

Cardiopulmonary Exercise Testing in Patients with Chronic Obstructive Pulmonary Disease

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Abstract

Introduction: Accurate assessment of the exercise capacity of patients with chronic obstructive pulmonary disease (COPD) is important for the dual purpose of exercise prescription and determining response to therapy. Currently, the clinical utility of cardiopulmonary exercise testing (CPET) of patients with COPD as part of their evaluation for pulmonary rehabilitation is not established. The aims of this study were to evaluate the role of CPET in determining maximal exercise capacity and the causes of exercise limitation in patients with COPD. **Materials and Methods:** The results of resting pulmonary function tests and CPET performed on 33 subjects with stable COPD as part of their evaluation for pulmonary rehabilitation were reviewed. Thirty-two of these patients had moderate or severe COPD. **Results:** Twenty-nine of the 33 patients were able to perform maximal exercise tests during CPET. Of these 29 maximal tests, the causes of exercise limitation were ventilatory limitation in 17 patients, significant oxygen desaturation in 1 patient and both ventilatory limitation and oxygen desaturation in 11 patients. Limb muscle dysfunction is a possible limiting factor in the 4 patients with sub-maximal tests. Physical deconditioning may be a contributory factor of exercise intolerance in 2 patients. Although there was significant correlation ($r = 0.597$, $P = 0.01$) between peak VO_2 percent predicted and FEV_1 percent predicted, there was marked variability of peak VO_2 for a given degree of airflow obstruction. **Conclusions:** CPET is useful for determining the causes of exercise limitation and for assessing the maximal exercise capacity of patients with COPD.

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Key words: Exercise capacity, Exercise limitation, Oxygen consumption, Pulmonary function, Pulmonary rehabilitation

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