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Late Breaking Abstract - An exercise training program improves endothelial function in COPD patients

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Abstract

COPD is associated with increased cardiovascular (CV) mortality. An early manifestation in the pathogenesis of CV diseases is the endothelial dysfunction; the gold standard for its measurement is the flow-mediated dilatation (FMD). It is known that an active lifestyle has a favorable effect on FMD also in COPD (retrospective studies), however no prospective study has evaluated the effect of an exercise training program (ET) on FMD.

Aim: to evaluate the impact of a supervised endurance ET on FMD in COPD.
Methods: 11 COPD patients (4F/7M) were recruited. Patients who agreed to participate at ET were assigned to the training group (Ex, n=6) and the others to the control group (C, n=5). The Ex exercised on a treadmill 50 min, twice a week for 8 weeks. At the beginning (T0) patients performed spirometry, 6MWD, measurement of physical activity (SenseWear Armband) and FMD. At the end of the program (T1) FMD and spirometry were repeated. Furthermore, Ex performed an incremental cycling test at T0 and T1 to assess VO_{2max}.
Results: No differences in age (Ex:66±10, C:69±8yr), BMI (Ex:30±3, C:28±4kg/m^2), pulmonary function [FEV_1(%) Ex:54±14, C:60±16] and 6MWD (Ex:356±90, C:406±49m) were found between the groups at T0; C were a little more active than Ex (1.3±0.2 vs 1.1±0.1 METs respectively;p=0.03). No difference was found in FMD at T0 after adjustment for physical activity (Ex:4.2±0.54, C:4.05±0.62%). FMD improved significantly in the Ex (+2.74±1.33%, p=0.004) but not in the C (-0.09±0.21, p>0.05); t test between groups p=0.0001.
Conclusion: These preliminary data show that after 8 weeks of ET a significant improvement in FMD was found in trained COPD and can be considered another positive effect of pulmonary rehabilitation