

Efficacy of Home-Based Pulmonary Rehabilitation for A Patient with Asthma: A Case Report

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Background and Purpose: In patients with asthma, chronic persistent airway inflammation and mucus impaction often lead to deteriorating pulmonary function. Asthma related breathlessness sets up a vicious cycle leading to physical deconditioning. Nocturnal hypoventilation exaggerates this condition and might eventually lead to cor pulmonale. In this report, we investigated the efficacy of nocturnal ventilatory support adjunct to home pulmonary rehabilitation program in an asthma case. **Methods:** We reported a 66 year- old female patient with poor controlled asthma, which caused repeated hospitalization in recent years. During this hospitalization, she was referred to physical therapy. Based on the initial assessment, physical therapy treatment plans were as follows: 1) postural drainage combined with forced expiratory technique to improve lung hygiene; 2) paced breathing technique during daily activities and exercises; 3) upper extremity exercises; 4) ventilatory support via nasal mask (bi-level positive airway pressure, BiPAP). Home programs included airway clearance techniques, exercise and nocturnal nasal BiPAP ventilatory support. Arterial blood gas and six-minute walk test were assessed before and after the intervention, and readmission rate was also recorded. **Results:** The patient had monthly follow-up for 6 months after discharge. The arterial blood gas measured 6 months after discharge demonstrated that partial pressure of carbon dioxide (PaCO_2) decreased from 58.3 to 39.6 mmHg, and partial pressure of oxygen (PaO_2) increased from 51.5 to 58.2 mmHg. Furthermore, the distance the patient could walk in 6 minutes increased from 330 to 419 meters with less dyspnea. No admission to hospital occurred in this 6-month period. **Conclusions:** The combination of airway clearance technique and appropriate exercise training and nocturnal ventilatory support could effectively improve daytime blood gas tensions, exercise tolerance, and decrease dyspnea, and might thus potentiate further pulmonary rehabilitation program intervention. (FJPT 2002;27(4):191-196)

Key Words: Asthma, Home-based pulmonary rehabilitation, Exercise tolerance, Domiciliary nocturnal ventilatory support

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Received: Jun 4, 2002 Accepted: Jul 10, 2002