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Exercise and muscle function in COPD

Mark Olfert

West Virginia University School of Medicine, USA

Exercise limitation is a hallmark of chronic lung diseases such as COPD. There is evidence of systemic contributions that contribute to exercise limitation above and beyond central pulmonary dysfunction but the cellular mechanisms remain poorly understood. This talk will review current and new data obtain from muscle biopsies in patients with COPD in the regards to exercise function and expression of angiogenic regulators and inflammatory molecules in skeletal muscle. Importantly, this discussion will highlight evidence obtained in a diversity of COPD patients, which include cigarette smoked induced COPD as well as the genetic variant of COPD resulting from alpha-1 antitrypsin deficient (AATD) individuals. Further insight will be glean from data obtain in AATD individuals that have developed COPD and AATD who have not develop COPD. The focus of the presentation will address whether abnormalities in the muscle angiogenic response to exercise are a consequence of systemic inflammation stemming from lung damage or if these are based on O₂ transport limitation and what effects exercise training and or physical fitness exhibits in this context. The central premise of the talk is based on observation that deregulation of several key angiogenic regulators is responsible for many of the structural and functional alterations found in skeletal muscle of patients with COPD especially those with a cachectic phenotype and that these abnormalities produce a phenotype that is unable to protect skeletal muscle from chronic inflammation. Exercise training can help to restore and or minimize the abnormal angio-metabolic signal axis in muscle, thereby increasing muscle capillarity and improving muscle function.

imolfert@hsc.wvu.edu

Impact of medical education program on COPD patients

Cristian Oancea

University of Medicine and Pharmacy "Victor Babes", Romania

Background: COPD exacerbation is leading to substantial morbidity and mortality. In addition to drug therapy, medical education of patients is a key aspect in the management of the disease. In this pilot study the main outcome was the assessment of the effects of intensive medical education course on COPD related re-hospitalizations and emergency department visits and monitoring quality of life being secondary outcomes.

Methods: 24 group D COPD subjects were included in this study. Patients from the intervention group (IG, 12 pts.) underwent a program comprising two components: A comprehensive medical education program (1 hour/day/5 days) and specific drug therapy (according GOLD guidelines). The intervention group (IG) was compared with a control group (CG) receiving usual care (only drug therapy, 12 pts). Patients underwent spirometry and completed Saint George Respiratory Questionnaire (SGRQ) regarding the quality of life at the time of inclusion and at periodical evaluations performed every 3 months for a year.

Results: Patients included in a medical education program showed significant decrease of exacerbation rate compared to CG. Patients in the IG group had fewer emergency department visits within a year (12 visits) compared to the CG (19 visits). Patients in the IG had significantly better quality of life (at both 3 months and 6 months) vs. patients in CG (65.49 ± 5.48 , 69.11 ± 4.88 vs. 76.9 ± 5.75 & 74.24 ± 5.3).

Conclusions: This study reveals that an adequate medical education program can decrease rates of COPD-related hospitalizations and increase quality of life.

oancea@umft.ro