

European Respiratory Society Annual Congress 2013

Abstract Number: 4040
Publication Number: P4715

Abstract Group: 6.1. Epidemiology

Keyword 1: COPD - mechanism **Keyword 2:** Exercise **Keyword 3:** Epidemiology

Title: Predictive factors of exercise capacity decline in patients with COPD

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Body: Introduction: Exercise capacity declines over time in patients with Chronic Obstructive Pulmonary Disease (COPD), and this decline is a predictor of mortality. However, the factors associated with this deterioration have been poorly studied. Aim: To estimate the prospective association between clinical and functional variables and the decline in exercise capacity in patients with COPD. Measurements: Clinical and functional relevant variables were collected for 226 clinically stable COPD patients included in the PAC-COPD Cohort Study. The six-minute walk distance (6MWD) was determined at baseline and after a mean (SD) of 1.7 (0.3) years. The annual rate of change in exercise capacity was calculated for each patient. Multivariate regression was used to analyze predictive factors of exercise capacity decline. Main Results: Patients were mostly male (92%), their mean (SD) age was 67.4 (8.3) years, postbronchodilator FEV1 54 (17) % predicted, and 6MWD at baseline 444 (83) meters. During follow-up, 6MWD decreased by 20.4 (39.2) m/year. In the bivariate analysis dyspnea (MRC \geq 2), quality of life (total score in the Sant George respiratory questionnaire), the level of airway obstruction (FEV1), lung hyperinflation (RV/TLC), and baseline 6MWD were associated with the annual rate of change in exercise capacity. In the multivariate regression model, only dyspnea, RV/TLC and baseline 6MWD remained statistically significant. Conclusions: Evaluation of COPD patients in stable condition may be useful to predict their future decline in exercise capacity. Dyspnea and pulmonary hyperinflation are the baseline variables associated with this decline and could be used to select candidates for pulmonary rehabilitation.