

Exacerbation impact of a pulmonary rehabilitation program on chronic obstructive pulmonary disease subjects

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Relevance: Pulmonary rehabilitation is an evidence-based intervention for people with COPD. The benefits include reduced breathlessness and fatigue, increased exercise tolerance, and improved well-being. Also, reduces healthcare utilization. However, most of the published studies on the effects of pulmonary rehabilitation over exacerbations in COPD subjects are set out in terms of hospital admission (hospitalization) reduction more than in emergency consultation reduction.

Purpose: To evaluate the effects of a pulmonary rehabilitation program (PRP) on exacerbation's impact, analyzing separately hospital admissions and emergency consultations, during the year post PRP.

Methods/analysis: Quasi-experimental study. Eligible participants were subjects with a diagnostic of COPD defined by the GOLD; with functional deterioration due to respiratory disability; emergency consultation or hospitalization due to exacerbation ≥ 1 in previous year to the PRP and with the antibiotic or corticosteroid cycle completed. The exclusion criteria described subjects with cardiopathy or another limiting condition to participate in the exercise program.

In the week previous to starting the program, health education sessions were delivered. Subjects were instructed in breathing exercises and bronchial hygiene exercises to be done daily at home.

Subjects performed a 7 week PRP, with supervised sessions three times a week. Sessions consisted on: upper limb exercises (15 minutes) and muscular training (15 minutes of inspiratory muscle training with constant pressure load and 30 minutes of lower limbs training, through an ergometric cycle in an interval modality).

Exacerbations during the year post PRP in terms of emergency consultation and hospital admission were estimated by interview and clinical history review.

A descriptive analysis and a paired sample t-test was performed. The data was analysed through the statistical package SPSS.19.

Results: 31 subjects with COPD degrees III (58%) and IV (42%) were studied, with a mean age of 67 (SD \pm 9.2). The total number of exacerbations showed a mean reduction of 1.8 in the year post PRP (IC95% [1.2 to 2.4]). Hospitalization admission and emergency consultation also decreased (Hospitalization a mean of 1, IC95% [0.15, 1.5] and emergency consultation a mean of 0.8, IC95% [0.4, 1.3]).

It was observed a 64% reduction of subjects that required medical attention due to exacerbation, a 57% decrease of subjects that needed hospital admission, a 78% reduction on subjects that required emergency consultation, and a 62% decrease of subject that required both, emergency consultation and hospital admission.

Discussion and conclusions: Our study confirm that a 7 weeks PRP reduces the use of health services by exacerbations, not only the hospital admission but also the emergency consultations during a year post PRP.

Impact and implications: The studied PRP could be applied in a clinical set with a minimum of human and technological resources. On base to our results, it would be of interest in future research to analyze its impact on economic terms, answering the question about how much money could be saved for the health services with this programs. That should be of utterly importance to support their adequate implementation as part of the non-pharmacological management of COPD patients.

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