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4th Baltic and North Sea Conference on Physical and Rehabilitation Medicine

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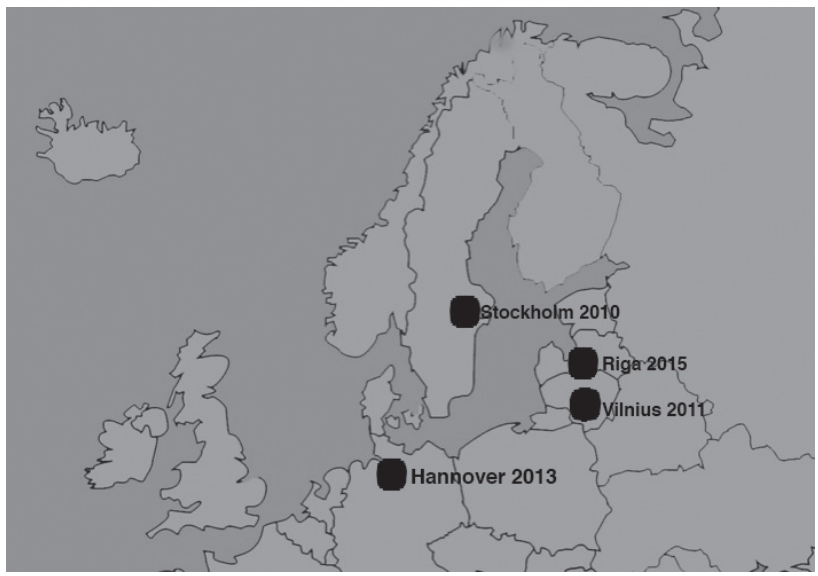

Baltic & North Sea Conferences on PRM

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physiotherapy procedures. Decreased depression and improved self-perception ($p<0.05$). It was found that urination and defecation disorder symptoms decreased. Pressure feedback showed the improvement in pelvic floor muscles strength, that means that the majority of the patients learned to perform regular pelvic floor muscles contraction without engaging assistant muscles.

E. CARDIOVASCULAR AND PULMONARY REHABILITATION

PP36

EFFECTIVENESS OF DIFFERENT PHYSIOTHERAPY METHODS FOR PATIENTS WITH INCREASED CARDIOMETABOLIC RISK

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Introduction: Every year over the world about 16.7 million people die from cardiovascular diseases (World Health Organization). World Health Organization experts announce the prognosis that in 2020 more than 70% of all cases of diseases will be caused by inappropriate human lifestyle and mostly by deficient physical activity. A growing number of evidence based on research show that regular aerobic training and physical exercises increase human physical capacity (Jones, Cartier; Ziemann et al.), reduce the risk of developing various diseases (Meyers et al.; Kodama et al.; Martinmäki et al.; Ross Bradshaw), and improve quality of life (Garatachea). The aim of the study was to analyze the effectiveness of different methods of physiotherapy for patients' with increased cardiovascular risk muscular strength and endurance and physical capacity. *Methods:* Thirty-nine patients (age range 40–64 years) with increased cardiovascular risk participated in the study. The participants were divided into two groups: the study group ($n=20$) and the control group ($n=19$). Patients of the study group performed aerobic workouts ($n=10$) and muscular endurance workouts ($n=10$). Patients in the control group had only aerobic workouts ($n=20$). The participants' muscle strength, abdominal and back muscle static endurance and physical capacity were evaluated. *Results:* The results showed that after training the study group patients' muscle strength was significantly higher than in the control group ($p<0.05$). The endurance of abdominal and back muscle of the study group was after a complex training significantly higher than in the control group after only aerobic training ($p<0.05$). A statistically significant improvement of physical capacity according to MET was assessed in both groups ($p<0.05$). *Conclusion:* The results show that for patients with increased cardiovascular risk, the combined application of aerobic workouts and strength training is more effective than only aerobic workouts on the increase of abdominal and b ack muscle strength and endurance. The lower number of aerobic training (replacing part of training with strength training) in the study group did not affect the final results of physical capacity compared to the control group.

PP37

PULMONARY REHABILITATION IN COPD EXACERBATION: IS UPPER LIMBS EXERCISE TRAINING SAFE AND EFFECTIVE?

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Pulmonary rehabilitation in chronic obstructive pulmonary disease (COPD) exacerbation has several advantages such as reduction of hospital readmission and mortality, the considerable increase of quality of life and functional improvement translated into a better outcome in the 6 min walking test. Upper limbs exercise is recommended in pulmonary rehabilitation guidelines because it reduces stress, decreases dyspnea and dynamic hyperinflation and improves functional capacity with impact on daily living activities. This study aimed to evaluate the functional changes that occur in COPD patients with exacerbation, after a program of resistance exercises of the upper limbs. A multi-case study was developed on seven patients with COPD, GOLD III and IV (diagnosed by FEV) in exacerbation. Data collection included an initial interview for clinical history, functional assessment using the London Chest Activity of Daily Living (LCADL), the 6 min Pegboard and Ring Test (6min PBRT), handgrip strength and the Saint George Questionnaire for quality of life assessment. A program of upper limbs exercise training was implemented. Vital signs (blood pressure, respiratory rate, heart rate and pain, dyspnea (Borg Dyspnea Scale) and peripheral oxygen saturation were assessed before and after exercise training and during if the patient presented any symptom. After 7 days of treatment, assessment instruments were applied. All 7 participants (2 women, 5 men), aged between 50 and 85 years, had as risk factor being exsmokers. The entire group has several comorbidities (diabetes, heart problems, anxiety/depression, osteoporosis) and low inclusion in rehabilitation or exercise programs. Upper limbs exercise during an exacerbation period appeared to be safe and beneficial in all of the cases studied. Vital signs, dyspnea and peripheral oxygen saturation remain on normal range during exercise training sessions. Data obtained in 6min PBRT, LCADL and handgrip strength showed a positive evolution between assessments in all participants resulting in an improvement of exercise capacity of the upper limbs and in an increase of their functionality. There was no significant changes in quality of life. The results may indicate that the inclusion of resistance active exercises in rehabilitation programs tend to improve skeletal muscle strength and performance in ADL.

PP38

INTERVENTION IN CARDIAC REHABILITATION: IS EXERCISE TRAINING EFFECTIVE IN DECOMPENSATED HEART FAILURE PATIENTS?

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Heart failure is characterized, from a functional point of view, as a pathology that causes limitations in carrying out the activities of daily living and consequent loss of functional and instrumental autonomy due to its classic symptoms such as: dyspnea, edema, easy tiredness and intolerance to activity. These symptoms make the patient become increasingly dependent and searching for inactivity as a way to preserve energy and avoid those symptoms. It is known that exercise is beneficial and safe when applied according to the characteristics of the patient and his medical condition, even in the process of stabilization of the acute phase of its pathology. Through the exploratory method, clinic and physiologic variables have been identified that could change with exercise and which allow a better response to exercise in the acute phase of the disease. Patients with decompensated heart failure of a cardiology ward were selected to comply with a minimum of 3 sessions of a program of physical exercise with increasing levels of intensity. Vital signs, Borg scale to subjective perception of effort and the London Chest Activity Daily Living (LCADL) scale for dyspnea associated with activities of daily living were assessed before and after the implementation of the program. Intensity and progression on the program were also evaluated by exercise parameters such as number of laps on the exercise peddler, number of meters walked and number of

steps climbed. The study involved 20 patients with 64±9.9 years, 80% men, with a length of stay of 18.6 days on cardiology ward, between September 2013 and April 2014, with an average of 4.4 program sessions. Data obtained in LCADL (29.9±8.9 vs 20.9±6.8), exercise parameters and Borg score after the exercise showed a positive variation, meaning that patients improved their functional capacity along the program, despite being in acute phase of heart failure. Descriptive and inferential statistics analysis of the data allows us to conclude that patients with previous practice of exercise, lower basal heart rate, higher oxygen saturation, lower number of associated cardiovascular risk factors presented a better response to the exercise and with a better evolution throughout the program.

PP39

FUNCTIONAL TRAINING – EFFECTS ON BLOOD PARAMETERS IN HEMODIALYZED PATIENTS

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Chronic kidney disease (CKD) is characterized by a progressive and irreversible decline in kidney function and that affects all other organs and systems. Patients with CKD on hemodialysis have reduced functional capacity and sedentary behavior, which results in increased morbidity and mortality. Over the past few years programs have been developed and implemented to maximize functionality with demonstrated beneficial effects in this specific population. Changes in the blood profile, resulting from these intervention programs, are not yet sufficiently studied. The objective of this study is to analyze the changes in the blood profile of the hemodialyzed patients after the implementation of a training program to maximize functionality. To achieve this objective a causal comparative research at a hemodialysis clinic was started. 24 individuals (intervention group) were included in a program of aerobic training (exercise bike and treadmill) before hemodialysis and 27 maintained their usual routine (control group). Anthropometric measurements (weight, height, body mass index) and functional capacity (sit-to-stand test, up and go test and handgrip strength test) were taken before and after the exercise program; the blood profile was monitored (leukocytes, neutrophils, hemoglobin and hematocrit, urea, creatinine, albumin, sodium, potassium, calcium, phosphorus, iron, iron-binding capacity, ferritin, glucose and parathormone) monthly throughout one year. The duration of hemodialysis, the administered dosage of darbepoetin and the adequacy ratio of hemodialysis treatment were assessed. The exercise program proved to be decisive on improving the functional capacity of these patients which translates into clear gains in autonomy to performing activities of daily living. In the intervention group the darbepoetin administration dosage has decreased, keeping the anemia parameters unchanged, which is an advantage for patients and reduces treatment costs. For other analytical parameters studied, it was not possible to establish effective relationship with the implementation of the exercise program. However, this variability was observed in both groups, which seems to indicate that the program had no adverse effects on these parameters and particularly in the dialysis efficacy. Hemodialyzed patients will benefit of rehabilitation care, with programs to maximize functionality, in daily treatment, therefore rehabilitation professionals must take part on multidisciplinary teams in hemodialysis clinics.

PP40

EARLY MOBILIZATION AND EXERCISE IN ELDERLY PATIENTS AFTER CORONARY ARTERY BYPASS GRAFTING

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Introduction: Coronary Artery Bypass Grafting (CABG) is one of the most commonly performed surgical procedures. During the postoperative period, the prolonged bed rest increases the possible occurrence of systemic complications, resulting from immobilization. *Aim:* This quasi-experimental study aims to analyze the hemodynamic variables and the peak expiratory flow (peak flow) during the application of two different exercise protocols (with and without passive exercise peddler) compared with the traditional intervention (non-invasive ventilation) in elderly patients after Coronary Artery Bypass Grafting. *Methods and material:* Thirty elderly patients, in postoperative care of CABG, were organized into three groups: Group A – which performed the exercise in a passive exercise peddler; Group B – which performed motor physical therapy without using the exercise peddler; and Group C – with non-invasive ventilation. Considering a 5% significance level ($p<0.05$) the Shapiro Wilk's test for normality analysis was performed and then a descriptive analysis of the sample was made. To analyze the variation of the results in each group before and after test Wilcoxon's test was performed. Finally, to analyze and to compare the three groups before and after test, the Kruskal Wallis test was performed. *Results:* The results showed a significant increase in Peak Flow values in the three groups (before and after test), a significant reduction of systolic blood pressure in group A, and increase of cardiac frequency and respiratory frequency in group B. In the analysis between groups, it was observed a significant reduction of diastolic blood pressure in group C. It is concluded that early mobilization and exercise, with or without the exercise peddler, can be safe and performed in elderly patients after CABG in the Intensive Care Unit (ICU). Careful use of positive pressure in the non-invasive ventilation is needed due the effects on blood pressure and cardiac debit.

PP41

MULTIDISCIPLINARY APPROACH TO REHABILITATION OF CARDIAC PATIENTS

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Background: In recent years high-tech methods of treating patients with cardiovascular diseases are being developed in cardiology. At the same time rehabilitation has become even more important. *Methods:* Specialists of Ivanovo State Medical Academy (ISMA), in collaboration with the State Research Centre for Preventive Medicine, have developed a program for the second stage of complex rehabilitation of patients with cardiovascular diseases. The program is designed for patients with acute coronary syndrome and/or percutaneous coronary intervention, its duration being 21 days. The basis of physical rehabilitation is composed of a complex of therapeutic exercises, training on cardiac simulators of «KardioMed-700» series (Germany), dosed walking and climbing stairs. Depending on the functional class of stenocardia, trainings were conducted in two modes (moderate and semi-moderate). While implementing the cardiorehabilitation program a multidisciplinary approach was used. Previously such an approach was successfully applied in neurorehabilitation of patients with an ischemic stroke. A multidisciplinary team examined all patients on admission, on the 7th, the 14th and the 21st day in the following order: a cardiologist, a therapeutic physical trainer, a psychologist, a psychotherapist, a physiotherapist, a nutritionist. For each patient an individual rehabilitation program was developed as a result of the joint work of specialists of a multidisciplinary team. Testing and analysis of the