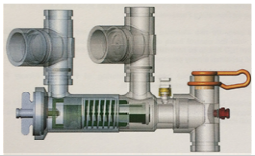

High-frequency percussive ventilation improves perioperatively clinical evolution in pulmonary resection.

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OBJECTIVE: During thoracotomy, positive end-expiratory pressure is applied to the dependent lung and continuous positive airway pressure (CPAP) inflates the nondependent lung to avoid hypoxemia. These methods do not allow the removal of produced secretions. We hypothesized that high-frequency percussive ventilation (HFPV) can improve both conditions and reduce hospital length of stay in these patients.
DESIGN: Randomized prospective study.
SETTING: University Hospital.
PATIENTS: Fifty-three consecutive patients undergoing elective pulmonary partial resection were enrolled. Nine were excluded because of surgical reasons.
INTERVENTIONS: The nondependent lung was ventilated with HFPV in 22 patients and other 22 received CPAP. In both groups, the dependent lung was ventilated with continuous mechanical ventilation.
MEASUREMENT AND MAIN RESULTS: Cardiocirculatory variables and blood gas analysis were measured during surgery. Postoperatively, all patients underwent chest physiotherapy, and SpO_2, body temperature, the amount of sputum produced, and chest radiography were recorded. Before nondependent lung re-expansion, HFPV patients presented higher PaO_2 than CPAP group ($p = 0.020$). The amount of secretions was higher in chronic obstructive pulmonary disease patients treated with HFPV than in those who received CPAP (199 and 64 mL, respectively, $p = 0.028$). HFPV increased by 5.28 times the chance of sputum production by chronic obstructive pulmonary disease patients ($chi_2 = 46.66$, $p < 0.0001$; odds ratio = 5.28). A patient treated with HFPV had a 3.14-fold larger chance of being discharged earlier than a CPAP-treated subject (likelihood ratio = 11.5, $p = 0.0007$).
CONCLUSIONS: Under the present settings, HFPV improved oxygenation in one-lung ventilation during pulmonary resection. Postoperatively, it decreased the length of stay and increased the removal of secretions in comparison with CPAP.PMID: 19325478

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