Efficacy of Nocturnal Nasal Positive Pressure Ventilation in Hypercapnic Patients with Severe Obstructive Lung Diseases

江玲玲

Ling-Ling Chiang;Chien-Ying Liu;Shu-Chuan Ho;Te-Fang Sheng;Chih-Teng Yu;Horng-Chyuan Lin;Han-pin Kuo

摘要

Abstract

BACKGROUND: The study objective was to investigate the efficacy of 6 months of nocturnal nasal positive pressure ventilation (NNPPV) on arterial blood gas, exercise capacity, respiratory muscle function, and the frequency of hospital admission in hypercapnic patients with severe obstructive lung diseases. METHODS: This was a prospective, randomized, controlled study. Twenty-seven patients with hypercapnic obstructive lung diseases were randomized to either the NNPPV group (N = 13) or the control group (N = 14). Arterial blood gas, exercise capacity and respiratory muscle function were measured before and after 6 months of NNPPV intervention. The number of hospital admissions and the length of stay during the 6-month period before and after NNPPV intervention were recorded. RESULTS: Subjects in the NNPPV group showed a significant reduction in arterial carbon dioxide partial pressure (PaCO2). bicarbonate (HCO3-), and base excess (BE), compared with those before intervention and of the control group. Six-minute walk distance (6MWD) also increased significantly from 232.2 +/- 79.3 m to 333.4 +/- 81.3 m in the NNPPV group after 6 months of intervention. The maximum voluntary ventilation (MVV) also increased significantly after NNPPV intervention. Moreover, the NNPPV group had significantly lower frequency of admission and fewer days of hospital stay during the intervention period compared with those before intervention and of the control group. CONCLUSION: Six months of NNPPV improved the arterial blood gas, increased exercise capacity and respiratory muscle endurance, and helped to reduce the frequency and the length of hospitalization in hypercapnic patients with severe

obstructive lung disease.