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Case report

About the effect of pulmonary rehabilitation on lung function in patients with chronic obstructive pulmonary disease

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ABSTRACT

Detecting an improvement of lung function in a patient with chronic obstructive pulmonary disease (COPD) following pulmonary rehabilitation (PR) may appear unexpected, but actually recent studies showed that is not so rare. In fact, in a prospective study comparing a group of 190 COPD patients undergoing PR to a group of 67 patients treated only with drugs a mean improvement of FEV1 from 1240 mL to 1252.4 mL was found in the former, while the values changed from 1367 mL to 1150 mL in the latter ($p < 0.001$). Such improvement was detected also in a study in patients with very severe COPD, as assessed by a FEV1 increasing from 970 mL at baseline to 1080 mL after a 3-week PR inpatient program ($p < 0.001$). These observations suggest that improvement of lung function in COPD patients undergoing PR should be included among the expected outcomes and routinely assessed as an index of clinical success during the treatment.

Topalovic et al. reported the case of a patient with chronic obstructive pulmonary disease (COPD) who after 6 months of pulmonary rehabilitation (PR) significantly improved his lung function, as measured by a forced expiratory volume in one second (FEV1) of 1.51 L (42% of predicted) before PR and of 2.04 L (62% of predicted) after PR [1]. The fact that the authors found this outcome "unexpected" is in line with the current opinion on the unfeasibility to reverse the progressive decline of lung function in COPD patients. However, the authors statement that in patients undergoing PR "there are no data supporting a raise in FEV1" is not true. In fact, following the detection during PR of a mean FEV1 decline lower than in patients treated only with drugs, some patients showing even a mild increase [2,3], the FIRST (FEV1 as an Index of Rehabilitation Success over Time) study prospectively compared the changes in FEV1 in 190 patients treated with PR to those in 67 drug treated patients: in the PR group, FEV1 increased from 1240 mL (57.3% of predicted) to 1252.4 mL (60.8%) after 3 years, whereas in the controls the values were 1367 mL (55% of predicted) at baseline and 1150 mL (51%) after 3 years, this difference being statistically significant ($P < 0.001$) [4]. Such favorable outcome was recently confirmed also in patients with very severe COPD, as assessed by a FEV1 increasing from 970 ± 260 mL at baseline to 1080 ± 330 mL after a 3-week PR inpatient program ($p < 0.001$) [5]. Therefore, the improvement of lung function in COPD patients undergoing PR should be included among the expected outcomes and routinely assessed as an index of clinical success during the treatment.

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