Fukuda test was performed. The test was done with 50 steps, eyes closed and distance of displacement was measured in cm and the angle of rotation in degrees.

Results. Fukuda test was modiffied for 30 patients. The higher the Cobb angle the more rotational compoment was involved. This result confirms our initial idea that dynamic proprioception is altered electively in JIS.

Conclusion. These findings confirm recent JIS studies.

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SPINAL METASTASIS BACK PAIN –A CHALLENGE FOR REHABILITATION TEAM

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Abstract

After lung and liver cancer metastatis follows the spine, being a source of pain and disfunction.
Aim of the study: to identify source of the pain in spine metastatic patients in order to adjust the proper rehabilitation intervention.
Methods. An observational study, wich included 10 patients with spine metastasis and back pain. Data recorded: demographic data(gender, age, ages of formal education, marital status, actual and former occupation, hobby activities), type of primary cancer and metastasis, pain inventory (0-10 on Visual Analogoes Scale), limitations of ADLs ,motor function, stance and gait.
Results. Patients main age was 61,2 years, mostly men(30%,formal education 11,8 years, 40% patient professional active at the beginning of the symptoms. Primary cancer location in a large percentage it was the prostate,followed by breast at woman. Back pain: permanent pain in most patients, increased with activities, declared level of pain 6,8 on VAS, 5,2 during the night. Functional level : 40% patient able for ADL, 60 % patient with a help need for ADL or with permanent care need. **Conclusions**. Fear of pain and fracture is reflected in reduced occupational activities in most patients.
Rehabilitation tasks are complex from education, adaptations to actual functionality and training to mentain the self care and efficacy.
Key Words: *cancer metastasis, pain, functional level*

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MUSIC AS ADD-ON THERAPY IN THE REHABILITATION PROGRAM OF PARKINSON DISEASE PATIENTS

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Abstract

Music has been proven to have beneficial effect with a therapeutic potential in neurological disorders, especially Parkinson's disease (PD), since it releases dopamine and serotonin – neurotransmitters that decline in Parkinson's patients and rhythmic auditory cueing can activate alternative non-dopaminergic cerebral circuits. Several data from literature have highlighted improvements in gait and motor outcomes in PD patients through music therapy, but only a few studies have evaluated non-motor outcomes, such as quality of life (QoL), which deteriorates progressively to that patients. The current pilot study aims to examine the effects of a rehabilitation program centered on physical therapy combined with listening to music on QoL in people with PD, compared to the same rehabilitation program alone. The study was conducted on two groups of PD patients who attended a specific rehabilitation program with a duration of 2.5 h daily for 14 days. The study group (16 patients) listened to background music during the rehabilitation program sessions, and the control group (16 patients) did not listen to music during sessions. The patients were assessed using the self-report Parkinson's Disease Questionnaire (PDQ-39) at the beginning of the program and 1 month after its initiation. The study group registered greater improvements in five of the eight areas of life assessed by PDQ-39 compared to the control group. In conclusion, listening to music combined with physical therapy may positively impact the PD patients' quality of life.

Keywords: *Parkinson's disease; music therapy; neurorehabilitation; quality of life*

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PAIN GENERATORS AND OUTCOMES IN PATIENTS WITH LUMBAR DISCECTOMY

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Abstract

Introduction. Disc herniation and low back pain are common causes of disability. Lumbar discectomy is one of treatment options, usually associated with good results although for some patients, it is still difficult to overcome pain. The aim of our study was to reveal the general trends in outcomes for persons that underwent lumbar discectomy and to investigate other factors that generate pain.

Material and methods. 26 patients with disc herniation were investigated using VAS (visual analog scale) and straight leg test (degree), and a special study questionnaire that included relevant clinical data, presence of particular pain patterns (including pain characteristic of pain, screening for myofascial, piriform, sacroiliac syndrome and comorbidities, and other factors) before at 3rd and 6th days after surgery.

Results. We observed a general positive trend in pain evolution as mean VAS was 7,17 before surgery; 3,18 points at 3rd; and 2,46 at the 6th days after surgery; along with an increase of angle for positive straight leg test from 33,08 before surgery and 42,5 at the 6th day. Association with sacroiliac dysfunction was revealed in 23 % and myofascial syndrome was present in 19 % of cases, while piriformis syndrome was less common in 12 % of cases. The group of patients with comorbidities and longer term of pain also revealed more negative trends in outcomes.

Conclusion. Patients with lumbar discectomy present a positive trend in outcomes after surgery, but studies investigating different pain generators could bring more insights.

Key words: *low back pain, pain generators, lumbar discectomy*

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PREVENTION OF DISABILITY BY EARLY AND TIMELY DIAGNOSIS OF NEURODEGENERATION USING BIOMEDICAL ENGINEERING METHOD

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Abstract

The European Commission by funding for Environment and Health research supports the policy on Occupational Health & Safety, which leads to developing of tools and methodologies for better risk assessments, and to design of disease prevention and health promotion actions. The disability of the population due to the negative impact of labor and defense activities is a global social and economic problem that proves the need to develop an effective National Program for the Prevention of disability. The main goal is researchers, functional and clinical diagnosticians collaboration to uncover the mechanisms of induction of degenerative transformations. The patients (n = 15) aged 45-75 YO underwent an initial neurological examination, an anamnesis of the disease was compiled and an assessment of the individual lifestyle was carried out. Computed tomography (CT) of the brain was applied to reveal the presence of neurodegenerative transformations. The Disability Prevention Program conceptually, strategically provides for comprehensive screening of the neuromuscular system; regulating the psycho-emotional state; the biomechanical efficiency of the locomotor activity; the sleep-wake cycle, the presence of sleep disorders; energy and plastic metabolism balancing; aerobic capacity assurance; body composition balancing. The following changes partially were found by the CT application reflecting the genesis of neurodegenerative transformations: expansion of the subarachnoid space; deepening of the interhemispheric fissure; deepening of the Sylvian furrows; symmetrical calcifications in the basal ganglia (> 3.9 cm^3); the asymmetry of the brain ventricles; an increase in the diameter, area and volume of the ventricles. A decrease in the diameter of the entorhinal cortex (by 20-30%) was revealed; reduction of the diameter and area of the hippocampal complex (by 15-25%); reduction in the volume of the hippocampus (by 10%). Thus, closer interaction of researchers with diagnosticians and bioengineers is needed in the development of programs for the prevention of disability and health promotion.

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RECOVERY OF KNEE ARTHROSIS BY BALNEO-PHYSIO-KINETOTHERAPY METHODS

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Abstract

Arthrosis is a cronical disease with a slow evolution, provoked by an early tear of the cartilage, which irreparably deteriorates. The joint no longer cushions the shocks from the movement, so the joints deform irreversibly. Arthrosis of the knees is called gonarthrosis and although it is less disabling than arthrosis in the hips, it has a higher incidence. Anamnesis, physical examination and paraclinical explorations are required before diagnosis is made. For the recovery of the knee with arthrosis by physical therapy, consideration should be given to the stage of the disease, as kinetotherapy plays a role in the fight against pain and targets myo-arthro-kinetic function. Treatment is individualized and aims not to make the patient worse, but to achieve a maximum yield with a minimum of dosed effort depending on the patient's adaptation to the recovery program. Treatment should be applied immediately after diagnosis. And its continuity is essential. The aim is to relieve/combat joint pain, restore/maintain joint stability, restore the amplitude of movement, maintain muscle tone. The reflexogen massage will be the same as applied to arthrosis of the spine, only in this case it will be applied strictly to the area of the respective joint, stimulating the reflex area of the lombo-sacral spine. In the treatment of gonarthrosis it is important to establish a diagnosis and establish an appropriate and effective treatment.

Key Words: *arthrosis, kinetotherapy, physical therapy*

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THE IMPACT OF LOW BACK PAIN ON HEALTH-RELATED QUALITY OF LIFE IN PRESENT DAY SOCIETY AND ITS SOCIAL, DEMOGRAPHIC AND CLINICAL DETERMINANTS

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Abstract

Introduction. Low back pain has a direct and proportional impact on function and a general one on the quality of life. The present study aims to evaluate the functional impact of low back pain using specific self-assessment tools as indexes of appreciation and epidemiological correlations of potential risk factors involved.

Material and Method. The study group consists of 106 patients with low back pain, hospitalized between 28.09.2020-28.03.2021, at Balneal and Rehabilitation Sanatorium Techirghiol. After performing clinical examination, the patients filled surveys highlighting the impact of their low back pain on functionality and disability deriving from it: the Oswestry Disability Index, the Functional Independence Measure (FIM) instrument and the Visual analog scale (VAS) score evaluated at the moment of hospitalization and at discharge. Statistical analysis of data was carried out, and correlations between variables resulting from study were highlighted.

Results and Discussion. Most of the patients were females, representing 57,55% of the total number. Regarding the patients' age, 58,5% of them were in the 50-70 years interval. The study reveals a major positive impact of our treatment on spinal symptomatology, with a relevant statistical difference between the admittance and discharge VAS scores($p<0.001$). A strong and important statistical correlation was found between the Oswestry total score and the walking and standing items, a moderate correlation with the other items. Regarding the sex life item, the correlation is existent, but at a modest level.

Conclusion. The study reveals the importance of correlation of the data obtained clinical exam with self-assessment tools, that determine the level of functional independence and the functional impact on social life. It is necessary to quantify the therapeutic results obtained, in order to assess the level of improvement in quality of life.

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INFLUENCE OF PHYSIOTHERAPY IN THE TREATMENT OF RADIUS DISTAL EPIPHYSIS FRACTURES

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Abstract

Fractures of the distal extremity of the radius represent 12% of the total fractures, being the most frequent fractures of the upper limb with predominance in elderly women. There is a classification system for distal radius fractures proposed by Frykman that includes 8 types of fractures: types 1 and 2 are extraarticular fractures, and types 3 and 4 intraarticular that involve the radio-carpal joint. Types 5 and 6 are intra-articular fractures involving the radio-ulnar joint, while 7 and 8 are intra-articular fractures involving both the radio-ulnar joint and the radio-carpal joint.

The treatment of radius fractures is done depending on the type of fracture, those with minimal displacement can be treated by closed reduction and immobilization with a double splint in the shape of sugar tongs.

The evaluation of the patient is done at 3 days with the repetition of radiographs every 2 weeks from the first 6.

Physiotherapy (Super Inductive System-SIS, Ultrasound and TECAR) can be considered to accelerate the healing process. SIS is a therapy that is based on the interaction between the high intensity electric field and the human body, intensifying the blood circulation at the level of the affected area, facilitating the formation of bone callus. Ultrasound is a longitudinal mechanical oscillation propagated in a material environment produced by a quartz crystal, which accelerates the healing of fractures and their consolidation. TECAR combines the effects of deep endothermism with those of biostimulation, and can be applied to wearers of osteosynthesis materials.

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CONTROVERSIES AND DIFFICULTIES OF THE THERAPEUTIC MANAGEMENT OF EPILEPTIC SEIZURES IN PATIENTS INFECTED WITH COVID-19

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Abstract

Background. The pandemic infection with coronavirus SARS-CoV2 has emerged as one of the greatest health challenges, a global concern of the 21th century. Apart from its known acute respiratory involvements, the central nervous system manifestations of COVID-19 are quite common.
Coronaviruses have neurotropic and neuroinvasive proprieties, disrupt the neuronal and glial functions, with various clinical manifestations, including: dizziness, headache, impaired/ loss of consciousness, febrile seizures, convulsions, encephalomyelitis, and encephalitis, cerebrovascular disease, ataxia.
Neuroinflammation triggered by the high levels of pro-inflammatory cytokines cause blood-brain barrier disruption, increases at pathologic levels excitatory neuromodulators (glutamate and aspartate) and reduce GABA levels, impairs the ion channels` function, and finally induces seizures (focal, generalized, or status epilepticus) .
Material and methods. An advanced search of literature using PubMed database (focusing three associated keywords: seizures, epilepsy and COVID), has revealed 175 references, respectively 8 systematic reviews.
Discussion. The possible neuroinvasive risk linked with severe SARS-CoV-2 infections can be associated with an increased risk of seizure recurrence, or the development of new onset and acute symptomatic seizures. Occurrence of de novo seizures in patients with COVID-19 (mainly elderly, during the first pandemic wave), the pathophysiological mechanisms, electroencephalographic (EEG) findings and brain imagery in patients with severe COVID-19, respectively the consequences of this catastrophic disease in people with epilepsy, are succinctly presented in this narrative review.
Telemedicine may be a helpful technologic aid that can improve access to supervised care in these difficult times. Pharmacological management of seizures / epilepsy in severe COVID-19 infected people must be tailored to the underlying pathophysiological mechanisms, require an appropriate selection and adjustment of antiepileptic drugs (AEDs), due to the potential pharmacokinetic and pharmacodynamic drug-drug interactions of the AEDs with medication used in SARS-Cov2, respectively their cardiac, hepatic, or renal adverse effects. Liverpool COVID-19 drug interactions and the Italian League Against Epilepsy offer valuable well synthesized data on specific medications. Physicians' opinions on the necessity of COVID-19 vaccination in patients with epilepsy represent also a challenging issue.
Conclusions. Clinical susceptibility, the diagnosis and therapeutical management of epilepsy / seizures in people contracting COVID-19 should be further investigated.

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CUBITAL TUNNEL SYNDROME: DECOMPRESSION VERSUS TRANSPOSITION OF THE ULNAR NERVE

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Abstract

Introduction. Ulnar nerve neuropathy is the second most common compression neuropathy of the arm after carpal tunnel syndrome. The aim of this study is to set the new trends in cubital tunnel syndrome.

Material and methods. Searching the database of PubMed, Medscape, Scopus, and Cochrane, I came across many articles on this topic that have been published in the last 45 years. There were taken into account only the articles written in English language and published during the period of 2016-2021.

Results. Conservative treatment is recommended to patient with mild symptoms of cubital tunnel syndrome and consists of a night time splinting to keep the elbow straight and simple analgesia such as non-steroidal anti-inflammatory drugs (NSAIDs). Surgical treatment is indicated when the conservative treatment fails , and includes release of the ulnar nerve with preservation the anatomic nerve position - decompression in situ (SD), or release of the ulnar nerve with mobilization and creation of another anatomy – ulnar nerve transposition (UNT). Early mobilization after surgical procedure (UNT) allows the patient to return sooner to work and daily activities.

Conclusion. The choice of one or the other surgical methods SD or UNT depends on the particularities of the ulnar nerve (only compression, compression and instability), primary surgical procedure or revision, to some extent the patient′s age or condition.

Key words: *cubital tunnel syndrome, ulnar nerve decompression, ulnar nerve transposition, recovery after surgical cubital tunnel syndrome*

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DIFFERENTIAL DIAGNOSIS IN QUERVAIN'S TENOSYNOVITIS AND CARPAL TUNNEL SYNDROME

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Abstract

Introduction. The differential diagnosis in Quervain's tenosynovitis and carpal tunnel syndrome is an important issue in patients who associate pathological changes in the hand. The recovery of these categories of patients requires different therapeutic modalities, which in the absence of a correct differential diagnosis, can accentuate the lesions and thus, determine the decrease of the functional capacity.

Objective. The main objective of the paper is to highlight the importance of differential diagnosis in Quervain's tenosynovitis and carpal tunnel syndrome, in order to maintain and regain joint mobility by developing to normal and functional limits of hand strength and stability. We also want to emphasize the importance of differential diagnosis in preventing the installation of deformities and in order to ensure functional recovery that provides independence to diagnosed patients.

Material and method. Within the topic, we analyzed the clinical, paraclinical aspects, the therapeutic modalities and the evolution of the patients diagnosed with the pathologies followed in our neuropsychomotor recovery clinic. The retrospective study includes adult patients who have been diagnosed in the last two years.

Conclusions and results. Common symptoms in Quervain's tenosynovitis and carpal tunnel syndrome may cause diagnostic difficulties depending on the evolutionary stage. The correct diagnosis in the incipient forms ensures the recovery of the functional capacity through kinetotherapy and occupational therapy, associated with physiotherapy procedures. Rehabilitation treatment occupies an important place in the therapeutic management of the diseases followed and decreases the rate of surgical interventions.

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ELECTROMYOGRAPHY EVALUATION IN PATIENTS AFTER COVID-19

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Abstract

Introduction. Living in the time of the SARS-COV-2 pandemic push us researchers and physician to find new weapons to better fight against it. We already know that the virus affects a variety of human systems, being responsible for respiratory, digestive, cardio-vascular, cutaneous, but also neurological manifestations such as ageusia, anosmia, amnesic changes, myalgia, and paresthesia. Electromyography (EMG) is regarded as the gold standard for diagnosing neuropathy and also is useful for myopathy track. Our aim is to objectify the specific effects of SARS-CoV-2 on peripherical nerves and muscles using EMG.

Material and Method. 13 Patients with recent sequelae after Corona Virus Disease (COVID) 19 such as fatigue and myalgia of both calves were submitted to electrophysiological examinations, nerve conduction studies (NCS) and electromyography (EMG).

Results. NCS shows, as common elements, the presence of a partial or complete conduction block on several nerves, slightly prolonged latency of the tibial nerve and rare or absent F-waves, all suggesting a demyelinated polyneuropathy due to SARS-COV-2. Motor demyelinating neuropathy features mainly of the tibial nerves but also the peroneal, median, and ulnar nerves were objectified. The short duration and low amplitude of the motor unit action potential with early full recruitment on interference pattern on EMG, typical for myopathy, suggest a direct action of COVID 19 on muscular fibers, especially in the lower limbs.

Conclusion. NCS and EMG findings suggest a direct action of COVID-19 on nerves and muscles. SARS -COV-2 demyelinating polyneuropathy and elements of myopathy could be new pathological entities to be considered in the COVID-19 management. More studies are required in order to confirm these electrophysiological findings.

Key words: *COVID-19, SARS-COV-2, nerve conduction studies, electromyography, neuropathy, myopathy, Motor Demyelinating Neuropathy*

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CUMULATIVE TRAUMA DISORDERS-CLINICAL AND THERAPEUTICAL ASPECTS

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Abstract

Introduction. The injuries of musculoskeletal system including joints, muscles, tendons, ligaments, nerves and blood vessels, which happen at workplace are caused by repetitive stress, overuse syndrome and incorrect posture of the body. To treat only the symptomes without changing the conditions at the workplace represents the cause of recurrence of CTD and increasing the economic global burden caused by these disorders.

Material and methods. Trigger finger or stenosing tenosynovitis of the finger is a frequent disease affecting the tendons which flex the fingers of the hand, thus limiting mobility and causing intense pain. In the severe cases, the fingers can block completely while flexing; therefore it is necessary to draw them with the healthy hand to come to their normal position. De Quervain's tendinitis is a type of tenosynovitis of the extensor pollicis brevis and abductor pollicis longus, muscles involved in the prehension motion, which is precipitated by the repetitive movement of the fist, especially with cubital deviation. The median nerve compression in the carpal tunel is caused by the vibrations, uncomfortable position of the fist and hand, local prehension at the basis of the palm and the force movements of the hand and fingers. Lifting weights can precipitate low back pain commensurable with those weights, the frequence of the lifting, the torsion level of the lumbar spine and poor postural biomechanics. In the shoulder impingement syndrome the rotator cuff is compressed during the movement of the shoulder, traumatising the tendons and the bursa, resulting in painful movements of the shoulder. This disorder appears during the daily activities which demand intense activities of the shoulder, including rotation of the arm and weight lifting. Thoracic outlet syndrome result from the compression of the lower trunk of the brachial plexus and subclavian vessels along the costoclavicular passages, causing typical symptoms: pains, paresthesias, hand weakness and Raynaud phenomenon. Physical therapy represents the first line treatment of this syndrome, consisting of strengthening exercises and stretching the shoulder muscles for opening the thoracic outlet and improving mobility and posture.

Results. Hand – arm vibration syndrome means excessive exposure of the hands to vibrations which can cause circulation disorders of the fingers, of the neurological and mechanical functions of the hand and arms.

Conclusions. Prevention and management of patients suffering from CTD consist in understanding the physiopathological and biomechanical mechanisms, establishing a proper dignosis and coordination of a comprehensive treatment program, based on some modifications and changes at the workplace.

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CARDIAC REHABILITATION IN THE ERA OF COVID-19: THE CHALLENGES

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Abstract

Introduction. Cardiac rehabilitation is the main pillar in the non-pharmacological therapy of the patient after an acute cardiovascular event. Despite the health and economic benefits, less than a third of eligible patients are enrolled in rehabilitation programs. These already low numbers of patients benefiting from cardiac recovery programs have dropped considerably when many rehabilitation services have been stopped due to the COVID-19 pandemic burst.

Materials and Methods. Pandemics challenge health care systems worldwide, exposing their structural limitations. In particular, cardiac rehabilitation meets an unprecedent barrier due to COVID-19 restrictions. Telemedicine plays a vital role in the midst of the pandemic, being able to offer remote assistance health care services to patients in need, for the continuity of health in the home environment. We analyzed the before and after COVID-19 status of tele-health around the world and factors which have influenced its faster implementation, alongside the most addressed pathologies.

Results. Telemedicine has a variable uptake around the world, which is not necessarily corelated to the country development status. Nonetheless, in the COVID-19 era, the trajectory of telemedicine and tele-rehabilitation is springboard, but still lacks significant structural issues. Pan-European initiatives should be explored from regulations and governments frameworks when pandemic ends.

Conclusion. In conclusion, the pandemic we live in has emphasized the core position of telemedicine in a developed health care systems and international efforts are being made to accelerate its implementation. A sustainable remote assisted system of health care services would broaden the access to cardiac rehabilitation, thus being an important asset.

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CARDIAC REHABILITATION DOESN'T CONSIDER AGE

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Abstract

Introduction: 24 years man, active smoker, retrosternal constrictive chest pain at rest 3 hours before presentation, with posterior irradiation. Personal pathological history: hypercholesterolemia. Family history: father – hypercholesterolemia, myocardial infarction .

Material and Methods: Clinical exam: BP 110/60 mmHg, symmetrical, HR 88/minute, rhythmic, no cardiovascular murmurs, no signs of pulmonary or systemic congestion. Lab exams: positive HsTnI and enzymes of myocardial necrosis, hyper cholesterolemia, protein S deficiency. ECG: sinus rhythm, diffuse 1 mm ST elevation. Echocardiography: wall motion abnormalities in the apical 1/3 antero-lateral wall and interventricular septum, normal in rest. The patient was referred to coronary angiography that showed occlusion of the LAD II and it was performed PCI with stent on LAD.

Results: Patient's evolution was favorable after LAD angioplasty and after discharge he was included in the rehabilitation program (CRP). Before starting the CRP, an exercise ECG test was performed on cycle ergometer (50 W 2 min), stopped for fatigue at 75% of the MHR and a wattage of 147 W- 61 % of predicted intensity. Therefore, the patient began CRP with a THR of 118 bpm (40% of the heart rate reserve) at 100 W. After completing the CRP we also performed a CPET that showed better effort tolerance: HR of 163 bpm = 83% of MHR, and reached an intensity of 177 W = 75% of the predicted , with a VO2 2203 ml/min. The patient continued the CRP at home following the instructions received from the recovery team, under which he maintain the results without the repetition of cardiac events.

Conclusion: CRP improve cardiac health after a heart attack. Maintaining patient contact with the recovery team increases adherence and maintains long-term results.

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IS ONLINE CARDIAC REHABILITATION AN ALTERNATIVE TO CLASSIC REHABILITATION?

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Abstract

Introduction. Cardiac rehabilitation programs have an important role in strengthening recovery after a cardiovascular event and in establishing the secondary prevention management. Despite its empirical evidence, only a third of patients attend such programs.

Materials and Methods. Virtual coaches represent individualized continuity of care in the home environment. Apart of being an improver of patient's life quality, they optimize the economics of medical treatments. We are currently researchers in the development of a virtual coach, designed to personalize and adapt goals according to the progress achieved by the patient in the impairment's recovery. The system aims to guide and encourage the patient to perform the medical preset clinical pathways in order to increase his adherence to the therapy prescribed. During Living Lab phase of the project, we have conducted also an evaluation of the patient's perception of virtual coaches in the home environment.

Results. Studies conducted so far show an equivalence between online and classic cardiac rehabilitation in terms of health, economic and social benefits. However, home based cardiac rehabilitation is more suitable for individuals with moderate and low risk of cardiovascular complications. One of the most important findings we encountered is the cardiac patients' motivation and interest of participation when encountered with the opportunity of cardiac rehabilitation.

Conclusion. The virtual assistant we are currently developing has the underlaying base of a machine learning approach. The final version of the product is desired to adapt to patient's needs and necessities in order to provide an efficient secondary prevention management of his cardiovascular disease.

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OUR CONTRIBUTION TO THE ACHIEVEMENT OF THE: NARRATIVE BOOKLET, BIOPHYSIOLOGICAL AND CUSTOMIZED ON CARDIAC FAILURE PARTICULARITIES FUNDAMENTS AND OF REHABILITATION TRAINNING AND CONCEPTUAL DESIGN OF THE RELATED PROGRAM'S IMPLEMENTATION IN VIRTUAL COACHING (WITHIN THE EUROPEAN COMISSION PROJECT HEALTHY AND BEHAVIOURAL MODELS FOR VIRTUAL COACHING – VIRTUAL COACHING ACTIVITIES FOR REHABILITATION IN ELDERLY (VCARE PROJECT))

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Abstract

Introduction. Heart failure (HF) represents a complex pathology that can determine a progressive deterioration of ventricular function. Consequently, patients with heart failure have a reduced physical capacity due to dyspnea and fatigue. Cardiac rehabilitation may reduce hospitalization and improve survival in patients with heart failure.
Material and methods. The cardiac rehabilitation program in HF during vCare Project has three phases: Phase I - inpatient, 5-7 days, with adequate treatment in the acute stage and after stabilization, early mobilization of the patient; Phase II - outpatient, 6 weeks-12 weeks, ambulatory rehabilitation and secondary prevention measures implementation; Phase III - outpatient, months/years, implies home rehabilitation including the use of virtual coaching and implementation of all the principles learned during the first two phases of rehabilitation. In the current phase of the project were established the clinical pathways, the descriptive parts of the selection criteria for clinical trials and also the narrative for Virtual Coaching.
Results and Discussions. The vCare project can be a future key for rehabilitation continuity at home, taking into account the clinical basis of the patients and the context information. Thus, the Virtual Coach will be able to personalize and adapt the objectives based on the progress achieved in the impairments.
Conclusion. An adequate rehabilitation program including serious games in patients with heart failure may increase their Quality of Life and may enhance their autonomy. The continuity of care in people's home, including with Virtual Coaches, could have a favorable impact, with a bigger adherence to the care plan and minimizing the risk factors.
Keywords: *rehabilitation training, cardiac failure, serious games*

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THE ROLE OF STRENGTH TRAINING IN CARDIOVASCULAR REHABILITATION

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Abstract

Introduction. At the beginning of the cardiac rehabilitation era the benefits of strength training were minimized due to an unsustained traditional perception according to which this type of training was leading to an excessive increase in heart rate and blood pressure.

Materials and Methods. We analyzed the evolution of the exercise recommendations for resistance training in cardiac rehabilitation in the last 20 years. More than 10 scientific papers on this topic have been analyzed. In 2000 Pollock et al. published the first recommendations for resistance exercise in cardiac rehabilitation. They started with very cautious recommendations of low- to moderate-intensity dynamic resistance exercise focused mostly on young patients with ischemic heart disease (IHD) and with a good functional capacity.

This article initiated the discussions about this topic in cardiac rehabilitation and since then recommendations of resistance exercise have been part of every guideline and position paper on exercise-based cardiac rehabilitation. The growing experience and scientific evidence for the efficacy and safety of resistance exercise in different groups of cardiac patients, gained within the last two decades, have enriched this field. These processes made possible the appearance of recommendations of dynamic resistance exercise as a part of the training regime for a broad range of cardiac patients, including those with chronic heart failure. The appropriate training method and correct performance are highly dependent on each patient's clinical status, cardiac stress tolerance and possible comorbidities.

Conclusion. The growing evidence together with the increased practical therapeutic experience in this field have resulted in continual updates and adaptations of the recommendations for resistance training in cardiac rehabilitation.

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THE SOCIO-ECONOMIC STATUS - BEAM BETWEEN WILLINGNESS AND ABILITY TO PERFORM CARDIAC REHABILITATION

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Abstract

Introduction. WHO defines cardiac recovery as the sum of the activities needed to positively influence the root cause of the disease, as well as to ensure the best possible physical, mental and social conditions so that patients can regain their place in the community through their own efforts.

Materials and Methods. Patients eligible for cardiac recovery may have the following diagnoses: myocardial infarction, stable / unstable angina pectoris, heart failure, after CABG, after PTCA, after valve prosthesis surgery, after heart or heart-lung transplant, after implantable devices. The components of cardiac rehabilitation are: initial evaluation, risk stratification, physical training, patient education, management of cardiovascular risk factor, dietary advice, stress management, smoking cessation interventions, communication with the family doctor, vocational counseling and reassessment at the end of the cardiac rehabilitation program. Sociologists describe a number of factors that influence cardiac rehabilitation: income, density of programs related to the number of inhabitants, recommendation to follow rehabilitation programs, referral of patients for enrollment in these programs, specialized staff and technique, national access strategies of cardiac rehabilitation programs.

Results. Age, sex, marital status, educational level, income and the environment of origin are predictors for cardiac rehabilitation. Main for patients from rural areas there are barriers that prevent them from following cardiac rehabilitation programs. These are represented by: geographical location, distance from the cardiac rehabilitation center, access to public transport, weather conditions, roads quality.

Conclusions. Socio-economic status, the existence of staff with an optimal level of training, material conditions and nationally supported programs are elements on which the cardiac rehabilitation process depends.

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1q44 MICRODELETION SYNDROME – AN ETIOLOGY OF GDD WHICH STILL HASN'T BEEN FULLY EXPLORED

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Abstract

1q44 microdeletion syndrome is a very rare (less than one in a million cases, according to Orphanet) contiguous gene syndrome caused by the loss of a 6 Mb locus on the long arm of chromosome 1 characterized by seizures, global developmental delay and a specific craniofacial dysmorphism. We aim to review the main features of this syndrome and to present the case of a one-year old girl with a normal family history admitted to our hospital for medical recovery who presented global developmental delay and several congenital abnormalities. Genetic testing detected a 967 kb deletion in the 1q44 region and a 530 kb microduplication in the 14q31.1q31.2 region, the latter encompassing no currently known OMIM genes. Our patient's phenotype overlapped 1q44 microdeletion syndrome. After analysing the 1q44 microdeletion syndrome cases reported up to the present time, we discovered that our patient has additional features, which have never been previously described in this syndrome, namely grey matter heterotopy, bifid hallux and prenatal hydronephrosis. Given the renal, cerebral and skeletal impairment in 1q44 microdeletion syndrome, we believe our findings represent additional, previously unreported features of this very rare genetic syndrome.

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ASPECTS OF THE BARR TRIAD IN PEDIATRIC PATIENTS

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Abstract

Introduction. The incidence of scoliosis diagnosed in ambulatory pediatric patients increased as online addressability augmented. Therefore, it was mandatory the assessment of the tripartite correlation known as the Barr triad to identify a prognostic model in the context of its association with appropriate treatment. Classical Barr triad includes scoliosis, flattening of physiological curves, narrowing of the intervertebral space as indirect signs for disc herniation.

Material and methods. 104 ambulatory patients with scoliosis as the main diagnosis randomized, in treatment; Age mean 13.59±2.895 years. From the medical records, input data were extracted as well as the radiological interpretation of the spine for indirect signs; interpretation of data used IBM SPSS Version 25.

Results. The Ponseti Cotrel classification divided the patients 'scoliosis as follows: juvenile1- 2.88%, juvenile2-13.46%, juvenile3-16.35%, adolescent-67.31%, out of which girls 58.65%, boys 41.35%, urban 76.92%, rural 23.08%. Body Mass Index: Normal 69.23%, Obesity 20.19%, Subponderal 10.58%.Pearson Correlation ($p<0.05$, CI = 95%) reveals $r>0.980$ for both males and females. Items of Barr triad were identified complete for 70.19% (73 patients- high risk for disc herniation), Chi Square Test statistical significance for $p<0.05$, Pearson Correlation is $r = 0.999$ for juvenile scoliosis 3 and adolescent one. Scoliosis is type C shape: thoraco-lumbar- 50.96%, thoracic–20.19%, lumbar–17.31% and combined S shape -11.54%. Complete Barr triad identified a Pearson correlation $r=0.997$ for girls so it was calculated the median age for a therapeutic window age intervention between 11-14 for females and 14-15 for males. Mild scoliosis occurred in 70 cases out of which thoraco-lumbar are 49 cases. The treatment consists of standard protocol: responsive rate = 58.90%.

Conclusions. The best functional evaluation can be applied early in the therapeutic window based on clinical tests of functional markers, the magnitude of the Cobb angle, radiography so that the response rate is optimal.

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MICPCH syndrome – a rare cause of NPMD

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Abstract

MICPCH syndrome (mental retardation and microcephaly with pontine and cerebellar hypoplasia) is a very rare (according to Orphanet, prevalence is under one in a million cases) X-linked dominant disease produced by heterozygous pathogenic mutations in CASK (Xp11.4), a gene involved in brain development. The main features of this syndrome are microcephaly with pontocerebellar hypoplasia, severe global developmental delay, limb spasticity, dystonic movements, stereotypic behaviours, seizures, various ocular manifestations, sensorineural deafness, as well as non-specific facial dysmorphism. Up to the present time, more than 50 females and a very small number of males with this syndrome have been reported. We aim to review the main features of this syndrome and to present the case of a three year old girl with normal family history admitted to our hospital for medical recovery who presented a MICPCH phenotype; genetic testing revealed a never before reported intronic variant in CASK gene. Given the overlap between the patient's phenotype and the CASK gene mutations phenotype, we believe this variant might be pathogenic.

Keywords: *MICPCH, neuropsychomotor developmental delay, CASK gene*

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PHYSIOTHERAPY IN PEDIATRIC DISEASES – SPINA BIFIDA

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Abstract

Introduction. Spina bifida is defined as a congenital bone malformation, located in the spine, characterized by the development of the embryo with an incapacity of closing the anterior part of the vertebrae, which is formed at the end of the first month of embryonic development. The most common form is myelomeningocele that consists of a cystic formation which contains nerve tissue not covered by the skin.

Material and Methods. The treatment begins with an informing session for the parents on the nature of the problem, using clear, accessible language, through drawings and figures to facilitate the understanding of the provided information. The team who takes care of the child should not only focus on the care needed for the neurogenic bladder or other complications, but also paying a particular attention to motor stimulation and cognitive development. It's the parents who have to learn the exercises and the activities that must be done daily, to the extent possible, in favor of the game when the child is willing to cooperate, emphasizing that development begins with the acquisition from simple to complicated. For example, before he can manage to sit without support, the child must be able to keep his head straight and to roll.

Results. The recovery program aims to prevent and correct the contractions and retractions, stimulate neuromotor development, tone muscles, and to increase muscle strength.

Conclusions. For a better quality of life, along with conventional medical treatments, complementary therapies are also recommended. Even if they don't have a role in healing, they help controlling the symptoms.

Keywords: *spina bifida, kinetotherapy, quality of life, complementary therapies*

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A RELATIVELY NEW METHOD OF NEUROPHYSIOLOGICAL EXPLORATION - FOR THE FIRST TIME IN ROMANIA - NEAR INFRARED FUNCTIONAL SPECTROSCOPY, NIRS / FNIRS - CONCEPTUAL AND PRACTICAL ASPECTS/TECHNICAL DETAILS, REGARDING ITS USE IN PEDIATRIC NEUROREHABILITATION

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Abstract

Introduction. fNIRS is also called - Optical Topography (OT) or simply NIRS. Using - near infrared spectroscopy - brain activity is measured to estimate cortical hemodynamic activity that occurs in response to neuronal activity. Along with EEG, NIRS/fNIRS is one of the newest non-invasive neurophysiological techniques that can be used in portable contexts. The signal is often compared to the BOLD (Blood Oxygenation Level Dependent) signal measured by fMRI and is able to measure changes in both oxyhemoglobin and deoxyhemoglobin concentration.

Material and Methods. The device, OxyMon - we have the important opportunity to work with is the first and only one by now, in Romania - uses as technology a continuous wave NIRS/fNIRS system with infrared light emitters that each emits at least two wavelengths (700-900nm). Consequent to consulting a base enough of 20 related articles , the LASER emit light in the near infrared spectrum to measure concentrations of substances that absorb the emitted light. The LASER fire one by one, so that the system can distinguish between infrareds spectrums. This principle is called the time-sequenced principle. The light is transmitted from the LASER through the skin to the receiver by optical fibers containing glass fibers. Specifically a fiber ending connecting to the OxyMon, is called a connector : and a fiber ending on the skin is called an optode (transmitter or receiver). The optodes are fixated in an optode holder. The distance between the optodes is called the source-detector distance or the inter-optode distance. A transmitter and receiver optode together form an optode combination or channel. The NIRS/fNIRS technique is based on the Lambert-Beer law (1851), which describes the relationship between the optical density of the medium, the incident radiation with the transmitted one, the concentration of the medium, the distance between the light input and the light output point and the wavelength used. In the last decade it has been used by anesthetists in pediatric operating rooms allowing continuous monitoring of cerebral perfusion, but is gaining support in other medical specialties.

Results. NIRS/fNIRS is a non-invasive brain imaging method, and it is an appropriate technique for detecting brain activity during motor dynamics. Although it provides specific information slower than EEG systems, there are many possibilities for development.

Conclusions. The application of NIRS/fNIRS in neuromotor rehabilitation is still new and immature but we can expect many unique and significant discoveries by researching the neuro-myo-arthro-kinetic ''apparatus'' in relation to cortical hemodynamic activity. It is also noteworthy that these such studies may provide new insights into the potential clinical applications of NIR spectroscopy. This work as the approval of the Ethics Commisssion of the National Theacing Center for Neuro-psyho-motor-Rehabilitation in Children „Nicolae Robanescu" conform no. 5487/17.06.2021.

Keywords: *near-infrared spectroscopy; non-invasive analysis, pediatric neuro-rehabilitation*

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HEMISPHERICAL EPILEPSIES AND SURGICAL INTERVENTIONS – A CASE PRESENTATION

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Abstract

Objective. Hemispherical epilepsies are focal strutural epilepsies and ofen the seizures are not controlled with antiepileptic drugs and such patients are potential candidates for epilepsy surgery.

Methods. We report a 7 years old female patient with normal pregnancy and delivery, delayed motor development and normal intellect who presented intractable epilepsy secondary to severe unilateral hemisphere damage – left middle cerebral artery infaction. Neurological examination shows right chronic hemiparesis, but the girl is able to walk without support, but not to use the right gand. Focal structural epilepsy is retractable to all the drugs that the girl received: valproic acid, clonazepam, levetiracetam, ACTH, clobazam. The electroencephalogram is with continuous billateral epileptic discharges and the preevaluation surgery (video electroencephalogram monitoring for 24 hours) was performed and many focal seizures was recorded.

Results. The patient is a candidate for epilepsy surgery and hemisphererotomy was performed for this refractory focal epilepsy. The patient is seizures free for almost 3 months after the surgery.

Conclusion. Hemispherectomy surgery is a treatment for epilepsy and change the natural history of refractory hemispheric epilepsies. Seizure outcome after hemispherectomy is good in patients with acquired lesions. The functional outcome, despite the hemispheric disconnection is good and the quality of life is improved.

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PHYSICAL ACTIVITY AND EXERCISE PRESCRIPTION FOR HEALTH

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Abstract

There is a strong relationship between exercise and health. The World Health Organization ranks physical inactivity as the fourth largest cause of global mortality. Physical inactivity is linked with many chronic health problems including cardiovascular diseases, type 2 diabetes, obesity, cancer, dementia, depression and osteoporosis. Physical activity is essential to good health and quality of life. Physical activity and exercise exerts a positive influence on muscular-skeletal, cardiovascular, respiratory, immunological, hematological, neuro-sensory and gastrointestinal systems. Each consult should start with identifying the patients' goals; why they need to increase their physical activity level, which type of activity they would prefer and what would be the challenges in the process. It is important to consider all the medical conditions in an exercise history in order to identify all the risk factors and therefore optimize each patient's physical activity level. Beside a clinical evaluation and a medical history, there should be a careful assessment of the cardiovascular risk using an electrocardiogram. The FITT (Frequency, Intensity, Time, Type) principle offers the clinician a useful tool that often forms the basis for an exercise prescription. The intensity of aerobic capacity can be defined by metabolic equivalents (MET) and percentage of maximum heart rate (%max HR). More precisely, would be the assessment of patient's maximal aerobic capacity (VO2max). All prescriptions should have recommendations on warm up, cool down, stretching and flexibility exercises. Moreover, patients should be advised about the proper recovery strategies, including nutritional counselling. Finding ways to increase motivation is crucial for changing the lifestyle, so it is recommended to engage family and friends in this process. To correctly prescribe physical activity to a patient (healthy or suffering of condition) a physician should know exercise physiology and the sport related adaptations (acute and chronic). Clinical monitoring of the effects of the exercise intervention need to be done periodically. The Sports Medicine specialist and other parties involved in this work may have a substantial impact on all the above points raised including reduction of health care costs. The exercise prescription needs to be tailored to each individual's needs.
Keywords: *exercise prescription, sports medicine, lifestyle*

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PREVENTION AND TREATMENT OF CERVICAL DISC HERNIATION

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Abstract

Introduction. Cervical disc herniation is a common cause of neck pain in adults, due to cervical nerve root irritation. There are 4 stages to a cervical herniated disc: disc degeneration, prolapse, extrusion and sequestration. Neck pain disturbs the function and quality of life for most patients. In most cases, the initial treatment is nonsurgical and the patient will be referred to a rehabilitation unit.

Material and method. There are a number of methods which a health-care provider will consider, when approaching herniated disc treatment, to restore the function and reduce pain. Conservative treatment consists of medication and non-pharmacologic intervention.

Pharmacotherapy: non-steroidal anti-inflammatory drugs (NSAIDs), analgesics, muscle relaxants, steroids are often prescribed in order to reduce neck pain. Non-pharmacologic intervention consists of a variety of methods, such as collar immobilization, traction, exercise and postural treatments, thermotherapy, electrotherapy, cervical manipulation, patient education, workplace intervention, but the treatment must be individualized and adjusted according to patient's comorbidities and needs. Prevention of cervical disc herniation is an important measure in a population surrounded by technology, especially in prolong time-screen. Patient education in maintaining a good posture is important at all ages, but especially in adolescents and young adults.

Conclusions. Neck pain due to cervical herniation can be prevented or treated with a variety of methods, increasing functionality and the quality of life. Large clinical trials are needed to establish the most effective method in treatment of cervical disc herniation.

Keywords: *neck pain, posture, cervical disc, workplace intervention*

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STUDY ON THE INFLUENCE OF ANXIETY IN YOUNG ADULTS DIAGNOSED WITH LOW BACK PAIN

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Abstract

Introduction. At the international level, the low back pain (LBP) is considered a public health issue. It affects 70-85% of the population and it represents 2.3% of the visits to the doctor. The low back pain is a disability cause that may occur in adolescents and determine manifestatations in adults. If the ergonomic risk factors lead to the occurrence of the low back pain, the psychosocial factors may influence the disability component of the low back pain. Negative cognition and emotional distress can increase pain and exacerbate disability in people diagnosed with low back pain. Anxiety is associated to increased sensitivity to pain in these people.

The purpose of this study was to assess the correlation between low back pain and the manifestations of anxiety caused by the disease in young adults**.**

Material and method: The study is of longitudinal type and was conducted for a period of 6 months on an outpatient basis and it assessed 132 patients who came to the medical recovery practice with low back pain. All the patients were assessed from a clinical, paraclinical, imagistic and functional point of view at the beginning of the treatment and at its end (after 15 days) and at control (after 5 months). We assessed pain, the mobility of the lumbar spine, the disability, functionality, the quality of life, anxiety by using the following scales: VAS, QOL, LBP-MODULE, QUEBEC and S.T.A.I. We used electrotherapy (low and average frequency currents, ultrasound, laser) and kinesitherapy.

Results and discussions. The results obtained at the assessment of each parameter, for all the moments, show statistically significant values. The pain improved due to the antalgic electrotherapy especially but also to the kinesitherapy, which matches the results of specialty studies. The disability and the mobility of the lumbar spine improved especially due to the used kinesitherapy whereas the quality of life was influenced especially due to the therapeutic physical exercises. The obtained results regarding the relationship between physical activity and low back pain are in accordance with the results reported in studies in the specialty literature. The physical exercises can improve the quality of life for the patients with low back pain.

Conclusions. The use of the complex and individualised treatment that includes electrotherapy and kinesitherapy can diminish the algic syndrome and the disability, it increases the flexibility of the lumbar spine by reducing the values of the fingers - floor index. The physical exercises can decrease anxiety, both as a condition and as a trait. Nevertheless, it is necessary that the exercise is individualised by the physioterapist who can adjust and modify training parameters in order to manage symptoms.

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ASSESSING THE DISABILITY AND QUALITY OF LIFE IN PATIENTS WITH RHEUMATOID ARTHRITIS IN RELATION TO ACTIVE REHABILITATION PROGRAMS

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Abstract

Introduction. Rheumatoid arthritis is joint pathology, which affects about 1% of the population on the planet. Disability and work capacity are the severe consequences of the rheumatoid artier and manifests 49% of patients. Functional disability is the cause of loss of work productivity and unemployment among young patients. The progressive nature of the disease is always accompanied by the determination of physical disabilities. Active functional rehabilitation and patients' content is important for preserving the workplace and social activities.
Objective: Analysis of the degree of disability and daily activities in patients with rheumatoid arthritis, trained in different rehabilitation programs.
Material and methods. 78 patients with rheumatoid arthritis were included in the study. After randomized allocation in 2 lots, the research continued with 40 patients in Lot 1, where patients received treatment is conventional rehabilitation and Lot 2 with 38 patients who received conventional rehabilitation treatment and active functional treatment. The effectiveness of treatment programs applied in both lots was analysed by assessing the degree of disability (Rankin scale) and the quality assessment of life through the HAQ scale, initially occurred at hospitalization and after 1 month of treatment.
Results. After one month of initiation of active functional rehabilitation in the patient group, the average disability index dropped from 3.57 ± 0.50 points to 2.80 ± 0.64 points after the Rankin scale ($P < 0.05$), the Quality of life After the HAQ scale demonstrated a advance of 1.62 ± 0.39 points to 1.23 ± 0.41punctions conventional ($p < 0.05$). In the group of patients with active functional treatment, the disability index fell from 3.47 ± 0.51 Point to 2.39 ± 0.59 points ($p < 0.05$), the quality of life parameters progressed from 2.06 ± 0 , 50 to 0.92 ± 0.40 conventional bridges ($p < 0.05$). After a month of medical rehabilitation treatment in both batches, there is a decrease in the disability index and an increase in functionality, reflected in increasing the quality of life, but in lot 1 the disability index decreased by 21.556% and the quality of life increased by 24 , 07%, and in the Lol 2 disability decreased by 31.12% and the quality of life increased by 55.34%.
Conclusion, Analysis of the degree of disability and quality of life has highlighted that the association of conventional rehabilitation programs positively influences the dynamics of life quality and diminishing the degree of disability.
Key words: *rheumatoid arthritis, functional rehabilitation, degree of disability, quality of life*

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BONE AUGMENTATION

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Abstract

Introduction. The requirements of periodontal vertical bone augmentation are a permanent challenge for dental practitioners, given the wide range of periodontal destruction from acute periodontal disease to chronic marginal periodontitis, as well as periodontal involution due to senescence.

Materials and methods. Vertical bone gain depends on both the surgical technique adapted to each individual case and the biomaterial chosen for bone augmentation.

Results. Promising results have been obtained by using preparations that stimulate the autoproliferation of bone morphogenetic protein growth factors and collagen, as well as other growth factors.

Conclusions. Undeniably, preparations that stimulate and modulate the function of primary growth factors have the highest success rate regarding periodontal vertical bone augmentation.

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COMPARATIVE RESEARCH ON JOINT INJECTIONS WITH PRP VERSUS ACRS

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Abstract

Introduction. In present research we have compared the short-term profiles of efficiency and safety of the osteoarthritic knee joint injection with Platelet-Rich Plasma (PRP) and Autologous Cytokine-Rich Serum (ACRS), respectively.

Materials and method. This study was conducted on a batch of 20 patients, of which 10 were injected with PRP (all 10 have completed the study) and 10 with ACRS (of which 7 completed the full course). Each patient was administered a series of 3 doses of PRP or ACRS, at 2 weeks interval. All of them were assessed before each administration and after 2 weeks since the last one. There were rated: the presence of local signs of inflammation, signs of joint instability, flexion and/or extension deficits, subjective estimated pain (on a 1 to 10 VAS scale), and also the evolution of other reported functional deficits.

Results. Both therapeutical methods have shown a good efficiency concerning the studied parameters, and especially from the point of view of improving the joint mobility and reported pain. Our results have not shown a suggestive superiority of one of these methods comparing to the other. On the other hand, none of these patients have reported side effects.

Conclusions. This research should be continued with a follow up on medium and long term of these patients and, if possible, with repeating the injection protocol after 6 or 12 months.

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THE FOREST AND ITS POTENTIAL FOR HEALTH

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Abstract

Introduction. People have always enjoyed the forest, regardless of their age, due to the peaceful atmosphere, mild climate, very beautiful landscapes, fresh air, pleasant flower and plant scents. Over the past years, a new medical science termed forest medicine has developed, as an interdisciplinary science which encompasses the effects of forest environments on human health.

Material and methods. We reviewed the observational clinical studies, the randomized controlled trials in PubMed, Embase, Scopus, Web of Science, Cochrane Library, Google Scholar, over the past 20 years, until June 2020. The search terms included forest, forest bathing, cardiovascular effects, respiratory, blood pressure, diabetes mellitus, coronary artery disease, stress, psychological effects.

Results and discussions. The results of the studies show that the benefits of the forest on the cardiovascular system are obvious regardless of age, sex, socioeconomic environment or previous exposure to a natural environment. Also, walking in the forest environment can promote cardiovascular relaxation through facilitation of the parasympathetic nervous system and suppression of the sympathetic nervous system. Furthermore, forest therapy can be efficient in reducing negative psychological symptoms. The current literature supports the benefits of exposure to nature and green environments for human health, through the effects on: the immune system (increase of natural killer cells/ prevention of cancer), the cardiovascular system (hypertension/coronary artery disease), the respiratory system (allergies and respiratory diseases), depression and anxiety (mood disorders and stress), mental relaxation. The studies performed showed the benefits associated with continuous immersion in nature for cardiovascular diseases, but further studies are definitely required.

Conclusion. There is increasing evidence suggesting that the forest can provide very many benefits for health. Global studies regarding future research directions, global urban planning and architecture, as well as the elaboration of policies in order to obtain new evidence of the relationships between the forest - forest bathing and clinical therapeutic effects are needed.

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DEVELOPMENT OF BALNEOLOGY IN TRANSYLVANIA - CENTRAL REGION

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Abstract

Introduction. In Transylvania (central region of Romania), there are spa resorts rich in natural therapeutic resources: mineral waters, mofettes, peloids, air, climate, forests. These are used in many pathologies: cardiovascular, gynecological, neurological, rheumatic, respiratory, digestive, renal, endocrine diseases. Methods: baths, aerosols, mud baths, mud packs, crenotherapy, thermotherapy, massotherapy, hydrokinesiotherapy, climatoterapy.

Material and methods. An analysis of the results of clinical and experimental studies, educational programs, projects conducted in some balneological centers in Transylvania. The studies were performed on natural therapeutic factors, i.e. carbonated mineral waters, mofettes, bioclimate, over the past five years.

Results and discussions. The results of a study in Băile Tușnad, aimed at evidencing the biological effects of mineral water in experimentally induced alcoholic liver disease, showed following biochemical tests and electron microscopic analysis that the mineral water from spring no. 3 has hepatoprotective properties. Also, studies regarding the effect of carbonated mineral water from spring no. 7 in Băile Tușnad and natural mofette on the balance of oxidative stress/ antioxidant parameters in plasma, associated with experimental myocardial ischemia in rats, highlighted the positive effects of carbonated mineral water and mofette, through a reduction of oxidative stress, as well as a significant change in the tested antioxidant molecules and significant histological changes. The results of clinical studies using natural therapeutic factors, carbonated mineral water baths, mofette and aerotherapy alongside kinesiotherapy in patients after stroke, Parkinson's disease, chronic arterial occlusive disease influenced the clinical and functional picture, determining a significant improvement of walking, functionality and quality of life. Human bioclimatology studies regarding the perception and influence of meteorological conditions on rheumatic pain in Romania showed that the meteorological factors that most influence the increase of pain in the joints are: low atmospheric pressure, low temperature and high humidity. Our results indicate that most of the patients (31.91%) could predict a change in weather three days in advance, 31.34% felt more intense pain one day before and during the first part of the day when the weather change was recorded, which coincided with a change in the air mass of the upper layers of the troposphere.

Conclusion. This Transylvanian balneological ecosystem, through the abundance, quality and diversity of its natural mineral-medicinal springs, with extremely useful and beneficial therapeutic effects, should be used to its full potential.

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Therapeutic gases in medical rehabilitation and balneotherapy - medical relevance and scientific new data

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Abstract

Background. The discovery of gaseous signalling molecules such as Hydrogen Sulfide (H2S), Nitric Oxide (NO), Hidrogen peroxide (H2O2) and Carbon monoxide (CO) has added a new era in biomedical science, as these molecules are of great importance in mammalian physiology. They have been called "gas transmitters" because they are produced internally or synthesized (endogenously) in the body or are received from the atmosphere and transmit chemical signals promoting or inducing various physiological changes inside the mammalian body. Gas transmitters are permeable through the cell membranes, but their functions inside the body depend on their concentration. The importance of the topic is underlined by the numerous physiological and pathophysiological processes that different therapeutic gases can influence in multiple ways. Synaptic transmission and neuroplasticity, inhibition of extracellular matrix degradation, inhibition of neutrophil infiltration, anti-oxidative and anti-inflammatory processes, cell plasticity and viability, ionic balance at the cellular level, physiology of anti-apoptotic mechanisms are intimately and substantially modulated and influenced by molecules of therapeutic gases.

Objective. This synthetic review aims to rigorously select related articles and identify within their content the main possible uses of therapeutic gases and physiological mechanisms. The objective of this article is to present the various therapeutic mechanisms that have been proposed in the current literature and the medical relevance of various therapeutic gases used in balneotherapy or medical rehabilitation.

Methods. To elaborate our synthesis review, we have searched for relevant *open access* articles in 6 international databases: Cochrane[1], Elsevier[1], NCBI/PubMed[1], NCBI/PMC[1], PEDro[1], and ISI Web of Knowledge/Science[1], published from January 2011 until December 2020. The eligible articles were analyzed in detail regarding pathologies addressed by therapeutic gases. All articles with any design (reviews, randomized controlled trials, non-randomized controlled trials, case-control studies, cross-sectional studies), if eligible according to the above-mentioned selection methodology, containing in the title or abstract the above-mentioned combinations, were included in the analysis.

Results. Our search identified, first, **225** articles. After eliminating the duplicates, remained **180** articles. In the second phase, we applied a relevance criterion. **63** articles passed the relevance criterion and were included in this synthetic review.

Conclusions. The medical relevance of therapeutic gases can range from use in burns and stroke victims to hypoxia therapy in children. However, medical gases such as oxygen, hydrogen, helium and xenon have recently come under increased exploration for their potential therapeutic use on various brain disease states, including traumatic brain injuries, hypoxia-ischemia and, cerebral hemorrhages.

Keywords: "Therapeutic gas"/ "Oxygen therapy"/ "Carbon dioxide"/ "CO2 therapy"/ "Carbon monoxide"/ "Mofette"/ "Hydrogen Sulfide"/ "H2S"/ "Helium"/ "Xenon"/ "Ozone therapy"/ "Radon"/ "Hydrogen therapy"/ "Nitric oxide"/ "Heliox" AND "Rehabilitation".

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SARCĂU – LOCALITY WITH THERMAL WATER UNIQUE IN EUROPE

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Abstract

Introduction. Sarcău locality lies in the plain of Bihor County and it became a balneoclimatic locality in the last ten years when a private entrepreneur finding out that water leaking to the ground from abandoned drilling has therapeutic properties, he began to invest in a closed pool, an accommodation and food service establishment and a treatment facility.

Materials and Methods. In order to carry out this project, weather observation data from the weather stations located in Oradea and Săcuieni, dating back to 1961-2010, were processed based on the classical methodology of processing weather data for climatological purposes. Data regarding the chemical composition and physical characteristics of the water were not communicated to us by the staff of the treatment facility.

Results. Sarcău locality with balneoclimatic function benefits from a temperate continental climate with Western influences, an exciting-demanding plain bioclimate and thermal water unique in Europe due to its rich content in salt, iron, sulphur and petroleum. Without the benefit of an exceptional treatment facility, but with a water quality clearly superior to that of Băile Felix or Băile 1 Mai, where it is usually diluted with cold water from the network, and a balneologist at the treatment facility, Sarcău locality has become a place of interest for many tourists with rheumatic, musculoskeletal or post-traumatic conditions.

Conclusions. Sarcău, a locality with balneoclimatic function, benefits from a special balneoclimatic potential that makes it unique both among the resorts in Romania as well as abroad.

Key words: *Sarcău, balneoclimatic potential, salty thermal water, ferruginous water, sulphur water, water with petroleum*

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THE IMPORTANCE OF COVASNA NATURAL THERAPEUTIC FACTORS FOR THE IMPROVEMENT OF PERIPHERAL ARTERIAL OCCLUSIVE DISEASE (PAOD)

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Abstract

Introduction. Covasna is the spa resort of mofettes and mineral waters, situated in an intramontane depression, with high levels of ozone in the air rich in resinous aerosols and negative ions, and a tonic-stimulating climate suitable for the treatment of a wide range of diseases including peripheral arterial disease. Of natural gases, carbon dioxide (CO2) has been recognized to be beneficial and used since ancient times for its therapeutic effects. The property of carbonic acid to rapidly and intensely induce vasodilatation in the entire arterial system makes it a valuable "drug" for patients with deficient arterial circulation. It is demonstrated that CO2 application can stimulate dermal blood circulation in concentrations ≥ 60 mg/l. In the case of concentrations higher than 60 mg/l, CO2 proved to have therapeutic effects in circulatory disorders such as intermittent claudication, Raynaud's syndrome, Buerger's disease. Complementarily, CO2 baths applied to an ischemic limb can lead to local augmentation of vascular endothelial growth factor (VEGF), with the formation of new nitric oxide (NO)-dependent capillaries and associated mobilization of endothelial progenitor cells. Objective. To study the effect of mofettes and carbonated mineral water baths in peripheral arterial occlusive disease.

Material and methods. The study included 54 patients diagnosed with peripheral arterial occlusive disease (PAOD), treated for 2 weeks with natural therapeutic factors, carbonated mineral water baths, mofette therapy, kinesiotherapy, aerotherapy. The patients were evaluated before, at the end of treatment, and subsequently over the phone for 6 months. The quality of life scale, the visual analogue scale, the walking distance and speed were used.

Results An improvement of pain and an increase in the walking distance were observed. The vasodilatory effect of baths and mofettes was visible from the first sessions of treatment associated with the Burger physical therapy program for lower limb circulation, diminishing claudication in the lower limbs.

Conclusion. Following treatment with baths and mofettes in Covasna spa resort, an increase in peripheral circulation with the improvement of changes in skin temperature and color, an amelioration of trophic disorders, an improvement of pain symptoms, and an increase in the walking distance were observed.

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EVALUATION OF THE BIOCLIMATIC PARTICULARITIES INSIDE THE TG. OCNA AND CACICA SALT PANS AND OF THE SURFACE BIOCLIMATIC CHARACTERISTICS FROM THE HOMONYMOUS RESORTS

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Abstract

Introduction. The study analyzes, based on the hourly monitoring (since 2020) of meteorological elements (air temperature, relative humidity, atmospheric pressure, wind speed) the biometeorological conditions specific to the microclimates inside the Tg. Ocna and Cacica salt mines, but also of surface topoclimates. The study is a preliminary one, coming with a first set of biometeorological results, which will be completed later with new information from the monitoring of the physical parameters of the air in the two salt pans and their surface during the years 2021 and 2022.

Data and methods. In order to realize this study were used monthly grid data from ANM (*National Agency of Meteorology*) (1961-2013) for the stations Cacica and Târgu Ocna and hourly data (2020) for the two salt mines, obtained by two sensors (HT-163 USB Temperature Humidity and Air Pressure Data Logger). The sensors were placed at depths of 70 meters in Cacica salt mine, irrespectively 240 meters in Trotuș salt mine from Târgu Ocna. The climatic and microclimatic database was processed and graphically and cartographically transposed in Excel, irrespectively ArcGIS 10.4 software.

Results. During the study we shaped the annual regime of the above mentioned mete-climatic elements and of the THI bioclimatic index for the two interest areas including for the two salt mines. The calculus of the THI thermo-hygrometric index permitted to highlight the months with bioclimatic comfort/discomfort both for the stations and the salt mines. On the surface the stations are characterised by a THI variation correlated with the evolution of the air temperature (wit values ranging from -1.9° and 16.8°C at Cacica and -1.0° and 19.2°C at Târgu Ocna). The months with climatic comfort are June, July and August for both stations. The salt mines are characterised by an evident thermo-hydric uniformity (10.0° and 10.7°C and 71% la Cacica, irrespectively 13.2° and 14.2°C and 61% in Trotuș salt mine) and an easy thermic discomfort by cooling all over the year: 10.9°C THI index at Cacica salt mine and 13°C at Trotuș salt mine.

Conclusions. The contact area mountain-plateau in which are situated the stations Cacica and Târgu Ocna benefits from favourable natural bioclimatic factors: indifferent sedative bio-climate, pure air, ozone-rich and ionized, mineral springs. THI shows a bioclimatic comfort in the summer months. Thus the year period when can be organized open air recreation touristic activities covers the summer months, but slightly extends to the temporal frame of spring and autumn months (May and September). The Trotuș and Cacica salt mines, from bioclimatic point of view, are characterised by a moderate cool thermic regime, with a big independence degree from the external environment. The baric regime depends on the surface pressure and on the salt mine depth and the relative humidity oscillated around the values of 60 % (Trotuș salt mine) and 70 % (Cacica salt mine). The stable atmosphere and the microclimatic uniformity provide Cacica and Trotuș salt mines certain balneary-climatic qualities recommended both to tourists and patients (suffering from respiratory diseases, asthma etc.)

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Mud therapy— new scientific and medical relevance

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Abstract

Background. The use of mud by humans for medicinal and wellness purposes is most probably as old as mankind. Balneotherapy is an effective complementary approach in the management of several low-grade inflammations and stress-related pathologies, especially rheumatic and metabolic conditions. However, despite the demonstrated clinical and symptomatic benefits of these therapies, their role in modern medicine is still controversial, mainly because the biological mechanisms underlying these benefits have not yet been completely elucidated. In the context of these pathologies, further studies are necessary to clarify the mechanisms of effects involving the stress response and, consequently, its interaction with the inflammatory response. Thermal muds have been used in many spas for the treatment of different diseases (medical uses) as well as to clean and beautify the skin, in different forms/wellness such as mud baths, masks, and cataplasm. Mud produces important beneficial effects including anti-inflammatory and anti-microbial activity which might explain in part the therapeutic properties of mud packs against chronic infammatory skin disorders. Besides, treatment of keratinocytes with mud extract led to a significant increase of ATP levels as well as mRNA expression of genes involved in cell protection and longevity. The mud could serve as a natural anti-oxidant and moisturizing anti-aging agent with important cosmeceutical applications.
Objective. This systematic review aims to rigorously select related articles and identify within their content, the main possible uses of therapeutic mud and physiological mechanisms, to see the main region of scientific interest for pelotherapy, and to discuss the value of mud therapy in rehabilitation medicine.
Methods. The working method is based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. We searched for open-access articles published in English, between January 2015 and December 2020, from the following databases: Cochrane, Elsevier, NCBI/PubMed, NCBI/PMC, PEDro, and ISI Web of Knowledge/Science (the latter was also used to identify ISI indexed articles). The contextually searched syntax used was "Pelotherapy/Peloidotherapy/Mud-therapy/ /Fango-therapy AND Rehabilitation".
Results. Our search identified, first, **394** articles. Based on the successive filtering stages and, respectively, on the classification criteria of the Physiotherapy Evidence Database (PEDro), we finally identified/retained and analyzed **68** articles. We have used also **40** papers freely found in the literature..
Conclusions. This paper overviews the current state-of-the-art knowledge in the approach of peloidotherapy in rehabilitation, with a focal point on the therapeutic properties of peloids. Most of the thermal spas around the world recommend their mud baths or local mud cataplasm applications, as they recognize therapeutic results through their anti-inflammatory, analgesic, and antiseptic effects on musculoskeletal and dermatologic pathologies, which are increasingly supported by clinical trials. Our systematic review and meta-analysis have emphasized an additional, corollary, conclusion, too: the often connected/ synergistic, therapeutic, and rehabilitative effects of the balneary interventions (46), including mud procedures based, prove and strengthen the Romanian successfully paradigm of a unitary/ sole specialty: Physical and Rehabilitation Medicine & Balneology – and this is reflected also in the new focus and title of our publication "Balneo and PRM Research Journal".

Keywords: *mud-therapy, pelotherapy, peloidotherapy, fango therapy, rehabilitation, balneotherapy, natural therapeutic factors,*

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Thalassotherapy — scientific and medical relevance

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Abstract

Introduction. Balneotherapy (Latin: Balneum, bath) refers to the medical use of water as opposed to its recreational use. It is difficult to pinpoint the exact origin of the first spa and spa treatments. It was practiced by the ancient Greeks, Babylonians and Mesopotamians. Homer and other classical writers report that the Greeks indulged in a variety of social baths as early as 500 BC, including hot-air baths known "*laconica*" (2-5). The Romans were responsible for the popularity and spread of spa therapy to other parts of the world. Roman soldiers sought hot baths to recuperate after prolonged battles. The baths were referred to as "aquae". The concept of spa flourished with the continued use of the major springs even after the decline of the Roman Empire. In Thalassotherapy, sea water is used and characterized by its high mineral content, high density, and its chemical composition rich in chlorides of mainly sodium besides magnesium, calcium, potassium, and iodine, along with marine peloids known as limes. These applications include their application with systematic methodic exposure to sun, total or partial application of hot sea sand, and marine climatotherapy (based on atmosphere), temperature, humidity, wind, air pressure, etc.
The term Thalassotherapy stems from the Greek word thálassa (θάλασσα) meaning sea or ocean and comprises many seawater-based treatments. Treatments on the base of remedies taken from the sea are quite common in Europe and used as well in wellness tourism as in medical tourism (6-10). Thalassotherapy has many aspects in common with thermalism or balneotherapy but also some distinctive characteristics. Balneology has a long European and Asian tradition and Romania can be the cornerstone of international bridges in this area due to its geographical position, legendary tradition and extraordinary natural resources of all kind. Each Balneary Resort begins its story with the discovery of natural factors whose therapeutical value has been clinically and experimentally proven by scientific personalities of that time. (1).
Material and method. This article is a systematic and summarizing review of all published articles related to the thalassotherapy and thermal medicine subject found in Web of Science Core Collection. The methodological work is focused on the development of a bibliometric study of the literature generated regarding "thalassotherapy" therm. The analysis process followed integrates the use of descriptive-quantitative statistical techniques, which constitute a series of bibiliometric indicators that allow explore the research dynamics followed so far by the scientific community. These bibliometric indicators are numerical data that enable the analysis of diverse features of the scientific activity, linked both to the production and consumption of information and are based on the so-called "bibliometric laws".
Results and discussions. Analyzing an article database can be of real impact on the development of the field of Thalassotherapy but also can drive the future implications in the scientific arena.
Conclusions. In balneary tourism, the importance of researching natural resources is essential for the development of a balneary resort promotion plan, thus providing information on the therapeutic properties of natural factors, their contribution to our health and the biological mechanisms by which they act on our body.

Keywords: *Thalassotherapy, Balneology, Balneotherapy, Balneary Resort, Web of Science Core Collection*

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THE USE OF MEDICINAL PLANTS, FROM ANCIENT TIME TO PRESENT

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Abstract

Since 60.000 years ago, the medicinal plants are used for the treatment of various diseases. Nowadays, worldwide studies are carried out regarding medicinal agents derived from plants because the currently available drugs either have certain side effects or are highly expensive. According to World Health Organisation, 80% of population uses herbal medicines for their primary health care needs. There are a lot of diseases for which we can use medicinal plants as an alternative strategy for the treatment. Medicinal plants are used in osteoporosis, rheumatoid arthritis, bone defects, muscle atrophy and other serious illnesses like HIV/AIDS, tumours, liver fibrosis, atherosclerosis and heart diseases. During the last two decades, Traditional Chinese Herbal Medicines have increasingly fascinated consumers and health care providers in the West. Consequently it was necessary the integration of Chinese and Western medicine requiring attention to the eventually toxicity of the herbal ingredients used and the different interactions with other drugs. Moreover this year was published a Traditional Chinese and Western Medicine protocol regarding the rehabilitation from COVID-19 infection. India also uses herbal medicines in the official alternative systems of health such as the ancient Ayurveda medicinal system which is popularly practised in the Indian subcontinent.[3] Today studies show that different extracts of plants used in rheumatic diseases can contribute to slowing the osteoarticular destruction process, maintaining the capacity of work, moderate diminution of pain and as a result to the improvement of the quality of life.

Keywords: *medicinal plants, herbal medicine*

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STÂNA DE VALE – CLIMATIC, BIOCLIMATIC, BALNEOCLIMATIC AND TOURISM CLIMATE CHARACTERISTICS

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Abstract

Introduction. Stâna de Vale is one of the most special resorts in Romania, whose potential is insufficiently known and exploited. Allergen-free clean air and pure microbiological spring water are just two of the bioclimatic characteristics that recommend it along with the intense ionization of the air with the predominance of negative ions, the tourist routes dotted with numerous waterfalls, the thick and persistent snow layer, etc.

Materials and Methods. The work was based on meteorological observation data from Stâna de Vale weather station from 1979-2020, data processed according to the classical methodology for climate studies (Erhan, 1999, Gaceu, 2002, etc.) in order to highlight the main climatic characteristics and with with the help of the indices elaborated by Clausse Guenrouet, Hughes, Burnet, Besancenot etc. to highlight the bioclimatic and tourism climate potential.

Results. The study showed that the spa resort Stâna de Vale benefits from a depressive mountain climate characterized by a series of superlatives (the highest amount of precipitation in Romania, the longest duration and thickness of the snow layer in a spa resort , the highest frequency of atmospheric calm, the lowest wind speed), a tonic-stimulating bioclimate with a high degree of ionization of the air and a significant tourism climate potential, both in summer and in winter.

Conclusions. Stâna de Vale has a significant climatic, bioclimatic, balneoclimatic and tourism climate potential but extremely little capitalized and promoted, so that currently the tourist flow, tourist facilities, services, accommodation, public catering, treatment and cure doesn't even rise to the level of the 1930s! Restoring the access road on the Hell Valley through Remeți village from the European road 60 Oradea - Cluj Napoca will considerably increase accessibility, especially in winter, but it must be accompanied by removing the resort from the patronage of European Drinks, which monopolized and blocked tourism through exaggerated prices and through the abolition of treatment and cure activities.

Key words: *Stâna de Vale, balneoclimatic resort, climate, bioclimate, tourism climate potential*

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THALASSOTHERAPY, COVID19 AND NON-SPECIFIC IMMUNITY.

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Abstract

Introduction. Thalassotherapy is one of oldest form of natural therapy. The human body interact with sea water, air, ions, and sun radiations, and balances its homeostasis. The turning plate is the tegument, a membrane placed between external and internal environment. The aim of our paper work is to present a point of view on place and role of thalassotherapy in non-specific prevention of SARS – CoV2 infection.

Materials and method. Journals, books, and scientific web-sites were searched using key words: thalassotherapy, non-specific immunity, covid19.

Results and discussions. Dermis is a connective tissue having important physiological activities and numerous cells involved in immune defence. Dendritic cells, monocytes and macrophages are members of the mononuclear phagocyte system that exhibit multiple functions during immune responses. Dendritic cells are antigen-presenting cells that act as messengers between the innate and the adaptive immune systems. Most viral infections are limited by defences that are antigen nonspecific and/or specific. Nonspecific defences act sooner than specific defences. Some are always in place (anatomic barriers, nonspecific inhibitors, and phagocytic cells); others are evoked by the infection (fever, inflammation, and interferon). Physiologic activity of these cells is modulated by thalassotherapy. A good non-specific defence is a premise for developing a good immune specific answer to viruses.

Conclusion. Thalassotherapy is a valuable natural therapy that has impact on immune defence. It is time to re-evaluate the virtues of thalassotherapy as a pillar of public health.

Keywords: *thalassotherapy, immunity, non- specific prevention*

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THE BENEFICIAL POTENTIAL OF THE NATURAL FACTORS OF OCNA SIBIULUI RESORT IN PSORIASIS

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Abstract

Introduction. Psoriasis, a chronic inflammatory dermatosis that occurs on a frequently predisposed genetic background under the action of triggering factors, has severe psychosocial and professional implications; patients with psoriasis are frequently discriminated, isolated, and in about 50% of cases have a significant reduction of quality of life. Considering these aspects, adequate management of the disease is required to extend the remission periods, to decrease the frequency and severity of the exacerbations of psoriasis, and not least, to improve patient quality of life.

Material and methods. Rich in natural therapeutic factors: concentrated chloride sodium waters, fossil sapropelic mud (with known effects derived from the physical properties and chemical composition), sedative bioclimate that allows reducing the stress level and maintaining high mental tone, Ocna Sibiului resort is a therapeutic option for patients with psoriasis. In the current context of evidence-based medicine, given the absence of studies related to the efficiency of natural therapeutic factors in this squamous dermatosis, we aim to conduct a pilot study including a minimum number of 20 patients with psoriasis and to evaluate the impact of therapy using the natural therapeutic factors of Ocna Sibiului resort on skin lesions, joint involvement (where present) and quality of life of the patients. For evaluation, we aim to use the PASI score to assess the evolution of psoriasis, and the DLQI score for the quality of life of patients before and after spa treatment.

Results Different medical procedures, a favorable climate, physical and mental rest may have beneficial effects on skin lesions, joint involvement and not least, on the quality of life of patients.

Conclusion. Alongside drug treatment, spa and climatic factors influence the dysregulated mechanisms of the body, having beneficial effects in squamous dermatoses.

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EVALUATION OF FUNCTIONAL STATUS DURING THE POST ACUTE PERIOD FOR PEOPLE WITH COVID-19

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Abstract

Introduction. People who had COVID-19 may present for a long time persistent pulmonary function impairment, muscle weakness, pain, fatigue, depression, anxiety, vocational problems, and reduced life quality to various degrees. The mmeasurement of functional deficits after discharge allows the assessment of outstanding sequelae as well as the level of recovery after the acute period. Aim of the study: Application of the Post-COVID-19 Functional Status Scale (PCFS) in the evaluation of ADL and the effectiveness of medical rehabilitation programs for people suffering from COVID-19 consequences.

Material and methods. The study included 58 people who endured the mild to moderate forms of SARS Cov 2 infections at an average of 112 days from the acute period. All individuals were included in physio-functional rehabilitation programs (14 days) with assessment of clinical-functional status by interrogation and assessment of Activity of Daily Living by applying the post-COVID-19 Functional Status Scale (PCFS) until admission and discharge from the rehabilitation ward.

Results and discussions. The people included in the study were between 47 and 72 years old, at an average period of 112 days after the acute phase of the disease. According to the Post-COVID-19 Functional Status Scale (PCFS), mild functional limitations (gr. 2) were recorded in 50% (29 people), insignificant (gr.1) - 41.37% (24 people) and moderate (gr. 3) - 8.63% (5 people). The most common consequences of COVID-19 that influenced the functional status were represented by the association of fatigue symptoms - 20.68%, dyspnea - 39.65%, muscle pain - 82.75%, paresthesia - 63.79%. Concomitant pathologies present in 47 people (81%) were predominant cardiovascular and dysmetabolic diseases - hypertension, rhythm disorders, diabetes mellitus. After the rehabilitation treatment in stationary conditions, the functional status improved with the registration of grade 1 in 43.1% of cases, grade 2 - in 3.45%, and 53.45% of patients had no functional limitations on discharge.

Conclusion. The Post-COVID-19 Functional Status Scale (PCFS) allowed the assessment of the functional status of people who underwent COVID 19 long-term assessment, as well as the effective assessment of the rehabilitation program despite the activity restrictions in stationary conditions.

Key words: *Functional status, post-COVID-19 sequelae, post-COVID-19 Functional Status Scale*

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COMPARISONNBETWEEN THE EFFECT OF TENS, INTERFERENTIAL CURRENT AND ULTRASOUND THERAPIES ON KNEE OSTEOARTHRITIS

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Abstract

Introduction. Knee osteoarthritis is one of the most common condition that the rehabilitation specialist confronts with. Although there are many types of different physical procedures proven successful on this condition, we concentrated on the three most effective procedures: ultrasound, interferential current and TENS.

Case presentation. We evaluated 37 patients with knee osteoarthritis whom undergone rehabilitation program in the SES Rehabilitation, Physical Medicine and Balneology Center from Bucharest Romania. All patients had knee osteoarthritis graded from one to three. Each patient had treatment with either ultrasound, inferential current or TENS and all patient received kinesiotherapy procedures. Every patient completed the VAS scale, the WOMAC scale and the KOOS Knee Survey both before and after the rehabilitation program. After that, we compared the results of the different procedures to see which of them was more effective in relieving pain, stiffness, mobility and improve daily activity.

Results. The comparison between the three types of procedures on the VAS scale was similar on all three rehabilitation procedures. The comparison between the WOMAC and KOOS-KS scales shown a slighter superior beneficial effect on the interferential current procedure.

Conclusions. Further patients need be included in this study in order to clarify if all procedures are similarly benefic for knee osteoarthritis or if there is a procedure that is more effective.

Keywords: *Knee osteoarthritis, interferential current, ultrasound, TENS*

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RECOVERY OF KNEE ARTHROSIS BY BALNEO-PHYSIO-KINETOTHERAPY METHODS

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Abstract

Arthrosis is a cronical disease with a slow evolution, provoked by an early tear of the cartilage, which irreparably deteriorates. The joint no longer cushions the shocks from the movement, so the joints deform irreversibly. Arthrosis of the knees is called gonarthrosis and although it is less disabling than arthrosis in the hips, it has a higher incidence. Anamnesis, physical examination and paraclinical explorations are required before diagnosis is made. For the recovery of the knee with arthrosis by physical therapy, consideration should be given to the stage of the disease, as kinetotherapy plays a role in the fight against pain and targets myo-arthro-kinetic function. Treatment is individualized and aims not to make the patient worse, but to achieve a maximum yield with a minimum of dosed effort depending on the patient's adaptation to the recovery program. Treatment should be applied immediately after diagnosis. And its continuity is essential. The aim is to relieve/combat joint pain, restore/maintain joint stability, restore the amplitude of movement, maintain muscle tone. The reflexogen massage will be the same as applied to arthrosis of the spine, only in this case it will be applied strictly to the area of the respective joint, stimulating the reflex area of the lombo-sacral spine. In the treatment of gonarthrosis it is important to establish a diagnosis and establish an appropriate and effective treatment.

Keywords: *arthrosis, kinetotherapy, physical therapy*

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THE IMPACT OF ARTHRITIS ON SOCIO-PROFESSIONAL ACTIVITY IN PATIENTS WITH ANKYLOSING SPONDYLITIS VERSUS RHEUMATOID ARTHRITIS

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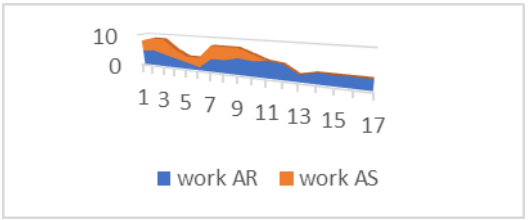
Abstract

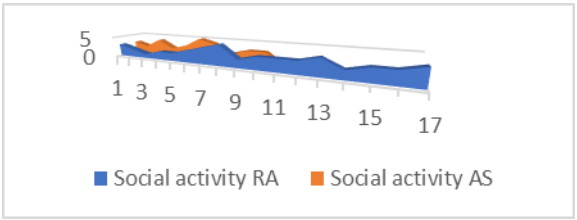
Introduction. The biomedical model, which describes a disease, it is based on the etiology, pathogenesis and clinical manifestations, without expressing the social, psychological and behavioral dimension determined by the disease, although these factors are decisive in the recovery process. The quality of life in medicine is characterized by physical, mental and social well-being, as well as by the ability of patients to perform their usual tasks in their daily lives.

The purpose of this study was to identify the impact areas of arthritis in ankylosing spondylitis and rheumatoid arthritis, to compare the impact on the socio-professional field, using the AIMS2 scale.

Material and method. We performed an observational study on a group of 27 patients (Group I n = 17) diagnosed with rheumatoid arthritis and 10 patients with ankylosing spondylitis (Group II n = 10), aged between 28 and 70 years. The subjects were randomized from the patients who went to the "Avram Iancu" Clinical Hospital in Oradea, between July 2020 and April 2021.

Results. The average values of the AIMS2 score are comparable in both groups of patients, in the areas of pain, physical and functional. In the field of work, the average score is lower in the group of rheumatoid arthritis patients by about 6%, due to the higher number of paid patients (Chart 1). The study shows a 5% higher impairment of social activity in patients with ankylosing spondylitis, which is reflected in reduced meetings with friends and other social activities (Chart 2).





Conclusions. Social activity, paid work and domestic activities are more affected in all patients with inflammatory rheumatism.

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REHABILITATION AND OUTCOME IN COVID-INDUCED CENTRAL NERVOUS SYSTEM INJURIES

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Abstract

SARS-COV 2 infection is a multisystem disease, affecting the central nervous system. Common unspecific manifestations are headache, dizziness and altered mental status. The most common severe neurologic complications were COVID-19–associated encephalopathy, acute ischaemic stroke and encephalitis, triggered by immune-mediated and pro-thrombotic mechanisms. Neurologic manifestations are directly associated with the disease severity and presence of comorbidities (hypertension, diabetes mellitus, obesity, dyslipidemia, heart disease, smoking). No specific treatment is available for COVID-19-induced neurologic injuries, which cause lifelong disability, with associated long-term care needs.

Patients with severe COVID infection have specific rehabilitation needs, usually recovering with multiple sequelae: respiratory, cardiovascular, musculo-skeletal, psychiatric, associated with deconditioning; all dysfunctions should be addressed by specific interventions. Managing patients with a highly contagious infection is a challenge for the rehabilitation team. Moreover, patients recovering from severe COVID-19 forms could be potentially unstable and had a low exercise tolerance.

Patients with SARS-COV 2 infection requires multidisciplinary rehabilitation, which needs to be initiated in the post-acute phase. Neurologic, cognitive and functional assessments should be considered in all patients before initiating rehabilitation program.

The short-term outcome was generally favourable in COVID-associated encephalitis without any specific treatment, but further studies assessing the prognosis in SARS-COV 2-related cerebrovascular events and the role of rehabilitation treatment in the recovery process are needed.

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FUNCTIONAL ASSESSMENT IN REHABILITATION OF PERSONS WITH MULTIPLE CHRONIC CONDITIONS

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Abstract

Introduction. The presence of 2 or more chronic conditions is common in the framework multimorbidity and ageing of the population. There have been developed several rehabilitation programs for people with multiple chronic conditions (MCC) targeted on improving the functional status that were implemented both communities based and / or in specialized hospital settings. The aim of our study was to reveal the most appropriate tools of assessment and monitoring persons with multiple chronic conditions from a functional and rehabilitation perspective.

Material and method. Search strategy including the combination of the key words and terms "multiple chronic conditions" AND "rehabilitation AND "assessment" was used to identify the most relevant data from the past 5 years using PubMed database.

Results. There were identified 4 major domains of assessment in rehabilitation programs for MCC namely physical function, cognition and affective state, quality of life (QoL), and healthcare utilization. PhysicSal functioning is one of the main domains of assessment for MCC and relies basically on typical scales and tests such as 6MWT, TUG, gait speed, numbers of falls, cognitive and affective status usually relies on short scales such as MMSE, PHQ-9, or HADS. For healthcare utilization the most used indicators were the number of hospitalities and hospital visits and for quality of life were used the EQ 5 scale or HR QoL.

Conclusion. Functional assessment for MCC usually is directed to more domains Physical function and cognitive affective status along with QoL were the most common domains in rehabilitation for persons with MCC.

Key words: *functional assessment, multiple chronic conditions, rehabilitation*

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Mineral waters—importance for human health

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Abstract

Introduction. The Romanian scholar researchers made many clinical studies and established which type of water is beneficial for every specific pathology which can be treated by this method. All types of studied waters came naturally from springs and their elements develop through a natural process, without human intervention whatsoever.

Results and Discussion. Oligo-mineral waters, depending on their temperature, can drink the hotter ones (acrato-thermal water) for digestive and renal-vesical conditions because this water has antalgic and antispastic properties and the colder ones specially for renal lithiasis.

Alkaline waters, which contain a minimum of 1 gram of sodium and potassium bicarbonate per liter of drinkable water, can be drunk as therapy for digestive ailments, and its effect may differ depending on the moment of ingesting the water reporting to the meals: if ingested 1 hour and ½ before the meal it inhibits gastric secretion if ingested during the meal it stimulates the gastric secretion and if ingested after the meal it has a double effect – initial inhibition of the gastric secretion, followed by stimulation through sodium chloride and carbon dioxide which interacts with the chlorohydric acid in the digestive tract. Alkaline waters also fluidify and eliminate mucus secretion from the stomach, reduces inflammation in the urinary tract mucosae, accelerates the evacuation of the gastric content, and alkalinize the urine pH.

Chlorate sodium waters are waters that contain sodium chloride over 1 gram per liter and its use in crenotherapy is mostly for the digestive system condition, where the purpose is to increase secretion and motility.

Carbonaceous waters are mineral waters that contain a minimum of 1 gram of dissolved CO2 in 1 liter of water and also because it is naturally produced, it may contain chlorate sodium, iron, or sulfur in its componence. Carbonaceous waters are used in crenotherapy for their properties to stimulate saliva and gastric secretion, activate gastric motility, stimulate gastric acidity, stimulates pancreatic and biliary secretion, and influence urinary pH.

Sulfurous waters are mineral waters that contain a minimum of 1 gram of sulfur (in form of H2S, HS, or sulfurous colloidal complex) and because of the instability of the compound, once the sulfurous water comes in contact with air and changes its color and smell, it is recommended that this type of water should be drunk directly at the stream without transporting it. Sulfurous mineral waters can increase gastric secretion, stimulate intestinal peristalsis, has a cholagogic effect, and decrease blood glucose.

Conclusions. Water is essential for the entire planet and also indispensable for the survival of the human body. It can destroy solid rock and plants if it overfloods, but it can also nurture and grow all living things on the planet. It has memory and magnetic properties. It can drown a human being, or it can save him from various diseases through its wonderful healing effects. It comes from the depth of the earth, evaporates, rases to the sky and then comes back down again to ensure life on this planet. Drink water! Water is life!

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THEORETICAL AND PRACTICAL CONSIDERATIONS REGARDING THE EXPLOITABLE SANOGENIC ASSOCIATIONS BETWEEN DIFFERENT MINERAL WATERS AND DIFFERENT DIETS

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Abstract

Introduction. The body of an average adult male is 60% (w/w) water and the body of an average adult woman is 55% (w/w). There may be significant differences between individuals on the basis of many factors such as age, health, weight, and gender. Body water is divided into intracellular and extracellular fluids. The intracellular fluid, which makes up about two-thirds of the body water, is the fluid contained in the cells. The extracellular fluid that makes up one-third of the body's fluids is the fluid contained in the areas outside the cells. Extracellular fluid itself is divided into plasma (20% extracellular fluid), interstitial fluid (80% extracellular fluid), and transcellular fluid, which is normally ignored in water calculations, including gastrointestinal, cerebrospinal, peritoneal, and ocular fluid. The amount of water should one drink is broadly discussed outside of scientific circles, but there is no one-size-fits-all answer. The daily four-to-six cup rule is for generally healthy people. This can also vary, especially if there is a water loss through sweat because of exercising or higher temperature. Drinking water is usually consumed as bottled water or as tap water. Bottled waters are generally very popular and also very diverse in terms of overall mineral content and composition. There are many mineral spring drinking waters on the market, which are much diversified in terms of mineral composition. The total mineral content may not exceed 1000 mg/L (as in the case of drinking water) and the water may only be treated by the physical means mentioned above. The term "spring water" replaced the former "table water". No substances other than carbon dioxide may be added to packaged infant or spring water. Bottled drinking water is a product that meets the drinking water requirements. This water can be obtained from any water source and treated the same way as tap water, with the quality requirements being similar. In contrast to the above-mentioned types of bottled water, bottled drinking water can be artificially supplemented with minerals (calcium, magnesium, sodium, and potassium). If this happens, the list of supplemented substances in the water and the word sign "artificially supplemented with mineral nutrients—mineralized drinking water" should also be included on the label. Bottled drinking water can also be carbonated. Bottled drinking water is marketed under different names (besides trademarks it is, e.g., sparkling water or table water), but it must always be stated on the label that it is drinking water. The water for food processing mainly includes the water for raw materials, the water for processing and the water for cleaning, etc. the water quality directly affects the food quality. The processing enterprises must ensure that the quality of water for food processing is required to be inspected by hygiene and should meet the related standards of hygiene. In order to ensure the food quality, except that the quality of water for food processing should meet the standards of drinking water, some components in water still need to be strictly controlled. Therefore, a comprehensive understanding of the quality of water for food processing has played an important role in the guarantee of food quality.

Results and discussion. The mineral nutrient contents are important characteristics of mineral water. Mineral nutrients are inorganic substances that must be ingested and absorbed in adequate amounts to satisfy a wide variety of essential metabolic and/or structural functions in the body.

Conclusions. Mineral water contains a combination of the main cations (Ca^{2+}, Mg^{2+}, Na^{+}, K+), anions (HCO^{-}, Cl^{-}), and specific compounds (which can determine the medicinal value of water) in varying amounts. All mineral nutrient contents can be read from individual labels provided on the packaging.

Keywords: *tap water, bottled water, calcium, magnesium, sodium,*

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EFFECTS OF MINERAL WATERS ON COGNITIVE FUNCTIONS

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Abstract

Introduction. Clinical trials have been revealed the role of mineral waters on cognitive function and performance. Researchers described the influence of brain structure by biochemical properties of micronutrients and neurotransmitter systems.

Material and methods. Selected articles and reviews, analytical data from scientific literature were gathered to highlight the effects of hydration and mineral status on cognitive processes, including neurochemical activity in murine models.

Results and discussions. Dehydration levels were associated with progressive alteration of mood, body weight and neurological status evidenced by memory, attention and executive functions, judgement and decision-making tasks. Classic chemical agents (glutamate, dopamine, GABA, acetylcholine) have been present in cognitive functions, especially cholinergic neurotransmission which plays a key role in attention processes, learning and memory. An increased content of hippocampal acetylcholine has been evidenced in murine studies after mineral water drinking. Micronutrients are significant in cognitive performance, intake of water- soluble vitamins (B group, C) and minerals, particular calcium, magnesium and zinc supplementation could be a preventive measure from neurodegenerative diseases. Aforementioned therapeutic approach is a feasible recommendation in Alzheimer disease, completed with ingestion silicic acid-rich mineral water. A research with healthy participants identified improvement of anaerobic performance after high mineral alkaline water consumption for three consecutive days before anaerobic exercise. In a randomized control trial, balneotherapy with a high mineralized, sodium, chloride, calcium, magnesium, sulphate content geothermal water applicated in a population of working seamen presents positive outcome on stress management, mood, motivation and cognitive functions. Significant therapeutic effects were obtained in patients with neurasthenia using low mineralized chloride, sodic, hydrocarbonate, sulfide water baths, resulted in equilibration on the indices of cardiohemodynamics and lipid metabolism, amelioration on the status of vegetative nervous system, perception, attention and memory.

Conclusion. The study underlined the link between hydration status and cognitive performance from current literature. Balneotherapy is a particular strategy to influence functional status of the brain, could be considered a practical vector of nutritional elements.

Key words: *water, mineral, cognitive*

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DIFFERENT DIETS AND BALNEOLOGY

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Center for Research, Diagnosis and Treatment in Diabetes and Metabolic Diseases CORPOSANA

Abstract

Introduction. Water is the most important element of the human body and essential for its multiple functions.
Results and Discussion. A healthy human body has a percentage of 40 to 60 water, more in man (~55%) than in women (~45%). A loss of only 2% can cause damage in multiple physiological functions, including neurophysiological issues, a loss of more than 10% can cause severe disorders and a loss of 20% can cause even death. From metabolic reactions to structural component for the shape of cells, water is needed to ensure a healthy status in all ages. Water is not only important by its well-known structure, but for its physico-chemical properties, that can add benefits to healthy human bodies and for specific medical-nutritional therapies.
Conclusion. When used in specific diets, water must be good in quality (chemical, physical, biological and bacteriological).

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WATER CHARACTERISTICS AND FOOD COMPLEMENTARITIES

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Abstract

Introduction. There are different categories of waters intended for human consumption such as natural mineral waters and spring waters. Natural mineral waters may be distinguished from ordinary drinking water by their purity at source and their constant level of minerals. Spring waters are intended for human consumption in their natural state and are bottled at source. This document identifies knowledge gaps and recommends research priorities in order to build an evidence base to inform decisions on managing "processed" drinking-water. This is important because of increasing consumption of water arising from advanced treatment processes such as desalination and uncertainty about the resulting heatlh implications. The World Health Organization (WHO) assembled a diverse group of nutrition, medical, epidemiological and other scientific experts and water technologists at the Pan American Health Organization in Washington, DC, USA, on 27–28 April 2006 to address the possible role of drinking-water containing calcium and/or magnesium as a contribution to the daily intake of those minerals. The overarching issue addressed was whether consumption of drinking-water containing a relatively small contribution to total daily dietary intake of calcium and/or magnesium would provide positive health benefits, especially with respect to cardiovascular disease mortality (the so-called "hard water cardiovascular disease benefits hypothesis"), in the population, particularly in people whose dietary intake was deficient in either of those nutrients.
Results and discussion. Because of growing concern that constituents of drinking water may have adverse health effects, consumption of tap water in North America has decreased and consumption of bottled water has increased. Our objectives were to 1) determine whether North American tap water contains clinically important levels of calcium (Ca^{2+}), magnesium (Mg^{2+}), and sodium (Na^{+}) and 2) determine whether differences in mineral content of tap water and commercially available bottled waters are clinically important. Compared to the old RDAs, the new DRIs incorporate the concept of preventing nutrient deficiencies as well as risk reduction for chronic conditions such as heart disease, diabetes, hypertension, and osteoporosis. In our analyses, we compared mineral levels in tap and bottled waters to DRIs in order to examine the clinical significance of mineral intake from drinking water. Dietary reference intakes of Mg^{2+} are generally higher for males than for females but also depend on age. A 30-g serving of almonds or half a cup of spinach contain approximately 80 mg of Mg^{2+}, and one third of a cup of bran cereal contains approximately 50 mg. Currently established DRIs do not yet include estimates for Na^{+}. Previously established RDA estimates, however, indicate that healthy adults require at least 500 mg of Na^{+} per day, and nutritional experts have set a maximum recommended intake of 2,400 to 3,000 mg of Na^{+} per day. Published data on water consumption are limited, and the few available studies have reported an important variability in tap water intakes in North America. The amount of water consumed daily varies from individual to individual and largely depends on other sources of fluids. Nutritional experts have recommended that consumption of 30 ml/kg/day of water is sufficient for the elderly and that a provision of 150 ml/kg/day is recommended for infants.
Conclusions. Drinking water sources available to North Americans may contain high levels of Ca^{2+}, Mg^{2+}, and Na^{+} and may provide clinically important portions of the recommended dietary intake of these minerals. Physicians should encourage patients to check the mineral content of their drinking water, whether tap or bottled, and choose water most appropriate for their needs.

Keywords: *mineral water; sensory analysis; consumer preference; mineral nutrients*

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AQUA SOMMELIER—education to see the water through a new paradigm

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Abstract

Introduction. The role of hydration in the maintenance of health is increasingly recognized. Hydration requirements vary for each person, depending on physical activity, environmental conditions, dietary patterns, alcohol intake, health problems and age. Elderly individuals have higher risk of developing dehydration than adults. Diminution of liquid intake and increase in liquid losses are both involved in causing dehydration in the elderly. The water used for drinking is provided through regular public water supply and the official sanitary controls ensure their quality and hygiene, granting a range of variation for most of its physical and chemical characteristics, being sometimes these differences, though apparently small, responsible for some disorders in sensitive individuals. Hence the advantages of using bottled water, either natural mineral water or spring water, which are required by law to specify their composition, their major components and other specific parameters. It is essential to take this into account to understand the diversity of indications and favourable effects on health that certain waters can offer.

Results and discussion. Anyone can improve their sensory skills. This is done primarily through conscious tastings of various mineral water brands or reference substances. When tasting, one should practice analysing and describing the smell and taste repeatedly. It is only through direct experience that sensory skills are properly trained, and professional tasters have acquired their expertise only through continuous practice and training seminars.

The training programmes cover the following topics:

» water diversity
» definitions and legal terms
» mineral composition and nutritional physiology
» marketing and sales
» mineral water testing
» mineral and curative water sensory assessments
» water and wine
» excursions to mineral source operations

Persons who aspire to the title "Water Sommelier" and do not have the time to attend the nine-day water sommelier course at Doemens Savour Academy can also obtain this coveted title in a three-part, modular programme. Organising mineral water or water/wine tastings for interested guests is also an essential task of the Water Sommelier in restaurants and hotels.

Conclusions. In order for the consumer to be able to find out about the sensory diversity of mineral water and health-related properties of curative water, experts are needed to taste, enlighten, explain and advise on the compelling aspects of this valuable beverages. Water Sommeliers or Aqua Sommeliers are well-trained, competent advisors that add value to *natural mineral waters* and *natural curative waters*. In restaurants, a Water/Aqua Sommelier is a valuable asset who can enlighten guests about the advantages and variety of mineral waters as a suitable accompaniment for certain dishes, with wines and coffee. He/she is also responsible for presentating this quality beverage at the table. In addition, the Water Sommelier is the restaurant's agent, responsible for the selection and purchase of mineral waters as well as the creation of a mineral water menu.

Keywords: *water, Aqua sommelier, education, water culture*

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A REVIEW OF THE LITERATURE ON POST-COVID19 PHYSIOTHERAPEUTIC RECOVERY METHODS

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Abstract

Introduction. SARS-coronavirus 2 (Severe Acute Respiratory Syndrome Coronavirus 2, SARS-CoV-2), the etiological agent of the new long disease COVID-19 has affected from December 2019 - June 21, 2021 worldwide 179,381,281 people, causing 3,884,382 deaths worldwide, of which 1,080,256 people were infected in Romania. According to the World Health Organization, whether the person affected by COVID-19 needed hospitalization or not, they may continue to have symptoms such as fatigue, respiratory and neurological symptoms even after treatment.

Material and methods. In order to write this paper, the international database - Thompson ISI - Web of science as well as in MathWorks was consulted. This database searched for "Title" using the following indexing criteria "Covid-19 definition", "Covid physical therapy", "Covid rehabilitation" and "post-covid treatment".

Results. Following the verifications in the international Thompson ISI database - Web of Science according to the mentioned criteria, a number of 429 articles from the years 2020-2021 were identified. From the identified articles were extracted the articles that had as a basis for the construction of the article the physiotherapeutic recovery of patients after infection with Covid-19.

Conclusion. The literature gives us some information about the different types of physiotherapeutic treatment approached in combating post-covid sequelae19, but it does not present the treatment protocols used step by step in remedying / ameliorating these sequelae.

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THE EVOLUTION OF THE MARKETING PROCESS AT TECHIRGHIOL SPA AND RECOVERY SANATORIUM

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Abstract

This article provides the marketing process of Techirghiol Spa and Recovery Sanatorium, to determine the major characteristics of a health organization on his way to performance, creating a necessary conceptual framework and developing the own valid model for evaluating the quality of medical care at standards of excellence.

The research is related to the field of medical management and marketing in health services, organizational communication management, but also the therapeutic features of Lake Techirghiol, in an innovative approach, which aims to enhance intangible capital.

The analysis concerns the process of identity construction of the Techirghiol Spa and Recovery Sanatorium, during institutional existence, based on recent years, focusing on two interconnected aspects: defining the organization's identity through modern marketing, especially digital, and its role in obtaining quantifiable performance.

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OLANESTI BALNEOLOGICAL RESORT: PAST, PRESENT AND FUTURE

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Abstract

Past. The documentary attestation of the treatment waters from Olanesti through chemical analysis is due to Alexandru D. Ghica, who commissioned in 1829 the military doctor Dr. Johann Nepomouc Mayer to look for the springs on the field. The first balneary sanatorium dates from 1840 when Lord Toma Olanescu built on his estate 5 rooms to house for free the sick Romanian military soldiers who were in need of mineral baths. In 1869 Dr. Carol Davila delegated the chemist Bernath Lendway to do chemical analysis of mineral springs. In August 1869 Dr. Bernath, finishing the analysis of the springs from Olanesti, which amounted to more than 40, concluded that the they have a higher concentration of sulfur than those of Zaizon, Heilbron, Wyshbad, and in terms of iodine higher levels than those in Baden, Weilbach, Niphon and Calimanesti.

Present. Baile Olanesti is part of the category of permanent resorts, where treatment is done throughout the year. Its profile is determined by the complex of natural factors, but also by the facilities of the resort. The diseases that are treated here are numerous, among which we can highlight kidney, urinary tract, digestive tract, respiratory system, nutritional, dermatological and musculoskeletal disorders. Its over 35 existing mineral springs place Baile Olanesti on the first place among the balneoclimateric resorts in Romania. The use of natural healing factors is done in association with artificial healing factors such as hydrotherapy, medical massage, electrotherapy, sonotherapy.

Future. Investments made in accommodation structures like modern spa areas, in relaxation and treatment centers, have changed the perception that this balneological resort has, namely that it is intended only for senior citizens with various pathologies. According to the National Association of Travel Agencies more and more families with children and teenagers visited this great establishment the past few years and the numbers are increasing due to the new hotels with aqua park, thermal pools and SPA centers.

Keywords: *Olanesti, hydrotherapy, balneoclimateric resort, SPA center*

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BENEFITS OF CARDIOVASCULAR REHABILITATION PROGRAMMES IN HYPERTENSION IN COVASNA –CASE PRESENTATION

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Abstract

Introduction. The prevalence of hypertension is very high in Romania,like in entire world at all ages and is not well controlled.Studies like EUROSPIRE V or SEPHAR III proved it.Hypertension is a very important risk factor for cardiovascular diseases.To prevent and treat hypertension can reduce morbidity and mortality though cardiovascular diseases and stroke.Hypertension is a common comorbidity in patients included in cardiovascular rehabilitation programmes.The natural factors offered by the health resort Covasna such as :climatotherapy,aerotherapy,the CO2-bath,mineral waters and mofettes added to the other components of cardiac rehabilitation programme represent a special programme,wich is specific for Hospital for Cardiovascular Rehabilitation "Dr. Benedek Geza"Covasna.

Materials and methods. Case presentation:A patient is evaluated at the beginning and the end of the programme,clinic and paraclinic.

Results. The results presented after evaluation of a programme for cardiovascular rehabilitation,for 16 zile showed improvements.Results are presented.

Conclusions. The programme used in our hospital in Covasna ,contribute to rise adherence to life style modification, to practice physical activity,to take medication.

It is known that could modify history of hypertension,acting as a reducer either of blood pressure or of the other cardiovascular risk factors.

Key words: hypertension,cardiovascular rehabilitation,CO2 therapy.

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A MODEL FOR INSTITUTIONAL CARDIOVASCULAR REHABILITATION IN ROMANIA SINCE 1960 – HOSPITAL FOR CARDIOVASCULAR REHABILITATION "DR.BENEDEK GEZA"COVASNA

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Abstract

Objectives. Romania has one of the highest mortality rates for ischemic heart disease and especially for cerebrovascular disease among European countries. Considering the current prevalence of the cardiovascular disease, an increase is expected regarding the request of medical services in this field, with an important impact on cardiovascular rehabilitation. In Romania, a particular hospital for cardiovascular rehabilitation is situated in Covasna, a health resort where, along with usual rehabilitation programmes, specific balnear procedures are also applied, such as CO2 hydrotherapy and mofettes, since 1960. Patients are sent here by cardiologists from the entire country, as it represents an important link in cardiovascular rehabilitation in Romania. The objective of our study was to evaluate the demographic characteristics and the pathology for which patients were hospitalised in 2019 and the specific rehabilitation procedures which were applied during this year.

Method and results. Statistical analysis proved that the average age for patients hospitalized was 64.36 years. The main area of residence was the urban one, 83.43% of the patients coming from counties other than Covasna. The main diagnostics at discharge were: ischemic heart disease (33.99%), arterial hypertension (56.37%).

Conclusions. Among the specific procedures for cardiovascular rehabilitation, CO2, applied as CO2 hydrotherapy and mofettes, represents a specific and unique model for cardiovascular rehabilitation. Rehabilitation is an important task in the management of cardiovascular diseases. The natural beauty and resources, such as mineral springs and mofettes, are the main reasons for choosing Covasna as "the heart resort" in Romania.

Key words: cardiac rehabilitation, cardiovascular diseases, CO2 therapy.

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ALTERNATIVES TO PAIN THERAPY IN VERTEBRAL PATHOLOGY

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Abstract

Low back pain (LBP) or lumbar pain is one of the most common complaints that patients will have, and is one of the most common reasons for disability in people under the age of 45. About 60–80% of the population experience an event of low back pain, and therefore, has shown to be an impact on both the social and economic arms of medical systems. The majority of back pain episodes will be benign and may not have a definitely diagnosed cause and can often be a complex puzzle when looking for the pain generator. The goal of treatment is to decrease pain, improve function, prevent further events, and educate the patient. Most events are self limiting, however, patients who have experience one episode of back pain, are at a higher risk for repeat episodes. In approximately 40% of LBP complaints in adults, the etiology of pain can be attributed to a diskogenic origin. Causes of internal disk derangement, also referred to as degenerative disk disease (DDD), usually involve an accumulation of traumatic events ranging in severity and ultimately causing degeneration of the annulus fibrosus. Pain as a result of pressure on the spinous process is considered characteristic of diskogenic LBP. Together, these symptoms often correlate to axial back pain or lumbar sprain/strain Although it is considered a “degenerative” or aging process, patients with diskogenic back pain often improve over time. During the acute phase of a rehabilitation program, treatment focuses on reducing pain symptoms. Lumbar epidural injection, with or without steroids, is a simple and common procedure that is frequently used to treat a variety of low back conditions. Nonradicular pain has been shown to be predictive of poor treatment response rates to epidural injection. On the other hand, patients presenting with radicular features tend to respond better, which, in turn, allows further benefit from participation in a comprehensive rehabilitation program. Importantly, most studies indicate that epidural injection is most likely to be successful in patients who have had symptoms for less than 6 months. A systematic review of comparative analysis with lumbar fusion showed epidural injections to have superior long-term efficacy in managing chronic lumbar diskogenic pain. Platelet-rich plasma (PRP) injection is another biologic therapy aimed at regenerating the intervertebral disk. This approach consists of the intradiskal injection of PRP, an autologous injectate concentrated with platelets from the patient’s own whole blood. PRP contains high levels of growth factors and cytokines, such as platelet-derived growth factor (PDGF), epithelial growth factor (EGF), and insulin-like growth factor (IGF-1). These factors promote healing by stimulating tissue repair, collagen synthesis, and angiogenesis. Physicians in specialties such as Anesthesia and intensive care (ATI), Neurosurgery, Neurology, Orthopedics, Rheumatology and Medical Rehabilitation work together to diagnose and treat the cause of pain.

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CURRENT TECHNOLOGY IN MOTOR AND SENSORY RECOVERY OF THE UPPER LIMB

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Abstract

Introduction. **Objectives**. Stroke is the leading cause of disability in industrialized countries. It has a significant impact on the individual, on their family and on the healthcare services in society. Any form of treatment that improves the functional recovery of patients after a stroke can significantly reduce the physical, emotional and financial burden that this condition bestows on those who are affected by it, their families and society in general. **Materials and methods**. In recent years, rehabilitation medicine has encouraged research in an attempt to identify appropriate ways, time intervals and motivations for the rehabilitation intervention. Evidence of stroke rehabilitation technologies composes the fastest growing area of therapeutic research. As examples of studied technologies that can help in the rehabilitation process, we mention telerehabilitation, transcranial direct current stimulation (tDCS) and robotic systems developed for sensory-motor rehabilitation of the upper limb in hemiplegic patients. These robotic devices offer different types of movement assistance and target specific joints of the upper limb. Patients who participated in studies using such robotic devices were evaluated before and after the end of the rehabilitation program by various tests such as the Fugl-Meyer (FM) assessment for the upper extremity, muscle strength assessment, modified Ashworth scale for spasticity, visual analogue scale (VAS) for pain, Box and Block test (B&B), functional independence measure (FIM) and range of motion (ROM) testing of the affected limb. **Results**. Studies have shown significant improvements in upper limb function after the end of the robotic treatment period for the majority of patients, as evidenced by improvements in self-care capacity, upper limb motor capacity, visual-constructive skills and decreases in anxiety levels.
Conclusion. The use of robotic devices for upper limb rehabilitation is considered a new and effective approach of performing therapy with impact on movement and function of the deficit affected upper limb following a stroke. Current research literature on robotic upper limb rehabilitation devices indicates that task-specific practice and task-intensive practice could significantly improve motor recovery and neuroplasticity following a neurologic injury.

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DEVELOPMENT A SYSTEM FOR JOINT REHABILITATION AND ESTIMATION OF BODY SEGMENT PARAMETERS

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Abstract

Introduction. Rehabilitation activities should be continuously monitored for analysis by medical staff and provide sufficient information to detect certain deficiencies in the recovery program. Currently there are many researches about home rehabilitation, recovery procedures and techniques for upper limb, but there are still some disadvantages. For example, the current rehabilitation requires complicated devices, requires supervision by qualified therapists, with high costs. Moreover, the data on these devices takes a long time to be sent to doctors for monitoring. The proposed system is designed taking into account the three main stages which are data acquisition, data processing, respectively data recording.

Materials and methods. The concept of this project is to design and develop a device that can monitor arm-hand rehabilitation process. This device was designed to be used for patients after stroke or injury related to and monitors arms progress. The data acquisition was by three types of sensors; flex sensor, FSR sensor, and accelerometer. After that data processing was applied using an Arduino Mega microcontroller and ESP Wi-Fi shield. Lastly, the data was logged into PC and being shown online in real-time and stored for further monitoring in an IoT web-based system to allow therapists to diagnose patients any time anywhere.

Results and discussions. In this study, the results are organized in three experiments for flex sensor, FSR sensors, and accelerometer. The digital reading values determined at certain angles of the flex sensor that was stuck into the anterior elbow-guard part to indicate arm bending movements. In these experiments, the patient involved in the specific exercise which was stretching and bending his arm four times.

Conclusion. This project has advantages which are portable, user-friendly, low power consumption and low cost. Furthermore, this is a robust system for arm rehabilitation that can store data of patients online for future analysis.

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PARKINSON'S DISEASE PATIENTS' EVALUATION BASED ON WEARABLE SENSORS DEVICE AND DEEP LEARNING

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Abstract

Introduction. Despite the large available literature regarding the diagnosis and evaluation of tremor and bradykinesia and recognizing of their severity level, there is still a wide space left for a correct investigation. The main objective of this paper is to change the scenario of clinical diagnosis of tremor and bradykinesia by developing a wearable bracelet that helps in collecting the data from the subjects to obtain a more accurate and sophisticated diagnosis based on machine learning techniques which will eventually provide a clinical convenience to patients and doctors.

Materials and methods. This study presents a hand bracelet as a measurement unit that acquires data about the hand movements of the patients and healthy participants. The bracelet is developed using a small form-factor microcontroller, that reads real-time data from a special sensor module that contains an accelerometer and a gyroscope and writes its output values to a micro-SD card. This research also proposed a solution for an objective assessment of tremor and bradykinesia in subjects with PD and healthy older adults aged greater than 60 years. Physical movements were recorded by means of the bracelet developed using inertial sensors. Participants performed upper extremities motor activities as adopted by neurologists during the clinical assessment. For discriminating the patients from healthy controls, temporal and spectral features were extracted. Both supervised and unsupervised machine learning classifiers provide good results.

Results. Out of 40 individuals, neural net clustering discriminated 34 individuals in correct classes while KNN approach discriminated 91.7% accurately. In clinical environment the doctor can use the device to comprehend the tremor and bradykinesia ability of patients quickly and with higher accuracy.

Conclusion. The main benefit of this research study is the interpretation of the results connected to a low-cost and easy to use wearable bracelet offering a helpful evaluation of PD stages.

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CURRENT OVERVIEW AND REAPPRAISAL ON ESSAYS TOWARDS SYSTEMATIZING CLINICAL ASSESSMENT INSTRUMENTS USED TO EVALUATE NEURO-FUNCTIONAL DEFICITS AFTER CEREBRAL PALSY INCLUDING THROUGH THE ICF(-DH) CONCEPTUAL FRAMEWORK

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Abstract

Introduction. We herein continue our series of works dedicated to current reappraisals on clinical assessment instruments designated to evaluate functional deficits in the main neurologic/ neurosurgical conditions. The actual one refers to the most frequently used such instruments in cerebral palsy.

Like we have previously asserted the"… WHO (World Health Organization – o. n.)'s modern kind of endeavor matches with another contemporary advanced concept: of 'Evidence-based Medicine', an already renown proceeding for correct and complete/ minute diagnosis and prognosis, and respectively, for consequent, specific therapeutic-rehabilitative, social, occupational – if applicable – decision-making, and consequent appropriate interventions.

Material and method. As in our previous works of this kind, we review the related essays towards systematization through the WHO's new paradigm to approach human functioning: International Classification of Functioning, Disability and Health (ICF-DH) – as it is progressing towards implementation – based on an updated preliminary literature review. This work has the approval (No. 6923/ 27.07.2020) of the Ethics Commission of the National Teaching Centre for Neuro-psycho-motor Rehabilitation in Children "Dr. N. Robanescu".

Results. This approach encompasses:

- a related systematic literature review Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) based methodologically
- some synthetic considerations regarding the actual clinical-epidemiological status of cerebral palsy
- brief emphasizes on basic characteristics of the WHO's ICF(-DH)
- an overview on the clinical assessment instruments used in cerebral palsy and their proposed framing within the ICF(-DH).

Conclusions. General remarks and perspectives in the domain are made, acknowledging the necessity to continuously keeping updated, making reappraisals and selecting to use in practice the most appropriate related evaluation tools – considering both: their international recognition and acceptance and respectively, the specific effective possibilities for their impelmentation.

Key words: *cerebral palsy, systematic literature review, International Classification of Functioning, Disability and Health (ICF-DH), assessment instruments/ measurement scales*

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CLINICAL AND REHABILITATIVE CONSIDERATIONS IN A COMPLEX CASE OF SPASTIC TETRAPLEGIA, MIXED APHASIA, SECONDARY ENCEPHALOPATHY – POST SEVERE TRAUMATIC BRAIN INJURY WITH HEMORRHAGIC AND INSCHEMIC LESIONS – WITH FAVORABLE LATE EVOLUTION AND POST-SYMPTOMTIC STATUS AFTER SARS-COV-2 INFECTION

POSTOIU Ruxandra Luciana[2], MOCANU Elena-Madalina[2], SCHEK Simona[2], LAPADAT Magdalena[2], CHIPARUS Carmen Elena[2], ONOSE Gelu[1,2]

Balneo and PRM Research Journal DOI: http://dx.doi.org/10.12680/balneo.2021.452 Vol.12, No.3 September 2021 p: L83

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Abstract

Introduction. The traumatic brain injury remains a current research topic considering the severity and the increased incidence of this pathology. Both physical and neuro-psychological sequelae require a complex rehabilitation program.

Material and methods. We describe the evolution of a 20-year-old case, victim of a severe traumatic brain injury due to physical aggression, with spastic tetraplegia, extended ischemia in the left cerebral hemisphere, mixed aphasia, post-traumatic encephalopathy, left eyelid ptosis, right paresis of nerve III, post remitted status of left subdural hematoma, post remitted status of right fronto-parietal subarachnoid hemorrhage, severe joint stiffness (right elbow and fist, bilateral hips and knees), cachexia and SARS-COV-2 infection. In our clinic the patient followed medical, complex kinetotherapeutic treatments and was functionally assessed using the following scales: modified Ashworth, Penn Spasm Frequency Scale (Penn), Life Quality Assessment (QOL), Montreal Cognitive Assessment (MoCA), FAC International Scale, Glasgow Outcome Scale-Extended (GOS-E), modified Rankin scale (mRS).

Results. During the hospitalization, the patient presented a favorable late evolution with a great improvement of motor and neurological deficit, aphasia in remision, improvement of eyelid ptosis and joint stiffness, fact also confirmed by the increasing scores from the evaluated scales.

Conclusions. Consequently in traumatic brain injury the proper medication, personalized rehabilitation program, ergotherapy, speech therapy, a great deal of involvement and documentation of current information is required to improve the patient's quality of life.

Keywords: *traumatic brain injury, neuro-rehabilitation program, spastic tetraplegia*

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FEATURES OF COMPLEX THERAPEUTICAL REHABILITATION MANAGEMENT WITH FAVORABLE EVOLUTION IN A PATIENT WITH RIGHT HEMIPLEGIA, MIXED APHASIA AND OPTIC ATROPHY POST SURGICAL REMOVAL OF BENIGN INTRAVENTRICULAR TUMOR (CENTRAL NEUROCYTOMA) – A CASE REPORT

MOCANU Elena-Madalina[2], POSTOIU Ruxandra Luciana[2], SCHEK Simona[2], CHIPARUS Carmen Elena[2], LAPADAT Magdalena[2], ONOSE Gelu[1,2]

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Abstract

Introduction. Central neurocytoma (CN) is a benign brain tumor located intraventricularly and classified as grade II by the World Health Organization in 2000 (classification of tumors of the central nervous system). CN is frequently found in young adults and may increase intracranial pressure causing obstructive hydrocephalus, manifested by neurological symptoms such as headaches and vision problems. CN has a relatively good prognosis, provided a complete surgical resection is performed.

Material and methods. In this presentation, we describe the case of a 21-year-old patient with a personal history of headache, vomiting and decreased visual acuity in both eyes, who was admitted to the Neurosurgery Clinic III of THEBA. Following clinical and paraclinical assessments, the patient was diagnosed with a left lateral ventricular tumor with extension in the right lateral ventricle and the third ventricle. The neurosurgery team decided a total resection of the tumor would be the best approach in this case. The biopsy report revealed that it was a central neurocytoma. After the surgery the patient's neurological status improved and she was admitted in the Neuromuscular Rehabilitation Clinical Division with flaccid right hemiplegia and mixed aphasia. The patient was functionally assessed using the following scales: Functional Independence Measure (FIM), Montreal Cognitive Assessment (MOCA), modified Ashworth, Penn Spasm Frequency Scale (Penn), Life Quality Assessment (QOL), FAC International Scale, Glasgow Outcome Scale-Extended (GOS-E), modified Rankin scale (mRS), Aphasia Screening Test (AST-Whurr).

Results. The patient showed a favorable evolution with remitted aphasia and walking training with self-support in tetrapod walking stick. At the same time, the patient can use the plegic upper limb in performing feeding activities.

Conclusions. It should be noted that neurosurgical intervention and pharmacological treatment, associated with an individual rehabilitation program consisting of: physical, occupational and speech therapies and also rehabilitation nursing interventions in a patient diagnosed with flaccid right hemiplegia and mixed aphasia after total surgical resection of the intraventricular central neurocytoma has improved the control of symptoms and the patient's quality of life.

Keywords: *benign brain tumor, central neurocytoma, hemiplegia, rehabilitation*

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UPPER LIMB REHABILITATION SYSTEM THROUGH sEMG

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Abstract

Introduction. Globally, in 2013, there were 6.5 million deaths due to a stroke, making this disease a second leading cause of death after ischemic heart disease. About 5 million patients remain with varying degrees of permanent disability, 26% of attack survivors need daily care, 30% walk assistance and 26% in need of long-term care. Help to carry out certain daily activities becomes the main need for 30% of stroke survivors. Hemiparesis is the most common consequence, observed in about 60% of cases. In rehabilitating upper limb functions, multiple techniques have been used to improve performance following a stroke, by strengthening the affected limb and using the assistive device.

Material and method. The proposed system is a non-expansive robotic type, following the basic anatomical and physiological characteristics. The basic components of the system are the Arduino type control unit, which takes the signal from the EMG module, an accelerometer and the 5 force sensors located on the robotic arm to analyze the degree of force it will have when it catches an item. As a higher force is applied to the sensor, its electrical resistance increases. These values from the sensors and the EMG module will return a set of values, these being read by the control unit that controls the control part of the servo-motors that determines the movements of the affected hand fingers. Through a continuous exercise it is observed if the patient manages to regain some of the mobility of the limb. (Fig.1).

Results and discussions. After comparing and processing the data, the results indicated that the device has an important role in recovering people with motor dysfunction of the upper limb because it can take over a number of activities that the patient currently performs. Through the EMG mode, it will be possible to analyze the electrical activity of the arm muscle in order to subsequently operate the servo-motors.

Conclusions. The prototype is a complex system that uses a robotic system controlled by means of controlled servo-motors and sensors, recommended for patients who have suffered a stroke and who need rehabilitation. Uses a control architecture for dexterity, gripping and handling of various objects made by hand.

Key words: *hand rehabilitation, pressure sensors, EMG, microcontroller*

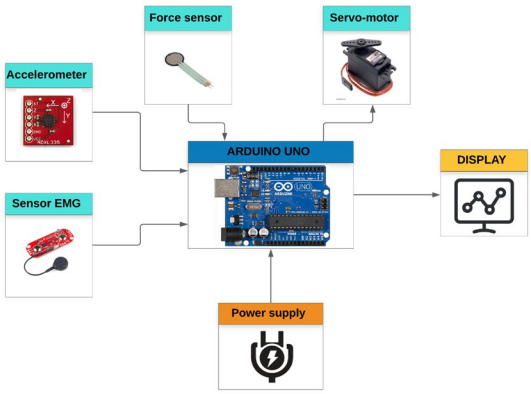

Fig. 1 Device block diagram

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RECOVERY OF HAND FUNCTION IN THE INTERPHALANGEAL JOINT POST-ARTHRODESIS

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Abstract

Introduction. This study aims to highlight the importance of the kinetic recovery program used to regain the functionality of the hand after arthrodesis, at the level of the interphalangeal joint. Also, during the paper, we will present both the techniques used and the methods applied to reduce pain and recover the remaining function.
Material and methods. A patient with open intraarticular AIFP D3.4 joint fractures in the right hand with the bone-operated defect was analyzed. The patient was evaluated functionally postoperatively, during the recovery program and, at the end of it.
Results. During the recovery program could be observed, progress and a good evolution of the hand functionality. The patient followed the kinetic program initially established by the physiotherapist and also, it was possible to observe the increase of the mobility of the joints in the vicinity of the joints affected by the immobilization of the hand. During the recovery program, a decrease in edema was observed at the local level and an increase in the strength of the hand muscles.
Conclusions. The physiotherapy program used to restore the functionality of the hand following arthrodesis at the interphalangeal joints must be preceded by an appropriate evaluation and must include techniques adapted to the patient's abilities. An essential condition for complications and recurrences to be avoided is a good collaboration between patient-physiotherapist-orthopedic surgeons.
Keywords: *hand functionality, recovery, arthrodesis*

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THE ADVANTAGES OF SIMULTANEOUS INFRARED LIGHT THERAPY - PHYSIOTHERAPY EXERCISES IN REHABILITATION OF POST TRAUMATIC HAND

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Abstract

Introduction. Post-traumatic hand rehabilitation is a priority for physiotherapists and medical doctors, due to the complexity of the anatomical structures of the forearm, fist and fingers. The urgent need to use the hand by the patient, stimulates us to find adequate recovery methods that shorten the recovery time. The most common hand injuries are fractures (radius, followed by metacarpal bones and phalanges). Restoring hand function involves increasing the mobility, prehension, opposability of the fingers, and pluri-digital grips and muscle strength. Pain and stiffness in passive and active mobilization is the main impediment, limiting the patient's ability to sustain a fast and effective program of physiotherapy exercises. In classical physiotherapy, protocols do not include simultaneous forms of therapy, which could make it easier to perform the exercises, losing important time. A protocol of simultaneous exercise - infrared therapy has been proposed to improve the post-traumatic hand recovery process.
Material and method. The study was carried out on 4 months' time period in the Piatra Neamt Micromedica Clinic on a group of 34 patients diagnosed with distal epiphyseal fracture of radius, aged 43-62 years. The study aimed to assess the level of pain reduction, as well the increase of the function of the hand, after the sessions of physical therapy. The patients were radiologically confirmed, and they came to the physiotherapy quite quickly after the gypsum was removed. For the evaluation of function goniometry and functional tests were used. For pain assessment the VAS scale was used, and all the measurement methods was made at the beginning and at the end of the physical therapy treatment. Patients underwent a physical therapy treatment complex consisting of TENS, ultrasound, infrared, passive and active exercises, for 15 consecutive days.
Results. The initial evaluation, was followed by another one at the end of the 15-session treatment. The obtained results were analyzed in terms of two indicators: VAS scale for pain intensity and functional tests (prehension, fingers opposability, bi-digital and tri-digital grips and muscle strength). After the completion of the 15 sessions treatment, the group of patients with infrared therapy showed substantial clinical improvements.
Conclusions. Following the analysis of pain and function, we can say that the physical therapy exercises and simultaneous infrared therapy reduced the symptoms and improved the function of the hand.
Key words: *hand rehab, infrared therapy, physiotherapy exercise, simultaneous therapy*

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THE IMPORTANCE OF A MULTIDISCIPLINARY APPROACH TO IMPROVE THE LIFE QUALITY FOR PATIENTS WITH PARKINSON'S DISEASE

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Abstract

Introduction. Parkinson's disease is defined as a complex degenerative neurological disease with progressive evolution, which is part of the motor system of the brain disorders, being the second degenerative disease as a frequency after Alzheimer's disease. It is characterized by tremor when muscles are at rest (rest tremor), increased muscle tone (stiffness), slow voluntary movements and, difficulty maintaining balance (postural instability).
Occupational therapy helps Parkinson's patients improve their ability to perform daily tasks. The intervention consists of assisting patients in developing a self-care routine, taking into account the limitations of functional mobility, encouraging patients to maintain the maximum function of daily activities for as long as possible, learning adaptive techniques to reduce tremors.
Material and methods. Starting from these premises, we thought and made in our occupational therapy laboratory various devices designed to offer patients a variety of techniques and exercises and also a flexible work environment. On a pallet plate, we fixed a series of elements such as zippers, snap buttons, hook-and-eye closure, systems that patients use regularly. We also manufactured a device designed to help patients with household chores such as dishwashing. The device is provided at one end with a washing sponge, its handle being a detergent tank. The size and shape have been adapted to the needs of patients with Parkinson's disease.
Results. The devices used for this purpose are commercially available but they are quite expensive, which is why we wanted to make devices made of material as cheap and affordable as possible. Some of the devices can be successfully made of material that every person has in their home. We also took into account the variant of making them without the need to use complicated tools and devices that are not available to patients.
Conclusions. Using the devices made during the physiotherapy sessions, significant improvements in the life quality for patients with Parkinson's disease were observed.
Keywords: *Parkinson's disease, occupational therapy, devices, ADL*

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RELATIONSHIP BETWEEN PLAGIOCEPHALIS-TORTICOLIS AND POSTURAL CONTROL DISORDER – CASE REPORT

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Abstract

Introduction. Untreated positional deformities of the skull, have important biomechanical and functional consequences, with repercussions on the child's psychomotor and postural development. These deformities are not limited to the aesthetic aspect, the craniofacial dysmorphism is only a visible part of the complex dysfunction that affects the cranio-cervical joint and the anatomical assembly of the skull. Plagiocephaly and torticollis are pathologies generally known for their aesthetic impact, but the impact on psychomotor and postural development on the child is still unknown.

Material and method. For the present case report we selected, systematized and implemented the techniques and methods within an individualized program for this patient pathology, and with the aim is combating the anomalies that appeared with repercussions on the organization and maturation of the postural system. The physiotherapeutic program used was adapted to the patient depending on the severity of craniofacial dysmorphisms, hypertension of the posterior muscle chains, postural compensations, musculoskeletal, occipito-cervical dysfunctions (asymmetry of the occipital condyles). The male patient was 3 months old and was diagnosed with left positional plagiocephaly / right torticollis, benefiting from individualized physiotherapeutic treatment for 7 months at the Kineto Dema Spine Center, Bucharest 3 times a week. The patient obtained a correction of approximately 85% with the help of physiotherapy and correction orthosis worn 23 / 24h.

Conclusions. The patient evolved positively during the 7 months of physiotherapeutic treatment, both aesthetic and motor, but it is necessary to continue physiotherapy until the cranial correction is obtained and the correct organization of the child's body scheme.

Key words: *physiotherapy, plagiocephaly, torticollis, correction orthosis.*

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STUDY REGARDING THE EFFICIENCY OF PHYSIOTHERAPY IN PLANTAR FACIITIS

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Abstract

Introduction. Plantar fasciitis is a relatively common disorder, affecting 1 in 10 people during their lifetime, more common in women and the athletic population, such as runners (8-10% of all runner-specific injuries). It is also the most common cause of heel chronic pain in adults.

Objectives: the selection and systematization of existing information concerning the fasciitis plantar treatment, using using physiotherapy; investigation of the efficiency of a specific intervention in improvement of symptoms including: decreasing pain, increasing the elasticity of posterior myo-fascial chain, improving of the stabilizing muscles strength and improving function for the patients. In this study we have chosen 32 subject, 15 females and 17 males of 27 and 55 years old, diagnosed with plantar fasciitis. The study was conducted during November 2020-April 2021.

Material and method. Visual Analogue Scale and Foot and Ankle Ability Measure applied in dynamic and specific physical therapy techniques chosen, applied and reorganized according to the evolution of the subjects, techniques which focused on reduction of pain, reduction of the tension of cuff muscles, increasing of the extensibility of the posterior myo-fascial chain, increasing of the strength of stabilizing muscles of the ankle and improving the functional activities.

Results obtained showed significant pre/intermediate/post-intervention differences in boath variables: pain level and functional independence.

Conclusions. The application of physiotherapy, as soon as possible after having made the diagnosis, improved the quality of the subjects' life, through the reduction and disappearance of the pain and restarting the functional activities; the individualize of the intervention is realized only based on an accurate examination of the subject.

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THE MEDICAL LEADERSHIP BETWEEN DEFENSIVE MEDICINE AND CASE MANAGER

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Abstract

Introduction. The speed with which the economic, social and medical life of our time unfolds, as well as the new requirements related to performance in any field of activity, determine the companies to adapt their leadership on the fly, so that even companies can get new customers and new markets for products and services. From this point of view, the medical field, whether state or private, is no exception. Whether it is the pharma industry, hospitals and clinics or medical offices, it is ideal to ensure a good health of patients and a constant and increasing financial profit. What is the role of leadership in this approach? What are the basic qualities of successful leaders? What options does the case manager offer to the patient compared to defensive medicine? What are the responsibilities of the medical leader?

Material and method. The presentation differentiates between defensive medicine and case manager, then the leader profile is made, given the difference between boss and leader. Various tools for evaluating management and the ACL leadership model are presented. In the case of medical leadership, the basic qualities of the leader and the rules of success are emphasized.

Results. The case study from Romania presents the profile of the successful leader and how he is perceived, on a sample of 639 people.

Conclusions. Medical leadership is bringing balance between defensive medicine and the case manager, despite the pandemic with Covid-19 and the challenges of today's world related to new technologies. Healthcare providers must have the vision to adapt quickly to the development and digitalization needs of modern society, so as to provide quality services, on time, at reasonable prices for the patient, which will generate confidence in all parties involved in the medical act.

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PERCEPTIONS OF EMPLOYEES IN PRE-UNIVERSITY EDUCATION REGARDING OSTEO-MUSCULAR-ARTICULAR OVERLOAD. IMPLICATIONS IN PREVENTIVE RECOVERY PROGRAMS

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Abstract

Introduction. The onset of osteo-muscular-articular disorders is favoured by overload in the occupational environment. Being frequently diseases with progressive evolution, aggravated by the continuation of occupational exposures, with disabling potential and decreasing quality of life, it requires first of all preventive programs at work.
Material and methods. In 3 school units the following variables were evaluated based on a questionnaire comprising the following:
-employees' perceptions on exposures and overloads at work
- Disabilities of the Arm, Shoulder and Hand (DASH)
- Roland Morris Disability Scale
- self-efficacy scale
-demographic characteristics: position, gender, type of residence, age, seniority in the unit.
Results. In the total group of 86 participants, there are significant differences of some variables according to the function of the employees: Self-efficacy is minimal in drivers and workers and maximum in secretaries, teachers and accountants ($p = 0.03$). The DASH score has the minimum value for secretary, having the maximum value for drivers ($p < 0.001$). Forced positions are least reported by secretaries, teachers, accountants and most recorded by workers ($p < 0.001$). Manual manipulation of the masses is reported by the least accountants, secretaries and at most carers and workers ($p = 0.003$). The significant, positive correlation present in each of the 3 school units is between the Forced Positions and the Manual Handling of the Masses ($p = 0.011$).
Conclusions. The perceptions of the employees in education on the osteo-muscular-articular overload, frequently do not corelate with the chronoprofessiogram. Although the drivers have osteo-muscular-articular overload, they do not report it in the questionnaire. Success in occupational programs for the prevention of diseases of the musculoskeletal system is conditioned primarily by awareness of the practical significance of overloads of the musculoskeletal system by workers. These data show the importance of involvement of the physiotherapist at least at the beginning of occupational program.

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STUDY ON CARDIO-RESPIRATORY ADAPTIVE MECHANISMS FOR PERFORMANCE ATHLETES WITH PHYSICAL DISABILITIES

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Abstract

Introduction. Recently, there has been emphasis on the problems encountered by performance athletes with physical deficiencies of the spine. The aim of the paper is to raise awareness to coaches about the physical problems, especially of the spine in swimming athletes aged 10-12 years and the development of kinetic programs on land in order to correct them.

Material and methods. There is intensive research on the effectiveness of kinetic programs as means of correction, and in this regard, we propose a selection of the most efficient exercises in order to correct deficiencies acquired by swimmers, as well as the modification of the functional parameters of the cardiorespiratory system during their preparation.

Results. As for the estimation of the adaptive possibilities of the cardio-respiratory ability, hence the need to apply a complex of tests in order to assess the athletes' effort ability. For this purpose, We will submit the performance group from the University Sports Club of Suceava whereas the recovery programs will be held in the Complex of Swimming and Kinetotherapy in Suceava.

Conclusions. . In order to point out the need for kinetic correction programs, the coach must work in collaboration with the sports doctor and with the physiotherapist in order to prevent possible deviations from normal somato-functional values.

Keywords: *physical disabilities, swimming athletes, kinetic recovery program*

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CONSIDERATIONS REGARDING THE RELATIONSHIP BETWEEN FITNESS, WELLNESS AND HEALTHY LIFESTYLE

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Abstract

Introduction. Currently, the crises triggered by the pandemic, in the fields of health, freedom of movement, economic, with impact in the social and cultural spheres, bring back today the practical applicability of the concepts of fitness and wellness.

Material and methods. In our study we will refer to the effects of the pandemic on health (everyone's well-being), to see how they accentuated the negative effects of the risks that specialists linked to sedentary lifestyle; increased stress; static anti-physiological positions for prolonged periods of time, which result in cardiovascular disease, metabolic syndrome and even cancer, to which is added an irrational diet. We will also refer to the relationship between the quality of life of people and the need to find the most effective ways to combat the negative effects of risk factors, by overcoming the obstacles posed by the financial situation and cultural patterns both in terms of lifestyle, as well as the eating behavior of people from different backgrounds.

Results and discussions. We are of the opinion that specialists must go in their approaches, from the cultural understanding of man, to find ways to individualize the means of intervention so as to achieve the proposed objectives. The framework could be, for children and adolescents - the reorganization of school physical education, and for young people and adults - leisure activities, in which the emphasis could be falls on the concepts of Fitness and Wellness, with a beneficial effect on quality of life and personal satisfaction.

Conclusions. In this context, we believe that it is necessary to reconsider the need to make the population aware of the formation of a healthy lifestyle. The means could be physical fitness, wellness, rational nutrition and recovery according to the effort made, their benefits can have a major impact on health and prolong life expectancy.

Keywords: *Fitness, Wellness, Health, Physical education, cultural perspectives*

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PATHOPHYSIOLOGY OF DYSLIPIDEMIAS IN INFLAMMATORY RHEUMATIC DISESASES AND CARDIOVASCULAR RISK

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Abstract

Introduction. Cardiovascular diseases, cancer, chronic respiratory diseases and diabetes are the leading causes of death worldwide. Of these, cardiovascular diseases represent approx. 46.2% of all deaths. In the pathogenesis of the main causes of mortality can be found common molecular mechanisms, such as systemic inflammation and oxidative stress.

Discussion. Inflammation play a key role not only in atherogenesis but also in the acute coronary syndromes, stroke or acute peripheral ischemia. It has been shown that the association between subclinical atherosclerosis and active systemic inflammation may increase the risk of atherothrombotic complications and may increase the accuracy of cardiovascular risk determination. Atherosclerosis is considered a chronic inflammatory disease of the arterial wall in which, although under drug treatment the aggressive decrease of LDL-col to values below 50 mg / dl, reduce the inflammatory parameters are obtained, the residual cardiovascular risk is maintained.

Hypercholesterolemia is one of the main factors in proinflammatory transformation of the vascular endothelium.

Conclusions. Both statin and anti-PCSK-9 monoclonal antibodies studies confirm that they are reducing the plasmatic LDL levels, they reduce the inflammatory parameters (ESR, CRP) to a lesser extent - suggesting that VLDL and IDL residues are primarily responsible for inflammatory reaction in atherogenesis. Phenofibrates reduce the lipoproteins rich in TG by modulating PPAR-α factor when administered concomitantly with statins. Statins not only reduce the serum level of LDL-col, but also reduce the adhesion to the endothelium of monocytes and T lymphocytes by increasing the expression of "Krupple-like factor-2". Reducing cell inflammation in the atheroma plaque could stabilize atherosclerotic plaque.

Key words: *Inflammation, ATS, LDL, PPAR-a, Krupple-like factor-2*

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CARDIAC AND HEPATIC SIDE EFFECTS OF LEFLUNOMIDE IN RHEUMATOID ARTHRITIS

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Abstract

Introduction. Rheumatoid arthritis is a chronic inflammatory disease, of unknown etiology and autoimmune pathogenesis, accompanied by joint destruction processes and severe motor disability over time.
The objectives of the study were to identify possible cardiac and hepatic adverse events in Wistar rats with Leflunomide treatment in a model of chronic arthritis carrageenan-induced.
Discussion. The Leflunomide action mechanism is based on blocking the proliferation of lymphocytes by inhibiting dihydro-orotate-dehydrogenase which has a role in the de novo synthesis of the pyrimidine base. They serve as precursors for the synthesis of nucleic acids but also for the biosynthesis of cell membranes. Leflunomide inhibits not only lymphocyte proliferation but also the formation of arachidonic acid derivatives, cytokine production, inhibits TNFα, inhibits COX2, both in vivo and in vitro. Leflunomide it is rapidly and almost completely metabolized in its active form A771726 in the intestine and liver. The bioavailability of Leflunomide in humans has not been studied.
Conclusions. Liver damage was extremely intense (lipid dystrophy, apoptosis, inflammatory infiltrate in the portal spaces). For the first time in the literature, I have discovered and highlighted the toxic effect of Leflunomide on the heart (necrotic myocardial fibers - Lie + coloration).
Key words: *Rheumatoid arthritis, liver, hart, Leflunomide*

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REHABILITATION AFTER SEVERE NEUROLOGICAL COMPLICATIONS POST SARS-COV2 INFECTION

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Abstract

Introduction. Medical rehabilitation is a multi-professional / interdisciplinary process aimed at enhancing and restoring functional ability (activity and participation) and quality of life to people with impairments or disabilities. Rehabilitation is applied throughout the continuum of care. COVID-19 patients may develop a myriad of acute medical problems (linked to the virus per se, or as consequences of the invasive procedures), which can cause acute, post-acute and long-term consequences requiring rehabilitation. Information about short and long-term sequelae of COVID-19 indicate an increasing need for rehabilitation. The paper is focused on two main aspects: rehabilitation of the severe neurological disabilities that occurred during the acute phase and continuing in the chronic phase (i.e., different neuro-logical sensory-motor and cognitive deficits secondary to stroke, encephalitis, seizures, en-cephalopathies). The other main issue is generated by the disruption of regular rehabilitation in people with neu-rological disabilities and chronic diseases (people living with sequels after stroke, Parkinson's disease, multiple sclerosis) due to quarantine, social isolation, movement restriction, and other disruptions of the healthcare systems.
Method. Internet literature search (Lit Covid and PubMed) using the following keywords (Covid-19, Coronavirus, neurological complications, rehabilitation).
During 2020-2021 were published 88 papers (in 2020 = 54, and in 2021= 54), with 21 reviews (2020 = 15; 2021 = 8), and 2 systematic reviews, referring to neurorehabilitation in Covid-19 subacute and long-term cases.
Discussion. REH-COVER Cochrane Rehabilitation WHO initiative (Rapid Living Systematic Reviews Sec-ond Edition, 2020), contains the main cornerstones for a tailored rehabilitation program, the best (current) available rehabilitation evidence on recovery interventions, for the patients living with sequelae of COVID-19.
Conclusions. More than one and a half years since the outbreak of the COVID-19 pandemic, it is obvious that rehabilitation services play a crucial role in post-COVID recovery trajectories. A further achievement of research and evidence focussed on the clinical management, comprehensive treatments, and efficacy need to be targeted on short and long-term (neuro)-rehabilitation ser-vice models of care, for COVID-19 survivors.

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CASE REPORT AND RELATED COMMNENTS IN A RELATIVELY YOUNG MALE PATIENT WITH HEMIPLEGIA AFTER LEFT THALAMO-MESENCEPHALIC HEMORRHAGE AND A CONSEQUENT PARINAUD SYNDROME – INTERDISCIPLINARY THERAPEUTIC- REHABILITATIVE APPROACH

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Abstract

Introduction. Thalamo- mesencephalic hemorrhage is a devastating event, with a increased morbidity and mortality rate. Parinaud's syndrome, also known as the dorsal midbrain syndrome, is characterized by a supranuclear vertical gaze disturbing resulting from an insult to the mesencephalic tectum.

Material and method. We report the case of a 45-year-old man with personal antecedents of arterial hypertension, obesity and type 2 Diabetes mellitus, who was first admitted in the Neurology Clinic Division of the Teaching Emergency Hospital Bucharest with a sudden onset of complete right hemiplegia, mixed aphasia and right peripheral – type facial palsy on 17.04.2021, being diagnosed – following complex paraclinical investigations with a left thalamo-mesencephalic hemorrhage.

Results and discussions. The patient followed a neuro-muscular rehabilitation program in our Neuro-Rehabilitation Clinic Division with favorable outcomes, the case representing a real challenge regarding the complexity of the factors involved.

Conclusions. The clinical outcomes and the quality of life of patients suffering from thalamic-mesencephalic hemorrhage depend both on the prompt diagnosis and the efficient treatment, followed by an appropriate rehabilitation program.

Keywords: *neuro- rehabilitation, thalamo-mesencephalic hemorrhage, Parinaud syndrome*

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CHALLENGES IN THE REHABILITATION OF COVID POSITIVE NEUROLOGICAL PATIENTS

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Abstract

Introduction. The COVID-19 pandemic has had a profound impact on the accessibility and quality of medical care, in addition to its psychological repercussions on both patients and medical personnel.

Material and method. Neurorehabilitation comprises a wide and varied approach including electrotherapy, massage therapy and physical therapy, as well as pharmacological treatment. The COVID-19 pandemic has made rehabilitation of neurological patients challenging for several reasons:

1. The use of telemedicine has greatly increased, in some situations completely replacing outpatient care. It ensures the safety of both patients and medical staff; however, this option severely limits the extent of the therapy per se, because it requires physical contact between patient and caregiver.

2. Hospitalized, COVID positive neurological patients requiring rehabilitation therapy are even more difficult to treat due to numerous factors, including the following:

o Personal protective equipment (PPE) prevents medical staff from freely interacting with patients (this is especially an issue in the case of massage therapy)

o Electrotherapy equipment is not applicable in covid red zone

o Physical therapy may be restricted by patients' dependence on oxygen and further limitations may arise from the specific neurological issues and level of consciousness of the patient.

Conclusions. Studies have shown that bedridden patients may benefit greatly from physical therapy, especially early mobilization, which prevents excessive muscular hypotrophy and improves post-hospitalization quality of life. Therefore, despite the previously mentioned limitations, neurorehabilitation in the form of bedside physical therapy could still help preserve muscle strength and functionality in stroke patients hospitalized for COVID-19 infection.

The physical and emotional impact which the COVID-19 pandemic has had on both patients and medical staff is impossible to quantify. It is important to study the associated shortcomings pertaining to healthcare, in order to establish alternative procedures to accommodate similar situations more effectively in the future.

Keywords: *COVID-19, COVID positive neurological patients, physical therapy*

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CLINICAL PARTICULARITIES REGARDING REHABILITATION TREATMENT OF A YOUNG PATIENT WITH RIGHT PONTINE ISCHEMIC STROKE, RESULTING IN DYSARTHRIA AND LEFT SIDE BRACHIAL AND CRURAL HEMIPARESIS, AND QUITE RECENT COVID-19 HISTORY

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Abstract

Introduction. Cerebrovascular attacks are one of the leading causes of mortality and morbidity in the world. The most severe are considered to be pontine strokes, because of the high risk of vital functions impairment. The clinical presentation of a pontine stroke can vary from the classical crossed syndrome (ipsilateral cranial nerve palsy and contralateral motor and/or sensory impairment) to pure motor hemiplegia or pure sensory stroke, which are less common.

Material and method. This presentation describes the case of a 39-year-old patient with a recent history of untreated SARS-COV 2 infection that was followed in the next month by a sudden onset of facial paralysis, dysarthria and a progressive left hemiplegia. The patient's functional status was assessed in our Neuromuscular Clinical Division and he underwent a rehabilitation program consisting of physical, occupational and speech therapies. Multidisciplinary efforts were made in order to find the underlying cause of the pontine ischemic stroke.

Results. The patient had a personal history of cardiovascular disease risk factors (essential hypertension and hyperlipidaemia), without other pathological brain imagining outcomes and normal bleeding tests. The suspicion of an interatrial communication was raised. The patient managed to rapidly maintain the standing posture and to practice walking with unilateral support. At discharge, the facial paralysis and dysarthria were almost completely remitted. The left brachial extremity also showed signs of improvement, as the patient was able to perform flexion and extension movements of the fingers, wrist and forearm.

Conclusions. To conclude, the patient's evolution was favourable, although the certain cause of the underlying stroke has not been clarified. The neurological complications of COVID-19 include ischemic strokes, and cases were reported in young adults too. If this were the case, prevention of further cerebrovascular attacks and their complications is necessary. Caution in terms of medium/long-term prophylactic anticoagulant therapy and careful control of associated cardiovascular disease risk factors has been proposed and discussed in the multidisciplinary team: rehabilitation physician, neurologist, cardiologist.

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COMPLEX DIAGNOSTIC AND THERAPEUTIC APPROACH IN A CASE OF A GIANT SECRETORY MENINGIOMA LOCATED IN THE PONTOCEREBELLAR ANGLE (OPERATED (SUBTOTAL ABLATION) AND MULTIPLE LOCAL AND GENERAL COMPLICATIONS

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Abstract

Introduction. The paper represent a complex clinical case in terms of severity, the complications that have been encountered and therapeutic-recovery management. It presents the evolution of a patient diagnosed with ataxic syndrome, cerebellar syndrome and peripheral facial paralysis, all on the right side, as well as with dysarthria, locomotor deficit and moderate self-care - all post giant right pontocerebellar angle tumor, operated (subtotal ablation), and respectively Covid 19 with consecutive pulmonary status.

Materials and methods. A 53-year-old patient, with multiple hospitalizations in our clinic for the reasons stated above (including swallowing disorders - remitted prior to the last hospitalization), was evaluated clinically-functionally, according to standardized protocols implemented in our clinic through afferent scales / grids and paraclinical evaluation (imaging and laboratory analysis). The particularities of the case reside both in the difficulties of prognostic anticipation considering the persistence of a tumor remnant, respectively the need to monitor the lesional aspects (right upper lobe pseudotumor formation (LSD) highlighted at the pulmonary level, possibly unrelated to the aspect of viral pneumonia), and the overall good reactivity of the patient to SARS CoV2 infection: although with the mentioned biopathological stigmatizations, the form of Covid developed by the patient was average, not requiring Intensive Care.

Results. The patient received complex neuromuscular recovery treatment, including restorative care, covering somatic, motor dysfunctions and communication disorders. The evolution was slowly favorable, the recovery process being hampered by the multiple local and general complications that occurred along the way.

Conclusions. This clinical case of neuromuscular recovery is an exhaustive example that highlights the complex multidisciplinary clinical approach, but also the unusual features highlighted during its evolution.

Key words: *ataxia, cerebellar syndrome, peripheral facial paralysis, dysarthria, COVID 19*

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FAVORABLE OUTCOMES WITHIN A COMPREHENSIVE THERAPEUTIC REHABILITATIVE PROGRAM IN A COMPLEX CASE OF SEVERE POLYTRAUMA – CASE REPORT

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Abstract

Introduction. A ppolytrauma patient after a car accident represents a challenge for the health care system due to the multiple traumatic injuries, at least one of them potentially being life threatening. The musculoskeletal injuries are common in this pathological context and the flail chest represents a severe condition with high risk of mortality and morbidity. Many of these injuries require intense nursing and rehabilitation treatment, because some of them can cause permanent disability, affecting the patient's future quality of life.

Material and method. With the permission of the THEBA Ethics Committee, this paper presents a case of a 37-year-old patient with a severe polytrauma due to a car accident (driver), occurred on October 18, 2020. The patient was hospitalized in the Intensive Care Unit of the Emergency County Hospital of Targoviste, in a severe condition, being orotracheal intubated and having a thoracic polytrauma (multiple bilateral costal fractures, anterior-superior flail chest with acute respiratory failure) and mandible fracture. After clinical and hemodynamic stabilization, he was transferred to Bucharest Emergency University Hospital and after specific paraclinical investigations, he was surgically treated for thoracic fixation with metal plates, sternal fixation with plate and screws, thoraco-abdominal skin grafting and mandibular stabilization. Afterwards he was transferred to THEBA at the Plastic Surgery Clinic Department for lumbar-sacral pressure sore, where he suffered multiple surgical interventions. In our Neuromuscular Rehabilitation Department, the patient was admitted in 16.02.2021 with pain and severe functional impairments in the right elbow and the right knee, surgically treated sacral pressure sore still in the process of being healed and having a severe deficiency of self-care and locomotion. He initially followed a rehabilitation nursing program and continued with a recovery therapy according to clinical stages. The patient was functionally assessed using the following scales: Medical Research Council (MRC) Scale for Muscle Strength, Functional Independence Measure (FIM), Life Quality Assessment (QOL), FAC International Scale, Independence Assessment Scale in Daily Activities (ADL/IADL).

Results. Although the patient's evolution was slow, he had favourable outcomes with an increase in the scores of the evaluated scales at discharge. He benefited from a specific surgical care of the pressure sores and a complex neuro-muscular rehabilitative program. The patient's final performance in our clinic was walking on medium distances with support from another person.

Conclusions. The multidisciplinary team approach with the addition of complex nursing measures and a personalized rehabilitative program for a young patient with polytrauma caused by a car accident established neuro-locomotor improvements which led to an increase in patient's quality of life.

Key words: *neuro-muscular rehabilitation, polytrauma*

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EFFECTIVENESS OF THE MULTI- / INTERDISCIPLINARY THERAPEUTIC NEUROREHABILITATION PROGRAM IN ELDERLY PATIENTS WITH INCOMPLETE MYELORADICULAR INJURIES AFTER CERVICAL SPINAL CORD INJURY

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Abstract

Introduction. Nowadays elderly persons may be frequent victims of traumatic cervical spinal cord injury (CSCI).
Material and method. A retrospective study (January 2019-March 2021) we conducted with the approval of the Ethics Commission of THEBA, to assess the results of the complex medical rehabilitation program during the subacute period. A selected group of 28 elderly tetraplegic paients [7 women (25%) and 21 (75%) men] with traumatic CSCI, were admitted to the THEBA Neuromuscular Rehabilitation Clinic with incomplete (AIS-B, -C, -D) myeloradicular injuries. The female patients had an average age of 71.42 years, 5 of them coming from rural areas and 2 from urban areas. The male patients had an average age of 69.11 years, 10 of them living in rural areas, and 11 in urban areas.
Results. The spine lesion location was at the C2 vertebral level (3 women and 4 men), C3 (1 woman and 4 men), C4 (1 woman and 6 men), C5 (1 woman and 5 men); C6 (a woman); C7 (2 men). The patients' neurological levels of injuries were: C2 (3 women and 4 men), C3 (1 woman and 4 men), C4 (1 woman and 6 men), C5 (1 woman and 5 men), C6 (1 woman) and C7 (2 men). The AIS / Frankel degree at admission, was: complete lesion (AIS-A), in 1 women, incomplete lesion AIS-B (in 2 male), AIS-C (for 2 women and 10 men), AIS-D (for 4 women and 9 men). The average muscle strength at admission was 62.71 (SD 23.32) for women patients and 59.44 (SD 26.89) for male patients; and at discharge these averages were 70.5 (SD 21.23) for women and 69.22 (SD 27.06) for men. In the study group there were 19 operated patients (3 women and 16 men); in which the anterior osteosynthesis was performed (for 3 women patients and 10 male patients) and respectively posterior vertebral approach (in 6 male patients). The neurological evolution was favorable, so that at discharge there were only patients with incomplete lesions AIS-C (1 women and 11 men) and AIS-D (6 women and 10 men). The following comorbidities were associated: obesity (2 men), arterial hypertension (7 women and 11 men), diabetes (2 women and 4 men), traumatic brain injury (7 men), chronic alcoholism (2 men), pneumonia (1 woman and 6 men), neoplastic diseases (2 men), osteoporosis (1 woman and 1 man), anemia (1 woman and 1 man), glaucoma (1 woman), depression (1 woman), Lyme disease (1 woman), ischemic heart disease (3 women and 1 man), gastric ulcer in one man and ankylosing spondylitis (2 men). Complications of the immobilization syndrome were enterocolitis (2 men), bronchopneumonia (6 male patients), urinary tract infections (6 women patients and 12 male patients) and bedsores (1 male patient).
Discussion. Effectiveness of the final therapeutic approach was assessed by evaluating (in percentage) the progress of the muscle strength (quantified and compared at discharge vs. admission) reported to the number of days of treatment. Statistics was performed for small groups (Anova and Pearson) to establish the effectiveness of the rehabilitation program, evaluating the level of correlation between the scores quantified with the aforementioned scales. An inversely proportional relationship was found between spasticity and kinetic therapy efficacy (F 0.000, Pearson -0.09), between the PENN scale scores and kinetic therapy efficacy (F 0.000, Pearson -0.24) and a directly proportional relationship between the scores assessing quality of life, FIM and the efficacy of kinetic therapy (F 0.02, Pearson 0.42).
Conclusions. These results underline the importance of a multi-interdisciplinary team approach in the management of elderly tetraplegic patients after CSCI during the subacute post-lesional/ post-operative stage.

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NEUROMUSCULAR REHABILITATION INTERVENTIONS AND COVID-19 MANAGEMENT IN A CASE OF INCOMPLETE PARAPLEGIA AND NEUROGENIC BLADDER POST T3-T5 EPENDYMOMA – CASE REPORT

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Abstract

Introduction. Spinal ependymomas are a group of mostly slow-growing tumors that can cause non-traumatic spinal cord injuries with insidious clinical symptomatology ranging from neck or back pain to associated sensory-motor impairment. Due to their neurological and systemic frailty, patients with spinal cord injuries might be especially vulnerable to the effects of SARS-CoV-2 infection and the resulting respiratory impairment.

Case Presentation. We present the case of a 66 year old women admitted in our Neuromuscular Clinical Division for severe incomplete paraplegia and neurogenic bladder, due to a thoracic myxopapillary ependymoma that was surgically removed by gross tumor resection. During the neurorehabilitation program the patient was diagnosed with COVID-19 and the radiological findings confirmed a moderate illness. The neuromuscular rehabilitation interventions were associated with conservative respiratory rehabilitation techniques, together with pharmacological treatments and oxygen therapy.

Results. The patient had a non-severe COVID-19 evolution followed by a favorable neurological rehabilitation, consisting of walking abilities on short distances with support in walking frame and from the physical therapist.

Conclusions. The prophylactic anticoagulation therapy could have been one of the important advantages that the patient and the medical team had against COVID-19, in addition to the prompt diagnosis and complex treatment allowed by hospital care, including respiratory rehabilitation. The restrictive respiratory impairment caused by the loss of innervation to the abdominal muscles, diaphragm and/or intercostal muscles might be worsened by other SARS-CoV-2 lung sequelae. Thus, the respiratory disorders and also associated dysfunctional neurogenic bladder may worsen the patient's long-term prognosis.

Keywords: *spinal myxopapillary ependymoma, non-traumatic spinal cord injury, SARS-CoV-2 infection/ COVID-19, pneumonia, neuromuscular rehabilitation, respiratory rehabilitation, prophylactic anticoagulation therapy.*

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EFFECTIVENESS OF THE MULTI- / INTERDISCIPLINARY NEUROREHABILITATION PROGRAM IN YOUNG PATIENTS WITH INCOMPLETE MYELORADICULAR INJURIES AFTER CERVICAL SPINAL CORD INJURY

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Abstract

Introduction. Nowadays young persons may be frequent victims of traumatic cervical spinal cord injury (CSCI).
Material and methods. A retrospective study (January 2019-March 2021) we conducted with the approval of the Ethics Commission of THEBA, to assess the results of the complex medical rehabilitation program during the subacute period. A selected group of 23 young tetraplegic patients with traumatic CSCI, were admitted to the THEBA Neuromuscular Rehabilitation Clinic with incomplete (AIS-B, -C, -D) myeloradicular injuries. All patients were males, aged between 19 and 57 years (with a mean of 44.35 years, SD 12.9). Patients came from urban areas 11 (48%) and the remaining 12 (52%) from rural areas.
Results. The spine lesion location was located at C2 vertebral level (4 men), C3 (4 men), C4 (3 men), C5 (6 men); C6 (in 2 patients); C7 (in 2 men); T6 and T7 in 1 patient each. The patients' neurological levels of injury were: C1 (in 2 patients), C2 (in 2 patients), C3 (in 4 patients), C5 (in 7 patients), C6 (in 4 patients) and C7 (in 2 patients). The AIS/ Frankel degree at admission was: incomplete lesion AIS-B 3 patients, AIS-C 11 patients, AIS-D 9 men. The average muscle strength at admission was 60.72 (SD 25.74). In the study group 20 patients were operated: anterior osteosynthesis was performed in 16 patients and posterior vertebral approach in 4 patients. The neurological evolution was favorable: at discharge there were only patients with incomplete AIS-C (8 men), respectively AIS-D (15 men) grade type of lesions, and their average muscle strength at discharge was 71.97 (SD 22.30). The following comorbidities were associated: arterial hypertension (in 2 patients), traumatic brain injury (in 14 patients), alcoholism (in 9 patients), pneumonia (in 6 patients), neoplastic disorders (in 1 patient), gastric ulcer (in 2 patients), depression (in 2 patients). Complications of the immobilization syndrome were: enterocolitis (in 3 men), bronchopneumonia (in 3 patients), urinary tract infections (in 13 patients) and bedsores (in 2 patients).
Discussion. Effectiveness of the final therapeutic approach was assessed (in percentage) by evaluating the progress of the muscle strength (quantified and compared at discharge vs. admission) reported to the number of days of treatment. The external-internal variations of the numeric scores of the quality of life, FIM, Ashworth and Penn were evaluated. Statistics was performed for small groups (Anova and Pearson) to establish the effectiveness of the rehabilitation program, evaluating the level of correlation between the scores quantified with the aforementioned the scales. An inversely proportional relationship was found between spasticity and efficacy of physical therapy (F 0.000, Pearson -0.35), between the scores of Penn scale and the effectiveness of physical therapy (F test 0.000, Pearson -0.18), respectively directly proportional relationship between the kinetic therapy and FIM (F test 0.000, Pearson 0.74), similar to the relationship between physical therapy and the scores assessing the quality of life (F test 0.01, Pearson 0.02).
Conclusions. These results underline the importance of a multi-interdisciplinary team approach in the management of the tetraplegic patients after CSCI during the subacute post-lesional/ post-operative stage.

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THE RESULTS OF COMPLEX REHABILITATION ON AN INCOMPLETE SCI PATIENT - A CASE REPORT

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Abstract

Introduction. Spinal Cord Injury (SCI) is a common diagnosis, which appears into the rehabilitation clinics more frequently every year. The evolution of neurosurgical practices make more stable SCI patients and a larger addressability to the rehabilitation wards.

Case presentation. This paper presents the case of a 37-year-old female patient that suffered an incomplete SCI by falling of a wagon in September 2016. She undergo neurosurgery with metallic osteosynthesis at the T12 vertebra. The first admitting into the neuro-rehabilitation compartment of the rehabilitation clinic from the Clinical Regional Emergency Hospital Ilfov was in January 2020. The patient came with anesthesia of both feet, reduced muscle strength and urinary and bowel incontinence. The pattern of walking was altered, the lack of feeling in the lower limbs made the footstep without the plantar extension, thus having deformed toes and blisters throughout the skin of the feet. The patient also had a sacral right bedsore infected with Staphylococcus aureus, which was treated with antibiotic and specific plasters. The patient receive rehabilitation procedures in both admittances containing sacral to feet TENS treatment and kinesiotherapy, the final result being the improvement in walking, more control of continence by exercising the abdominal muscles and regain of feeling of light touch on the feet. Sadly, after the two hospitalizations, the pandemic came and the hospital turned into COVID support and the patient could not be admitted until present time. Follow-up on the patient showed that the bedsore gotten worst, larger and plastic surgery was necessary. The patient is up for another rehabilitation admission in late September 2021.

Conclusions. Rehabilitation on this patient was extremely benefic, improving her general state, but discontinuity on the rehabilitation process and other medical evaluations because of the pandemic resulted in aggravated complications.

Keywords: *Spinal cord injury, bedsore, skin anesthesia, neurological rehabilitation*

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ASYMPTOMATIC FORM OF COVID-19 IN A PATIENT WITH AIS/FRANKEL A PARAPLEGIA AFTER TRAUMATIC SPINAL CORD INJURY COMPLICATED WITH A RECENT OPERATED PRETROCHANTERIC 4TH GRADE PRESSURE SORE

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Abstract

Introduction. COVID-19 significantly affects the patients with multiple comorbidities (e.g., neurological disorders, multiple surgical interventions, weakened immune system, ICU admission, anemia, previous thoracic concussion). Studies have shown that some people with certain disabilities are more likely to get COVID-19 and have worse outcomes and the risk of severe COVID-19 increases with the number of underlying medical conditions in an individual. In the case of our patient with AIS/Frankel (A) paraplegia at the T7 level who is repeatedly operated for the associated complications, 4th grade pressure sores, the infection with COVID-19 was expected to be highly challenging.

Material and methods. This paper presents a case of a 32-year-old patient with AIS/Frankel (A) paraplegia after a spinal cord injury (13.11.2017) complicated with multiple pressure sores. The patient is hospitalized for a 4th grade pretrochanteric pressure sore which was initially treated surgically on 14.08.2020, but relapsed. The patient was successfully treated despite cardio-vascular complications (severe anemia, sinus tachycardia, underweight) on 09.02.2021. The evolution was favorable for a short period of time and 43 days later (24.03.2021) the pressure sore showed minimal regression and needed minimal intervention. Finally, at discharge the lesion was almost healed. After the first surgery the patient received a prophylactic dose of anticoagulant for preventing events of deep venous thrombosis, and he continued receiving it for the whole period of the hospitalization. In these conditions, on 30.03.2021, the patient is confirmed with COVID-19, after being RT-PCR tested with nasopharyngeal swab probe, and the CT scan does not identify any pulmonary involvement. After testing positive the patient was transferred to the COVID-19 Unit and continued the specific care and the rehabilitation program there, while also undergoing COVID-19 specific treatment. The patient was dynamically evaluated during the hospitalization using the following scales: QoL, modified Ashworth, international FAC, ADL, IADL, SCIM, MRC, AIS, FIM.

Results. The patient benefited from a complex rehabilitation program, having a favorable evolution with an improving score of the evaluating scales and maintaining his cardio-vascular parameters in normal range across his hospitalization. The CT scan is normal and is classified as a mild disease. The patient was discharged COVID-19 free as given by the RT-PCR test.

Discussion. The patient was undergoing anticoagulation treatment when he contracted SARS-CoV-2, a treatment that he continued to receive throughout his COVID-19 infection. It is possible that this treatment contributed to maintaining his COVID-19 infection asymptomatic. For approximately two months after surgery the patient benefited from a complex program of rehabilitation and as a result he was well fitted and in a good shape.

Conclusions. In spite of all the comorbidities that the patient had, he developed an asymptomatic form of COVID-19.

Keywords: *COVID-19, asymptomatic, paraplegia, pressure sore, anticoagulants*

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SUCCESSFUL REHABILITATION PROGRAM AFTER AIS/FRANKEL C PARAPLEGIA THROUGH A RECENTLY OPERATED LUMBAR DISC HERNIA

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Abstract

Introduction. Intervertebral disc herniation is the pathological process by which fragments of the nucleus pulposus tear the fibers of the annulus fibrosus and come into contact with the root of the spinal nerve (1). The most significant functional damage generated by the lumbar disc herniation is paraplegia and can be ameliorated by an early and staged specific rehabilitation program.

Material and methods. This paper presents the case of a 56-year-old patient who was admitted to the Neurosurgery Clinic (NCH) III of SCUBA for low back pain and motor deficit, AIS Frankel C paraplegia. The left lower limb was more affected than the right one. It occurred following a thoraco-lumbar medullary compression and a paramedian lumbar disc herniation L3. The patient was treated surgically. Subsequently, the patient was transferred to the Neuro-Muscular Recovery Clinic of SCUBA for the specific rehabilitation treatment, with indication for mobilization. He was dynamically evaluated using the following scales: quality of life assessment (QOL), modified Ashworth scale, FAC International scale, Independence assessment scale in daily activities (ADL / IADL), spinal cord independence measure (SCIM), evaluation of muscle strength on MRC scale, evaluation of AIS.

Results. The patient benefited from a complex program of neuro-muscular rehabilitation, having a favorable evolution with an improving score of the evaluating scales and finally gaining his gait balance, including ascending and descending stairs (instrumentally assisted for left plantar dorsiflexion movement with orthosis walking). At discharge the patient's neurological deficit was reclassified as AIS/Frankel D paraplegia, with the neurogenic bladder and bowel having been remitted.

Discussion. The disc herniation at L3 level generated a cauda equina syndrome, which initially generated a paraplegia. When the inflammation remitted it became clear that the left L4 root was affected, with a complete deficit of plantar dorsiflexion. In conclusion it was not a case of spinal cord syndrome (as the spinal cord ends at L2 level) or conus medullaris syndrome.

Conclusions. The interdisciplinary therapeutic approach together with a specific, customized rehabilitation program for a patient with AIS/Frankel C paraplegia after a surgically treated disc hernia is successfully improving the neuromuscular deficit and upgrading the patient's quality of life.

Keywords: *paraplegia, disc hernia, low back pain*

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THE INTERRELATIONS BETWEEN THE COGNITIVE PERFORMANCE AND MOBILITY IN ELDERLY PATIENTS

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Abstract

Introduction: An evidence-based general consensus agrees there is a positive impact of physical exercises within a balanced lifestyle on the cognitive function in aging persons. Research showed that both cardiovascular and metabolic function are improved by physical activity, which further enhance the formation of neural network, increase brain neurotrophins and could lead to better synaptic plasticity and neurogenesis, and reduced oxidative stress.

Material and Methods: Researchers use different instruments to assess mobility and also cognitive function. A recent literature review was performed using some relevant keywords: mobility, cognitive function, dementia, elderly. The focus of the literature search was both on gathering data on the relationship between cognitive performance and mobility in elderly as well as on identifying the measurements and instruments used in evaluation, trying to pinpoint the most accurate, precise but also easy-to-use approaches for clinical practice.

Results and Discussion: Our database search identified in PubMed 285 relevant articles published only in the last 10 years, approaching the topic of mobility in relation to cognitive function in the elderly from different perspectives. Data from longitudinal cohort studies support the hypothesis of the reduced or delayed age-related cognitive decline in elderly persons engaging in some type of physical activity- whether it involves aerobic (cardio-) training or resistance training (focus on muscle strength). The positive impact was recognized across different clinical populations: in MCI (Mild Cognitive Impairment), some dementia types (vascular, Alzheimer) and demonstrated effects like improved cerebral flow, increased volumes of the cortex and hippocampal area. The LIFE study [2019] is one of the research initiatives that confirmed also the direct role of cognitive function in the development of mobility disabilities in geriatric patients, showing that a positive change in processing speed was significantly associated with the lower risk of evolving to a major mobility disability in community- dwelling older patients having an impaired physical function. There is evidence of a dose- response pattern of the association between cognitive function and mobility, and that lower extremity impairment is more significantly influencing the global cognition. Our literature overview showed that different parameters may be used for mobility performance assessment, some of the easier applicable in geriatric healthcare clinical setting are: validated questionnaire- type instruments (like The Quick Physical Activity Rating- QPAR- scale), physical activity tests (mini Physical Performance Test- mPPT- includes the following tasks: pick-up-penny, 50-ft usual-pace walking test, 5 complete chair-raises, and the progressive Romberg balance-test, each ranging from 0 to 4, with 4 indicating highest level of performance) or evaluations (major mobility disability- MMD- defined as the inability to walk 400 m without assistance in under 15 min; quality of turning, quantified by mean turn duration, mean peak speed of turning, and mean number of steps to complete a turn).

Conclusion: Recent literature review provide supportive evidence on the complex interrelation between cognitive function and mobility in elderly. There seems to be a vicious circle in which decline in physical capacity triggers pathological changes in the brain, determining an increase of the mobility deficiency and so on. For an efficient intervention, screening elderly patients using brief, simple, validated tools for early symptoms of cognitive impairment and dysfunctions in mobility is essential.

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THERAPEUTIC RESOURCES IN VERTEBRO-MEDULLARY TRAUMA - CASE PRESENTATION

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Abstract

Introduction. TVM represents the traumas of the spine that result in spinal cord injury that can totally or partially compromise its functions (motor, sensory, vegetative, reflex). In this paper, we aim to follow the evolution in the recovery of a 10-year-old patient, victim of a car accident (August 2019), followed by a severe polytrauma - rupture of the mesentery and descending colon and vertebro-spinal cord injury, type Frankel B (incomplete). The main objectives in the recovery of the patient after TVM are represented by: management of sphincter disorders, progressive mobilization in bed / sitting position / orthostatism using crutches and orthoses, prophylaxis and treatment of medical complications, strengthening the mechanisms of compensation of functional deficit to which are added psychosocial objectives: social reintegration and maximum possible development of school and occupational skills.

Material and method. In the paper, we analyzed the clinical and paraclinical aspects, the therapeutic modalities and the evolution of the patient with thoracic TVM after a road accident.

Conclusions. Patient Recovery Program P.I., it is complex, requiring interdisciplinary cooperation between several specialists: rehabilitation doctor, neurosurgeon, orthopedist, neurologist, urologist, psychotherapist, physiotherapist, occupational therapist and others. Rehabilitation procedures performed during the 2 years since the accident and until now, have led to an improvement of sphincter control, sitting posture, transfer and independent handling of the wheelchair.

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The recovery treatment for geriatric patients with osteoporosis during a pandemic

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Abstract

Introduction: Osteoarticular degenerative disease it is one of the most important health issues nowadays. For an aging population, osteoporosis represents a problem that needs to be addressed as fast as possible and needs to be diagnosed as such. It appears that over 70% of the persons that are past 65 years of age suffer from osteoporosis and if there is a lack of treatment or the patient is unaware of the importance of a recovery treatment this will lead to irreversible consequences. In a study that was published in IJTR it was demonstrated that 50% of the patients interviewed were unaware of the importance of a recovery treatment for osteoporosis and the consequences that will result from the lack of it. This is a problem that needs to be addressed as soon as possible since recording to the literature osteoporosis is implicated in over 8.9 million fragility fractures worldwide. This numbers can drastically worsen in a pandemic. Being sedentary and physically inactive during a lockdown will only make the situation worse especially for the geriatric patient that is already more susceptible to infections than the average person.

Methods: A patient was confirmed with osteoporosis in June 2019. She was not made aware of the importance of a recovery treatment and because of the lockdown that followed her situation worsen. January 2021 she was hospitalised in the orthopaedics and traumatology ward with limited motor functions in her right knee for which was necessary arthroplasty with total knee replacement.

Conclusion: The fact that it was so easy to confirm a study published in IJTR that showed over 50% of people diagnosed with osteoporosis are unaware of the gravity of not following the recovery treatment should make us look for a solution sooner rather than later. Especially for the geriatric patient the interdisciplinary team should work hand in hand to come up with the best treatment options. And because of the Covid pandemic and the lockdown we have to be prepared to deal with a geriatric patient that suffers from osteoporosis. A lifestyle that is sedentary and doesn't include daily physical activities because of restrictions is not an option for this type of patient.

Key words: osteoporosis, pandemic, recovery

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REHABILITATION TASKS IN POSTTRAUMATIC ELDERLY PATIENTS

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Abstract

Introduction. Balance control declines with age and impaired balance is a major risk factor for falls among older adults. Aim of the study: to demonstrate the importance of balance training along with local functional restoration in older adults with upper limbs trauma (fractures and joints dislocations) in order to decrease the risk of falls.
Material and Methods. The subjects, n=14, functional independent and active female hospital out-patients, aged between 65 and 80 years, referred to rehabilitation department for functional restoration after upper limb trauma. Patients clinical exam consisted of: actual complaints including dizziness, medical history including concurrent illnesses and medication in use, musculoskeletal system examination, starting with posture assessment, than joint range of motion (ROM) and flexibility tests, muscular strength and endurance test – 'Chair stand test', static and dynamic balance tests: 'Tandem standing test' and 'Up and go test'.
Results. Former falls in 6 patients (42,85%). Type of trauma: radius distal fracture in 9 patients (64,28%) and shoulder trauma in 5 patients (35,72%). Postural misalignment in all patients. Severe joint dysfunction at the trauma site. We identified spine and lower limbs dysfunctions as well as pectoralis, quadratus lumborum, psoas, hamstring muscle contractures in most of the patients. Quadriceps strength below average in all patients. Balance tests altered in 9 patients (64,28%).
Conclusions. 1. After fall, the fear of another fall is present in all patients and along with postural misalignment, limited ROM, low postural muscles strength, and altered balance sense, in the study population the risk of another fall is present.
2.The rehabilitation tasks are dual: functional restauration at the trauma site without any delay in posture and balance training.
Key words: *elderly patients, fracture, balance training*

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THE IMPORTANCE OF BALNEO-PHYSICAL-KINETIC TREATMENT IN THE RECOVERY OF PARKINSON'S DISEASE

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Abstract

Introduction. Parkinson's disease is a chronic, progressive neurodegenerative disease with incompletely elucidated etiology and a significant negative impact on the quality of life of patients and their relatives. The characteristic pathological element is the loss of dopaminergic neurons from the substantia nigra. Parkinson's syndrome is dominated by three major symptoms - tremor of rest, muscle stiffness and akinesia. Forms of predominantly tremorigenic disease are described, with more benign evolution and predominantly rigid-acinetic forms, with rapidly disabling evolution.

Material and Methods. Presentation of the clinical evolution of a 67-year-old patient, non-smoker, former construction engineer, without significant heredocolateral history, known for Parkinson's Disease with the onset of symptoms in 2016, who was admitted to our unit for mechanical pain in the cervical spine -dorso-lumbar, myalgias in the thighs and distal paresthesias in the lower limbs. The patient, known with multiple comorbidities - Type II diabetes mellitus with diabetic neuropathy, post-stroke sequelae, Paroxysmal atrial fibrillation, Essential hypertension, Ischemic heart disease, Operated cervical neoplasm and radiotherapy was evaluated clinically, paraclinically and psychologically for st marked with which he presented at the hospitalization.

The particularity of the case consists in the weak response to antidopaminergic medication, the presence of choreic movements, which are maintained in clinostatism, orthostatism and gait and improve for a short time, about an hour in the presence of antiparkinsonian treatment, administered in small doses, split several doses. The differential diagnosis of Parkinson's disease is made with progressive supranuclear palsy, multisystem atrophy, dementia with Lewy bodies, Huntington's disease, Parkinson's syndromes caused by inflammatory, vascular, traumatic, tumor, drug, toxic etiologies. The prescribed therapeutic scheme aims at the proposed objectives for recovery and consists of hydrokinetic therapy, sedative massage, lymphatic drainage, low frequency and high frequency currents, physical therapy, Walker View, Nirvana.

Results. The benefits obtained by the recovery treatment were observed at discharge, they consist in the improvement of pain symptoms, postural instability, increased coordination and balance, muscle strength, improved gait and mental state.

Conclusions. The goals of recovery treatment were achieved, with significant improvements in the patient's health. Continuous multidisciplinary collaboration between the family doctor, the doctor of physical and rehabilitation medicine, the neurologist, cardiologist, and patient compliance are essential to delay the evolution of the disease, improve symptoms and increase quality of life. This team also includes the patient's family with a role in physical and psycho-emotional support.

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ALTERNATIVE AND INTEGRATIVE APPROACHES FOR THE TREATMENT OF PAIN IN THE ELDERLY

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Abstract

Introduction. Quality of life means no pain. Often the pain is difficult and subjective to evaluate, in this paper we try a non-invasive treatment solution that does not raise issues of medical ethics.
The purpose of the research. Comparative study of the use of synthesis analgesics, anti-inflammatory drugs and alternative non-pharmacological methods in the treatment of chronic muscle and joint pain in people over 70 years.
Material and Methods. Clinical trials were performed on a number of 350 patients that underwent treatment in Călimănești-Cozia outpatient clinic between May 2020 and November 2020.
All patients also had comorbidities:
• Diabetes - 80 cases
• HTA - 75 cases
• Chronic digestive disorders that have been exacerbated by the use of analgesic and anti-inflammatory drugs - 195 cases
Only medication for diabetes and hypertension was retained. The following physiological indicators were also evaluated both at the beginning of treatment, during treatment and at the end of treatment:
• Changes in heart rate
• Blood pressure
• Temperature
• Respiratory rhythm
Treatment:
• Sulfur baths in the bathtub or pool
• Physical analgesic therapy
• Massage and active methods of physical therapy
Results. 285 patients reported significant relief of pain and increased joint mobility. Mild pain persisted in 65 patients and they were prescribed diclofenac 150mg for a maximum 7 days.
Conclusions. 1.The methods of natural medicine are experiencing a new renaissance
2.The presence of a specialist is mandatory especially in patients with associated conditions, the unscientific or abusive use of alternative methods for pain therapy can have harmful effects.

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BEWARE THE "PANDEMIC" BURST OF CYBER-CROOKS, PREDATORY AND / OR HIJACKED JOURNALS - CASE SERIES (PERSONAL EXPERIENCE)

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Abstract

Background. The subject of predatory scholarly open-access journals is familiar to health librarians since 2012 and has become a global scale fraudulent type of "business". The phenomenon of cyber-thieves compromises the reputation of legitimate, prestigious jour-nals, by illegally using their "brands" (ISSN, fake websites, fake email address) and engenders damage for the scholars' academic prestige and budget (of time, work, and money). This case series shares personal experience, related to ethical and legal issues and recurrent fraud, linked to cyber crooks` maneuvers to lure young/ novice scientists.

Case 1. The first case is focussed on recurrent cyber-attacks and electronic scams (occurred in august 2020 and March 2021), fraudulently using fake email requests for papers, claiming to be from a prestigious ISI Thompson journal, INTERCIENCIA (ISSN 0378-1844). In-depth inves-tigations detected a previous fraudulent attack in 2014. Directly contacted, the legitimate journal has confirmed the author's suspicions, and the afore-mentioned publication promptly and fairly denounced the fraud internationally.

Case 2. refers to a "classical" fraudulent recurrent maneuver from unscrupulous people pre-tending to represent WULFENIA (ISSN: 1561-882X), a prestigious biological Austrian publica-tion. Unsolicited emails were received in March and May 2021, to publish in the aforemen-tioned journal (one of the first highjacked journals in history). A rapid internet search revealed some profound issues: Wulfenia journal has not a website, does not publish online, publishes only biology science articles, not all science and/or engineering, and it is published only as hard copy (indexed and validated by Thomson Reuters). Case closed!

Case 3. Is the simplest one. The paradigm was identical: an unsolicited mail inviting for sub-missions of original research papers from the prestigious journal STUDIES IN SYMBOLIC INTERACTION (ISSN 0163-2396). The counterfeit website was less elaborated, unsecured, and easily differentiated from the original website of the Emerald Publishing Group.

Case 4. This case is more difficult and has deeper implications. In 2016 the main author was less experienced and he was invited to publish a paper (DOI: 10.21767/2171-6625.1000102) in the JOURNAL OF NEUROLOGY AND NEUROSCIENCE (ISSN: 2171-6625), "an internation-al circulating peer-reviewed Open Access journal presenting original research contributions and scientific advances in the field of Neurology and Neuroscience (Journal Impact Factor: 1.45*, 1.21 (5 Years Impact Factor)". The journal was not included in Beall`s list, and at that time Cla-rivate Master Jornal List was not available. The main issue about this paper (cited in 2017) is that predatory journals are infiltrating leading scholarly citation databases, including Scopus, inflating academic scholar metrics.

Discussion. Scammers` manipulation algorithm aimed to lure less experienced scientists is unmasked. Electronic scammers create fake websites that mimic a genuine, real journal (usually indexed ISI Thompson, so compulsatory for academic promotion). Unsolicited emails request "exceptional manuscripts" from "eminent authors" offering the op-portunity of a rapid publication, for quite moderate publication fees (usually under 500 UDS).

Conclusions. The academic community must be aware of the cyber-jacking fraudulent tentative, and the predatory entities (predatory publishers and hijacked journals, or predatory "conferences"). Scholars should recognize and avoid them, to limit academic detriment, wasted money, and ef-fort invested in research. Educating and mentoring junior researchers to recognize and avoid pseudo-journals/ deceptive publishers, by including this topic in the study curricula, represent the main prophylactic measures.

Keywords: *ethical issues, predatory journals, hijacked journals, cyber-crooks, electronic scam*

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NEUROLOGICAL COMPLICATIONS AND NEUROPSYCHIATRIC MANIFESTATIONS IN COVID-19 INFECTION –CHALLENGES FOR SPECIALISTS AND GENERAL PRACTITIONERS

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Abstract

Background. Since 2019 Sars-Cov-2 has become pandemic, spreading in over 200 countries.
The extrapulmonary manifestations and complications of infection with the virtue of SARS-Cov2 are: neurological, cardiological, gastrointestinal, ophthalmological, dermatological, re-nal.
The typical neurological manifestations for the initial/ mild phases, respectively the advanced phases are summarized in fig 1.
Aim of the study. The paper summarises the important neurological manifestations and complications of COVID-19 in previously healthy persons and discusses the relevance of these findings from the per-spective of neurological and rehabilitation multi-/interdisciplinary teams.
Methods. Internet literature search (Lit Covid and PubMed) using the following keywords (Covid-19, Coronavirus, pandemic, neurological manifestations., complications, neurology). Most papers /reports were from China, the USA, Italy France, UK.
Type of studies: initially were published mainly isolated case reports then case series, or retro-spective request. Later on: narrative reviews, systematic reviews, prospective studies, and meta-analysis. (fig 2). In 2019-2021 were found 2,997 results, 357 review studies, and 98 system-atic reviews. Neurological manifestations/ complications associated with SARS -Cov-2 infections are dicho-tomically divided into central nervous systems determinations (dizziness, headache, acute stroke /hemorrhagic or ischemic, impaired consciousness, acute hemorrhagic necrotizing en-cephalopathy, encephalopathy, encephalitis, epileptic seizures, ataxia transverse myelitis). Pe-ripheral nervous systems viral complications are represented by hypo-/ anosmia, hypo-/ ageu-sia, neuralgia (neuropathic pain), Guillain Barre syndrome, rhabdomyolysis (skeletal muscle injuries, myalgias). Some of the pathological issues were frequently encountered during the initial/ mild clinical form of infection, others were typical for the advanced phases of the disease,
Discussion. Neurological involvement in Covid-19 is not uncommon and can induce serious complications, even with lethal outcomes. Neurological determinations can be the debut form of the viral infection, preceding the pulmo-nary symptoms, or might be the only symptom in Covid ill patients.
Complications are mainly associated with the most severe clinical form of the disease. The importance of the subject: to raise awareness for professional staff in Neuro-rehabilitation clinics on the possible severe/ lethal complications of the viral infection, in the context of a possible future 4th wave of pandemic rebound, with the new different (alpha-beta, ... ?) viral mutations, possibly more aggressively and contagious, with possible different clinical manifes-tations and unknown potential to overcome the natural immune walls, created by the vaccines. Each general practitioner and each professional in the rehabilitation staff must actively con-tribute to raise awareness and educate the general public with correct and reliable information, and contribute to the acceleration rate of vaccination of the general population.
Conclusions. Neurological involvement is precocious, common, and might be a severe manifestation of SARS-Cov-2 (and variants) infection. Early identifications of neurological and neuropsychic complications represent a challenge for specialists and general practitioners, and it contributes to avoiding important disabling sequels.
Keywords: *Covid-19, Coronavirus, pandemic, neurological manifestations, complications, general practi-tioner*

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CHRONOBIOLOGICAL ASPECTS OF STROKE OCCURRENCE AND PROGNOSIS

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Abstract

Stroke occurrence is not randomly distributed over time but has circadian and seasonal variation. This specific temporal pattern is valid for all subtypes of cerebral infarction, intracerebral hemorrhage and subarachnoid hemorrhage, probably depending on the temporal variation of some exogenous as well as with endogenous factors.

Correlated data from research field and clinical practice suggests that the underlying mechanism is based on the function of the internal clock and moreover on its desynchronization which may influence the neuronal susceptibility to injury, may increase the risk of stroke occurrence and may impact the prognosis in neurorehabilitation.

Keywords: *internal clock; chronobiology of stroke; functional outcome*

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COMPLEX MULTIDISCIPLINARY REHABILITATION IN A CASE OF SEVERE BURNS DUE TO ELECTRICAL TRAUMA

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Abstract

Introduction. Rehabilitation is an essential component in the management of patients with burns and should be commenced on the day of injury is sustained. In other words, edema control, wounds healing, respiratory care, positioning, functional movements which are pertinent in burn cases must begin without delay. The process of rehabilitation requires efforts from a multidisciplinary team of health professionals who specialize in burn care.

Materials and methods. Having the patient's consent and The Teaching Emergency Hospital "Bagdasar-Arseni" Ethics Committee, the current paper presents the case of a 48-year-old female who suffered 55% total body surface area burns due to electrical trauma . The burns were treated in a Hospital in Germany and then she was admitted in the Plastic Surgery Clinic Division of Emergency Hospital "Bagdasar-Arseni" to continue the treatment. After the skin grafting procedure in several parts of lower limbs, the patient followed a rehabilitation program in our Neuro-rehabilitation Clinic Division associating severe alteration in self-care abilities and sever locomotor dysfunction.

Results and discussion. The rehabilitation program improved slowly the patient's muscle strength, determined locomotor improvements with an increase in patient's quality of life.

Conclusions. Treatment goals and strategies vary, depending on the patient's injury, stage of treatment, age, and comorbidities. Management of a patient with a severe burn injury is a long-term process that addresses the local burn wound as well as the systemic, psychologic, and social consequences of the injury. It is necessary the existence of the multidisciplinary team to ensure optimal outcomes.

Keywords: *complex rehabilitation, post-traumatic burns, multidisciplinary team*

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OCCUPATIONAL RETRAINING IN PACIENTS POST SARS-COV-2 INFECTION

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Abstract

Introduction. There is a growing population of active individuals needing to recover after SARS-CoV-2 infection in order to return to professional and occupational tasks.

Aim of the study: proper rehabilitation interventions to help active people to recover after post-acute sequelae of SARS-CoV-2 infection (fatigue, musculoskeletal pain, anxiety and depression mainly).

Materials. We conducted an observational study including 18 actives, employed subjects, aged 35-60 years, referred to rehabilitation department for musculoskeletal pain and dysfunction which interfere with the capacity to perform occupational tasks and to return to active work. Patients' examination consisted of: actual complains, illness history including disease evolution and possible SARS-CoV-2 infection sequelae, concurrent illnesses, anthropometric measures (body weight and body weight changes during disease, body posture) joint range of motion and flexibility, muscle contraction and tender points, self-administered questionnaires for anxiety, fatigue, depression and sleep. Rehabilitation techniques consisted of: massage (relaxation and myofascial release techniques), electrotherapy, relaxation techniques and exercises adapted after effort tolerance.

Results. The rehabilitation program improved slowly the patient's muscle strength, determined locomotor improvements with an increase in patient's quality of life.

Conclusions. Back pain was present in all patients, neck and low back pain mainly, comorbidities in 7 patients (33,88%), spine misalignment in 16 patients (88,88%), protective posture with thoracic kyphosis and rounded shoulders, muscle contracture in neck muscles, upper trapezius, pectoralis, lumbar muscles, severe locomotor dysfunction in 2 patients (11,11%), falls in 3 patients (16,66%) sleep disturbances, fatigue, anxiety and depression signs in most of the patients. By rehabilitation treatment a better sleep, lower level of fatigue, better exercises tolerance was obtained, 8 patients (44.44%) being able to return to work.

Keywords: *SARS-CoV-2 infection sequelae, fatigue, pain, work*

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A POSSIBLE VIEW ON THE FUTURE OF REHABILITATION MEDICINE

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Abstract

Rehabilitation medicine is a continuously growing specialty in the medical field. Since medicine evolved and patients with disability started surviving, there was a need for a medical specialty that could help them reintegrate in daily activity. From those times until the present, rehabilitation medicine developed on many fields of medical pathology. Currently in Romania, rehabilitation medicine in general is more sought after orthopedic conditions and surgical orthopedic interventions, arthrosis degenerative and inflammatory diseases and neurological and neurosurgical pathology. In addition, the important domain of rehabilitation medicine, the balneology is sought after the curing effects of the healing waters in digestive, urological and gynecological diseases. In addition, mud therapy is sought after in skin conditions, in addition to the afore mentioned pathologies, salt mines are effective in respiratory conditions and mofets are used for cardio-vascular afflictions. The more recent medical fields in which rehabilitation specialists started to implicate themselves in more implicitly especially in the large cities are cardio-vascular rehabilitation, respiratory rehabilitation and plastic surgery rehabilitation. Respiratory rehabilitation started to grow more after the sequela of the high number of COVID 19 cured patients. The possible future if rehabilitation medicine can be inspired from the occident idea, especially in the large cities, which is a large emergency multidisciplinary hospital surrounded by many smaller rehabilitation compartments. The general idea is no matter wat the pathology of the patient is, after discharge from the specialty clinic, the patients need to be admitted in the rehabilitation specific wards outside the hospital. Every surgical intervention, prolonged bedrest, internal conditions, urological ailments and general pain can be treated by means of professionals in rehabilitation medicine. Thus, we can avoid a multitude of complications that can occur because patients did not have the necessary rehabilitation period.

Keywords: *Rehabilitation medicine, balneology, future of rehabilitation*

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REPETITIVE PERIPHERAL MAGNETIC STIMULATION VERSUS CONVENTIONAL THERAPY IN UPPER LIMB MOBILITY RECOVERY IN THE PATIENT WITH HEMIPARESIS

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Abstract

Objectives. Our aim was to highlight the role of repetitive peripheral magnetic stimulation rPMS in the recovery of the grip, in the sequential muscular application of the upper limb.

Material and method. We evaluated a group of 56 patients with ischemic and hemorrhagic stroke divided into two groups. The study group-A (33 patients) received rPMS on the extensor muscles of the upper limb, longitudinal galvanization of the upper limb, massage, physiotherapy adapted to each patient. Group B (23 patients) received conventional treatment consisting in Galvanization, Rectangular Current Simulation - Russian Stimulation, Massage, Adapted Physical Therapy. Functional evaluation consisted of the evaluation of spasticity by the Ashworth scale, ADL score and ARAT (Action Research Arm Test) score. All patients received appropriate drug treatment and no patients were included in spasticity therapy with botulin toxin type A. All patients included in the study were at least 3 months after the onset of stroke and at most one year.

Results. Patients receiving rPMS treatment scored better, reducing spasticity and increasing upper limb mobility by 23.4%.

Conclusions. rPMS is a therapy already established in medical rehabilitation, which proves useful in several applications, including in the recovery of fine hand movement, more useful if it is applied recently after the onset of motor deficit and sustained over time.

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PAIN GENERATORS AND OUTCOMES IN PATIENTS WITH LUMBAR DISCECTOMY

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Abstract

Introduction. Disc herniation and low back pain are common causes of disability. Lumbar discectomy is one of treatment options, usually associated with good results although for some patients, it is still difficult to overcome pain. The aim of our study was to reveal the general trends in outcomes for persons that underwent lumbar discectomy and to investigate other factors that generate pain.

Material and method. 26 patients with disc herniation were investigated using VAS (visual analog scale) and straight leg test (degree), and a special study questionnaire that included relevant clinical data, presence of particular pain patterns (including pain characteristic of pain, screening for myofascial, piriform, sacroiliac syndrome and comorbidities, and other factors) before at 3rd and 6th days after surgery.

Results. We observed a general positive trend in pain evolution as mean VAS was 7,17 before surgery; 3,18 points at 3rd; and 2,46 at the 6th days after surgery; along with an increase of angle for positive straight leg test from 33,08 before surgery and 42,5 at the 6th day. Association with sacroiliac dysfunction was revealed in 23 % and myofascial syndrome was present in 19 % of cases, while piriformis syndrome was less common in 12 % of cases. The group of patients with comorbidities and longer term of pain also revealed more negative trends in outcomes.

Conclusions. Patients with lumbar discectomy present a positive trend in outcomes after surgery, but studies investigating different pain generators could bring more insights.

Key words: *low back pain, pain generators, lumbar discectomy*

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ISSUES OF THE REHABILITATIVE MANAGEMENT IN PATIENTS WITH CHRONIC, PRE-EXISTING NEUROLOGIC CONDITIONS, DURING COVID-19 ERA

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Abstract

Coronavirus SARS-CoV2 has emerged as one of the greatest infectious disease health challenges in a century.Rehabilitation of persons with neurological sequelae is a multi-professional/ interdisciplinary endeavor, tailored to each patient`s physiopathology and applied throughout the continuum of care. Recovery of acquired pre-pandemic neurological disabilities has raised several main issues during the Covid era. Pre-existing general pathologic conditions (frequently found in the elderly and/ or in candidates for admission to rehabilitation) represent risk factors that make individuals susceptible to worse outcomes from COVID-19 (a more aggressive course and higher mortality rate). A history of cardiovascular disease, including stroke, appeared to induce a worse prognosis in patients infected with SARS-CoV-2. The pre-existing chronic neurologic disease may worsen the prognosis of COVID-19. Patients with baseline cardiac or respiratory dysfunction, those with severe neuromuscular weakness, and those with bulbar weakness due to other debilitating neurologic diseases (amyotrophic lateral sclerosis, multiple sclerosis) are likely to have a more severe course and also may not return to their prior disability baseline.

An increased risk of COVID-19 and higher mortality have been suggested for patients with dementia and also those with active epilepsy. Management of patients with chronic neurologic conditions was significantly impaired during the Covid era. Social/physical distancing and self-quarantine, respectively the severe restriction of the number of beds allocated for rehabilitation (to the detriment of COVID specific pathology), significantly lowered the rate of admission to the rehabilitation departments, which was focused on (preferentially reserved for) acute neurological and/or cardio-respiratory problems. Patients with neurologic disorders were also at a higher risk/rate for readmission after hospitalization for COVID-19 infection. Traditionally, the neurological diagnostic and treatment approach has been face-to-face. However, to protect both patients and healthcare professionals, alternative means of care were implemented during Covid-era. Based on the available IT Apps, telerehabilitation was a useful method to continue the specialized rehabilitative treatment and social interaction. Post-stroke or TBI disabilities (mainly cognitive or logopedic issues), Parkinson's disease patients (with mild and medium severity forms) were successfully supervised with IT methods. Telerehabilitation has its pros and cons issues. Alternative treatments should be considered for patients who develop COVID-19 while taking immunosuppressive therapy. Disease-modifying treatment in multiple sclerosis and myasthenia gravis imposed special precautions. Infection represents a trigger factor for myasthenic crisis (although this emergency has not been reported to be particularly prevalent in patients with COVID-19). Immunoglobulin therapy, complement inhibitor therapy, and plasma exchange are not expected to increase the risk of COVID-19, but such kinds of treatments are not appropriate in all patients. Patients with baseline disabling neurologic disease and those on immunosuppressive therapy must be particularly vigilant about infection control measures, such as social distancing, mask-wearing, and vaccination. The benefits of vaccination to prevent the morbidity and mortality associated with SARS-Cov2 infection greatly outweigh the risk of vaccine-induced thrombotic thrombocytopenia (VITT), because the risk of thromboembolism from COVID-19 infection appears to be higher than the risk of VITT.

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ADVANTAGES OF INTRODUCING TAI CHI AS AN ADJUVANT METHOD IN THE MEDICAL REHABILITATION TREATMENT PLAN

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Abstract

Tai Chi is based on the principles of traditional Chinese medicine, Taoist internal alchemy and martial arts. Thus was created a true art of the movement for health, harmony, knowledge, called Taijiquan (Tai Chi Chuan). The movements in Tai Chi are slow, continuous, supple, like a dance whose message speaks of strength and relaxation, in a unique rhythm, the rhythm of full harmony between yin and yang (the 2 forms of energy in Eastern philosophy). Also, these slow movements are not isometric exercises that overload the heart, the cardiac effort being moderate and numerous medical studies demonstrate the advantages of using this method, therapeutically and as a way to prevent certain diseases. Thus, the practice of Tai Chi corrects posture, maintains joint mobility, maintains and corrects balance, delays bone demineralization, improves cognitive function, trains respiratory muscles, stimulates immunity, lowers BP, improves the status of diabetics and can be used in stress management.

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THE MELATONIN PROGRAM, SO THAT THE VITALITY IS MAINTAINED

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Abstract

Introduction. The year 2020 was marked by the pandemic with the SARS CoV-2 virus, which generated a global state of panic, being amplified by the messages broadcast by the media. Opinion polls and medical research have confirmed that during this period, the level of anxiety, stress and depression has increased in the general population, and in the case of people who already had these clinical manifestations, they have become worrying. One of the essential sanogenic factors that can provide the psycho-emotional balance necessary for people's mental health, is quality sleep. Among the many benefits of sleep that I will address in this presentation, is the natural secretion of melatonin. The "Melatonin program to maintain vitality" can also be implemented in medical clinics or hotels with specific neuromotor recovery. What are the necessary conditions for a quality sleep? What is the role of diet in the natural production of melatonin? What are the beneficial effects of melatonin on the health of the human body?

Materials and methods. The presentation brings scientific arguments based on medical research that attests to the fact that melatonin secretion is the key to health and longevity, being influenced by age, bedtime, the presence of light in the bedroom, consumption of foods rich in tryptophan, a precursor to serotonin.

Results. The scientific experiments are confirmed by medical journals, being exemplified by the sleep program of the champions and the recipe of the academics.

Conclusions. Quality sleep has the role of a natural medicine, if we know how to administer it. The recommended diet stimulates the production of melatonin. The human body can benefit from the effects of melatonin, if the sleep revolution will set in the life of each of us, with the help of an effort of will.

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HYPERSPECTRAL IMAGING IN HYPERBARIC OXYGEN THERAPY

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Abstract

Introduction. Hyperbaric oxygen therapy is a medical treatment that uses high concentrations of pure oxygen, at pressures exceeding 2 ATA (absolute technical atmosphere) for therapeutic purposes. The effects induced by this therapeutical modality at tissular levels are usually monitored using various methods, such as: transcutaneous oximetry, thermal imaging, planimetry or magnetic resonance imaging. However, new non-invasive methods with real-time applications are still required for a more accurate evaluation of its effects. In this study, the potential of an emerging medical hyperspectral imaging method to assess the effects of hyperbaric oxygen therapy on femoral head necrosis was evaluated.

Materials and methods. A 35-year-old female patient diagnosed with femoral head necrosis was included in this preliminary study. The patient received hyperbaric oxygen therapy inside a hyperbaric chamber at an oxygen pressure of 2.4 absolute atmospheres for 90 min, in three stages of 30 min each, separated by two breaks of 5 min breathing ambient air. A pushbroom hyperspectral imaging system was used to acquire the hyperspectral images of the foot before and after hyperbaric oxygen treatment. An algorithm based on the modified Beer-Lambert law and the Levenberg-Marquardt nonlinear least squares analysis method was used to generate, from the hyperspectral data, the distribution maps of oxyhemoglobin and deoxyhemoglobin concentrations, total hemoglobin and oxygen saturation across the investigated area that allow an easier and faster interpretation of the immediate effects of hyperbaric oxygen therapy.

Results. The results demonstrated the ability of hyperspectral imaging combined with an appropriate data analysis method to highlight the immediate effects of hyperbaric oxygen therapy. Increases in mean oxyhemoglobin concentration, total oxyhemoglobin, and oxygen saturation levels were recorded in the investigated area, while local deoxyhemoglobin levels decreased after tissue exposure to hyperbaric oxygen therapy, probably due to hyperoxic vasoconstriction.

Conclusions. In conclusion, hyperspectral imaging has proven to be a valuable tool for monitoring clinical evolution in various vascular diseases and could support physicians in making the right treatment decisions.

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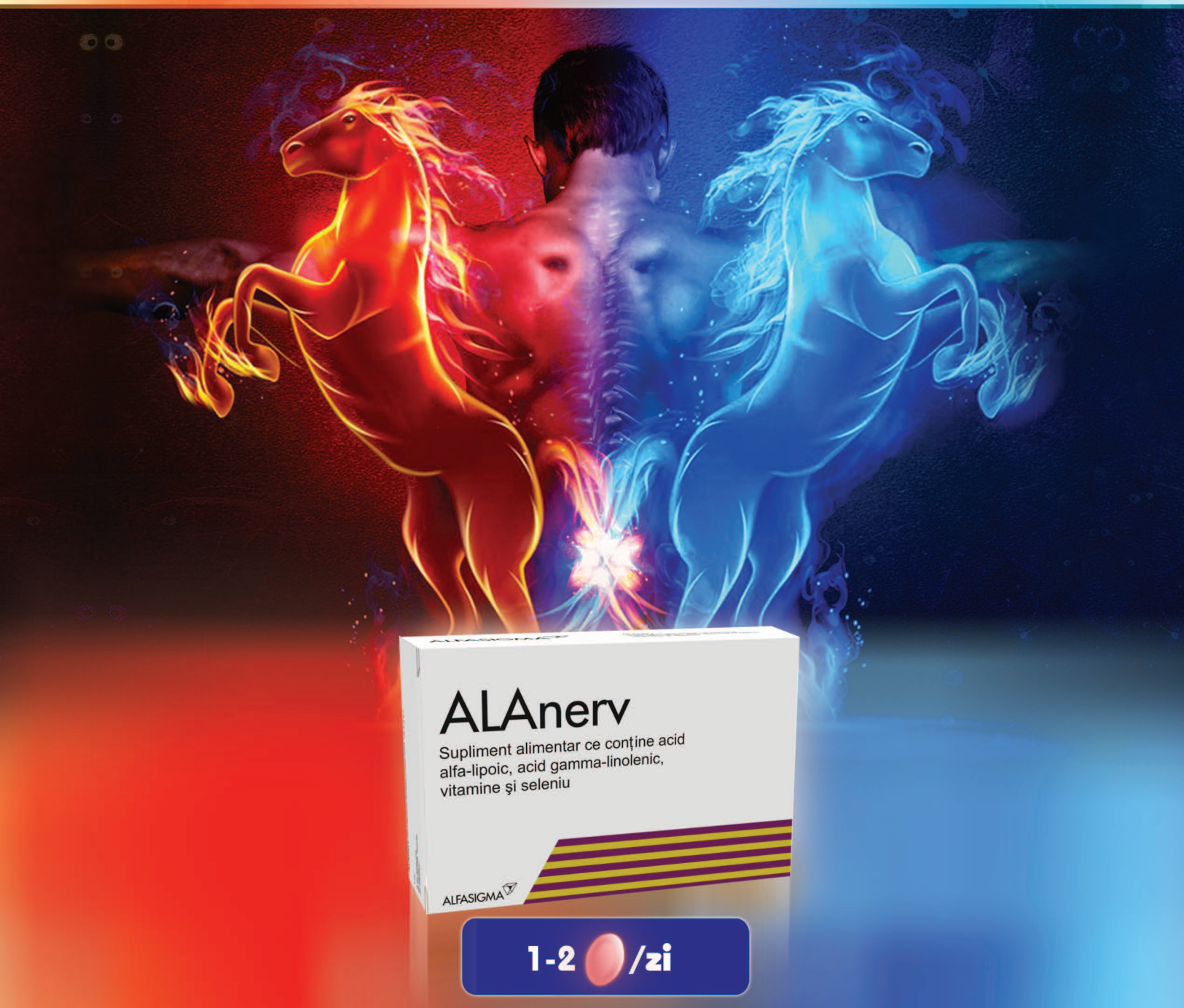

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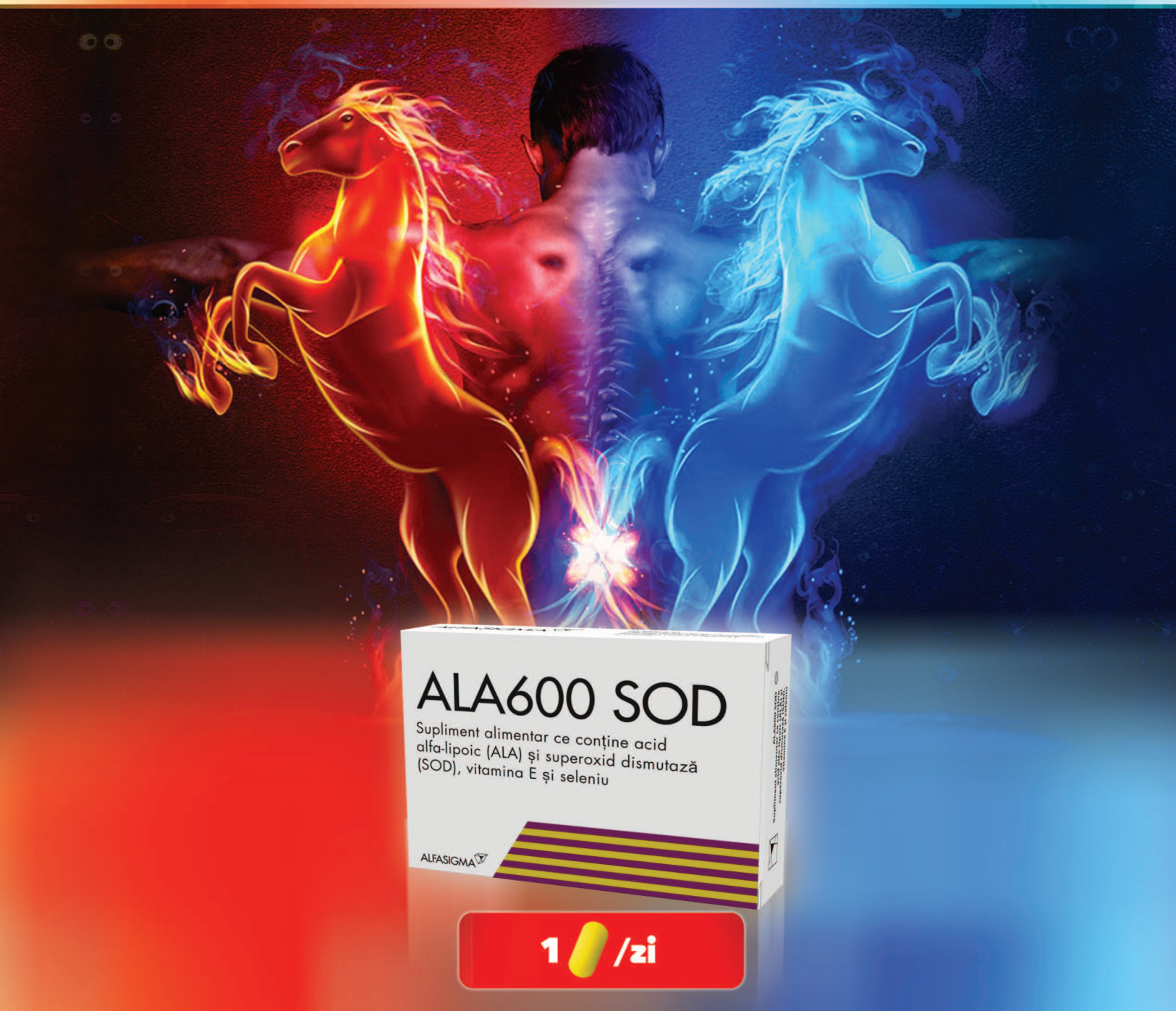

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1. Dysport Rezumatul Caracteristicilor Produsului, Octombrie 2019, Ipsen Pharma România.

DYS-RO-000205 / August 2021

PENTRU PACIENȚII CARE TRĂIESC CU SPASTICITATE CARE ESTE TRATATĂ CU TOXINĂ BOTULINICĂ TIP A

ATUNCI CÂND BENEFICIILE TRATAMENTULUI DISPAR PREA DEVREME, **PÂNĂ ȘI LUCRURILE SIMPLE DEVIN O POVARĂ**

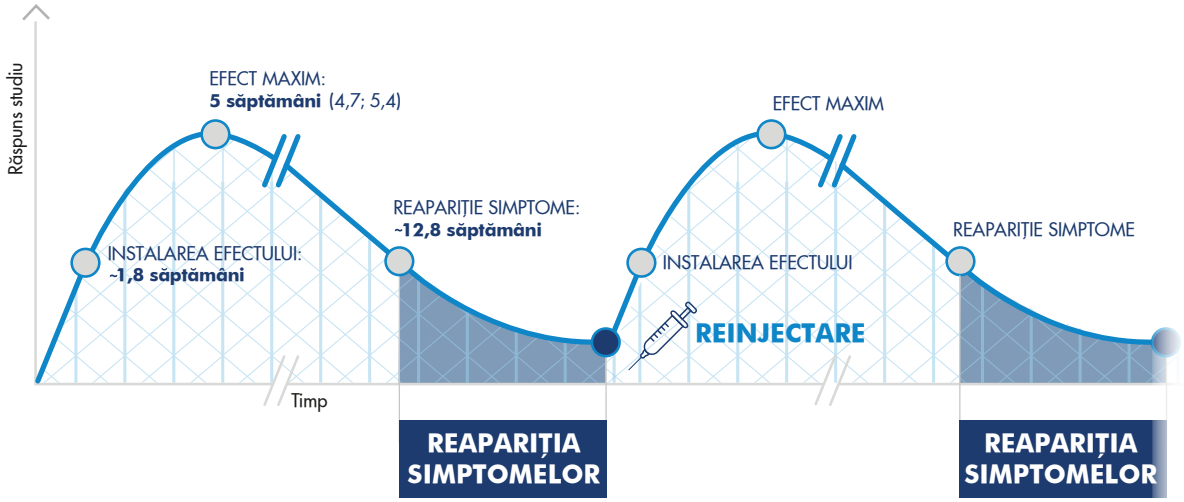
83%

Dintre pacienții adulți care suferă de spasticitate au simptome recurente între sesiunile de injectare (n=210)[1]

Cele mai frecvente simptome recurente:

- rigiditate sau contractare musculară (**74%**)[1]
- spasme musculare (**64%**)[1]
- durere musculară (**53%**)[1]

Efectele terapeutice ale tratamentului cu toxină botulinică de tip A de-a lungul timpului, conform evaluării pacienților adulți care suferă de spasticitate (efect mediu), în cadrul studiul internațional Carenity 2[1]



1. Adaptat după Jacinto J, et al. Front. Neurol. 2020;11:388. **2.** https://doi.org/10.3389/fneur.2020.00388.

IPSEN Innovation for patient care

carenity[2]

DYS-RO-000204 / August 2021

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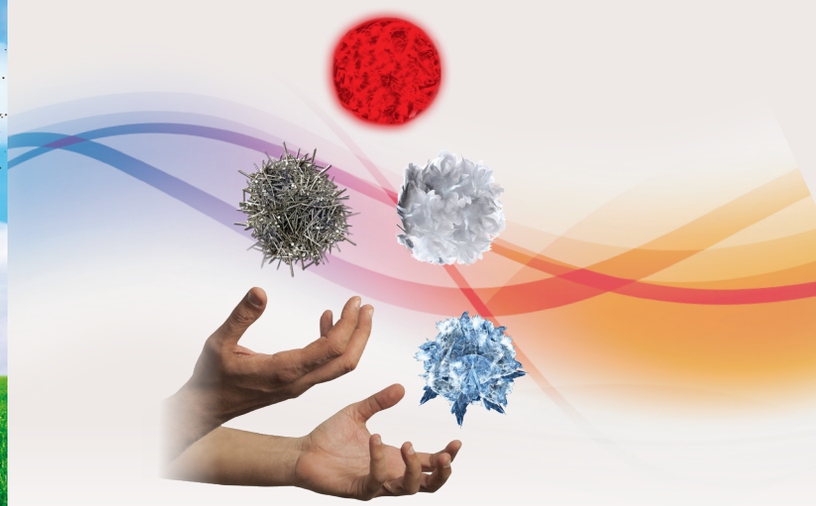
gabapentină 300 mg, 400 mg



Abil cu durerea!

➲ Etoricoxib asigură un **tratament eficient al durerii și inflamației,** *reducând* **în același timp** *riscul gastrointestinal.*[1, 2]

Ghidurile EFNS (EAN) recomandă: [3,4]
- doză inițială: 300 mg/zi, titrare individuală lentă
- doză eficientă – peste 1200 mg/zi
***Gabapentina** - singura moleculă de linia întâi, atât în monoterapie, cât și în terapia combinată.*

(1) Present status and strategy of NSAIDs-induced small bowel injury, Kazuhide Higuchi, J. of Gastroenterology, Sept. 2009, Vol. 44, Issue 9, 879-888; **(2)** Goodman & Gilman's The Pharmacological Basis of Therapeutics, 12th edition, 2011; **(3)** Europ J of Neurology 2006, 13:1153-69; **(4)** Europ J. of Neurology 2010, 17:1113–23

IMESOL 30, 60, 90, 120 mg comprimate filmate. Indicaţii terapeutice - la adulți și adolescenți ≥ 16 ani, pentru: **tratamentul simptomatic al artrozei (A), poliartritei reumatoide (PR), spondilitei anchilozante şi al durerii şi semnelor de inflamaţie asociate cu artrita gutoasă acută; tratamentul de scurtă durată al durerii de intensitate moderată asociată intervenţiilor chirurgicale dentare.** Doze şi mod de administrare: Artroză: 30 mg o dată pe zi. **Poliartrită reumatoidă:** 60 mg o dată pe zi. **Spondilită anchilozantă:** 60 mg o dată pe zi. **Afecţiuni dureroase acute:** etoricoxib trebuie utilizat doar în perioada simptomatică acută. **Artrită gutoasă acută:** 120 mg o dată pe zi. **Dureri după intervenţii chirurgicale dentare:** 90 mg o dată pe zi, maxim 3 zile. Imesol se administrează pe cale orală şi poate fi luat cu sau fără alimente.

GABARAN capsule 300 mg, 400 mg. Indicaţii terapeutice: Epilepsie - convulsii parţiale, cu sau fără generalizare secundară: terapie adjuvantă la adulţi şi copii ≥ 6 ani; monoterapie la adulţi şi adolescenţi ≥ 12 ani; **Tratamentul durerii din cadrul neuropatiei perferice.** Gabapentina este indicată la adulţi în tratamentul durerilor din cadrul neuropatiei periferice, cum sunt durerile din cadrul neuropatiei diabetice şi nevralgia post-herpetică. Doze: Epilepsie: Adulți și adolescenți: doza eficace a fost cuprinsă în intervalul 900-3600 mg/zi. **Durerea din cadrul neuropatiei periferice:** Adulţi: Tratamentul poate fi iniţiat prin creşterea treptată a dozei. În mod alternativ, doza iniţială este de 900 mg/zi, în 3 prize egale. Ulterior, doza poate fi mărită prin creşteri cu 300 mg/zi, la 2-3 zile, până la maxim 3600 mg/zi. Pentru anumiţi pacienţi, poate fi adecvată o creştere mai lentă a dozei. Mod de administrare: orală; cu sau fără alimente, iar capsulele trebuie înghiţite întregi, cu o cantitate suficientă de lichid.

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