Effect of nebulized Fenoterol on spirometry, dyspnea sensation changes during exercise in patients with chronic obstructive pulmonary disease,

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摘要

Abstract

Airflow limitation impairs exercise capacity in patients with chronic obstructive pulmonary disease (COPD). Bronchodilators have been shown to increase exercise tolerance in patients with COPD by mechanism yet unclarified. We studied the effect of nebulized fenoterol (0.5 mg/ml) on the 6-minute walking test (WT) 60 mins after a control WT using a nebulized saline control in 16 patients with moderate to severe COPD. Before and immediately after each WT, the FEV1, FVC, O2, Saturation and dyspnea score (Borg breathlessness score, BS), were measured. Fenoterol had no significant effect on pre-exercise spirometry in our patients but maintained a significantly higher level of FEV1 (0.9 +/- 0.1L, p < 0.0001) and FVC (2.0 +/- 0.2L, p < 0.01) immediately after exercise than that after saline control nebulization (0.7 +/- 0.1L, 1.8 +/- 0.2L, respectively). Fenoterol significantly (p < 0.01) increased walking distance (WD) from 201.3 +/- 22.2m to 238.9 +/- 22.2m, but no difference was found in BS and oxygen saturation. The decline in FEV1 following the WT was shown to have an inverse relationship (r = - 0.74, p < 0.002) with WD improvement (delta WD). Those who walked farther after fenoterol inhalation felt less dyspnea after exercise, also with an inverse correlation (r = -0.61, p < 0.02). These results suggest that fenoterol may improve exercise capacity by preventing airflow deterioration during exercise in patients with COPD. We also recommend the 6-minute walking test in the routine clinical assessment of COPD patients to evaluate the symptomatic benefit offered by betamimetic bronchodilators