

European Respiratory Society Annual Congress 2013

Abstract Number: 3453

Publication Number: P2227

Abstract Group: 1.2. Rehabilitation and Chronic Care

Keyword 1: Rehabilitation **Keyword 2:** COPD - management **Keyword 3:** Exercise

Title: Factors of improvement of dyspnoea, exercise capacity, and quality of life in COPD patients undergoing an outpatient pulmonary rehabilitation

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Body: Pulmonary rehabilitation (PR) represents the optimal way to improve COPD patients, but inclusion criteria of success remain challenging. Aim: to identify factors of improvement of patients at the beginning of an outpatient PR. Methods: 94 consecutive COPD patients were included. After complete assessment, they underwent a 3 week's physical training and therapeutic education at the hospital. This was followed by 20 physical sessions supervised by the patient's physiotherapist. The patients were evaluated at 6 months and one year. The logistic regression was used to identify the independent predictors of success to PR, defined by the MCID for dyspnoea (mMRC scale), the 6 minute walk distance (6MWD), and the Saint George's Respiratory Questionnaire (SGRQ) total score at baseline. Results: Patients who improve the mMRC scale had a higher level of dyspnoea (OR=4.92, 2.35 to 10.32 CI 95%), were treated by tiotropium (OR=6.43, 1.71 to 24.10), were not frequent exacerbators (OR=4.04, 1.27 to 12.88), and reached a higher VO₂max (OR=1.09, 1.04 to 1.15). The only variable identified for 6MWD improvement was not to live alone (OR=9.19, 1.16 to 73.02). Patients who improve the SGRQ score had a higher FEV₁ (OR=1.06, 1.01 to 1.11), a higher level of dyspnoea (OR=2.12, 1.05 to 4.28), a worse SGRQ score (OR=1.11, 1.04 to 1.18), a lower CRP (OR=4.07, 1.15 to 14.39), and were more prone to have a 6MWD>350 m (OR=9.72, 1.92 to 49.24). Conclusion: Predictors of improvement in COPD patients undergoing an outpatient PR differ from each dimension. They should be evaluated separately with the patient's perspectives to better define the components of success to PR.