



## Effect of intrapulmonary percussive ventilation on expiratory flow limitation in chronic obstructive pulmonary disease patients.

Vargas F, Boyer A, Nam Bui H, Guenard H, Gruson D, Hilbert G.

Département de Réanimation Médicale, Hôpital Pellegrin Tripode, CHU de Bordeaux ; Laboratoire de Physiologie EA 518, Université Victor Segalen Bordeaux 2, Bordeaux – FRANCE

**PURPOSE:** The aims of this prospective study were (1) to select, after weaning and extubation, chronic obstructive pulmonary disease (COPD) patients with expiratory flow limitation (EFL) measured by the negative expiratory pressure method and (2) to assess, in these patients, the short-term (30 minutes) physiologic effect of a session of intrapulmonary percussive ventilation (IPV).

**MATERIALS AND METHODS:** All COPD patients who were intubated and needed weaning from mechanical ventilation were screened after extubation. The patients were placed in half-sitting position and breathed spontaneously. The EFL and the airway occlusion pressure after 0.1 second (P0.1) were measured at the first hour after extubation. In COPD patients with EFL, an IPV session of 30 minutes was promptly performed by a physiotherapist accustomed to the technique. Expiratory flow limitation, gas exchange, and P0.1 were recorded at the end of the IPV session.

**RESULTS:** Among 35 patients studied after extubation, 25 patients presented an EFL and were included in the study. Intrapulmonary percussive ventilation led to a significant improvement in EFL, respectively, before and 30 minutes after IPV (65.4 +/- 18.2 vs 35.6 +/- 22.8;  $P < .05$ ). Three patients were not expiratory flow limited after IPV. Intrapulmonary percussive ventilation led to a significant decrease in P0.1 (3.9 +/- 1.6 vs 2.8 +/- 1.1;  $P < .05$ ). Thirty minutes of IPV led to a significant increase in PaO<sub>2</sub> and pH and a decrease in PaCO<sub>2</sub> and respiratory rate ( $P < .05$ ).

**CONCLUSION:** In COPD patients, a session of IPV allowed a significant reduction of EFL and of P0.1 and a significant improvement of gas exchange.

PMID: 19327288 [PubMed - as supplied by publisher]

**J Crit Care - 2008 May 13. J Crit Care - 2009 Jun; 24(2):212-9. Epub 2008 May 14.**



**PERCUSSIONAIRE®**  
**CORPORATION**

130 McGhee Road, Suite 109, Sandpoint ID 83864

percussionaire.com

208.263.2549