



Intrapulmonary percussive ventilation vs incentive spirometry for children with neuromuscular disease.

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BACKGROUND: Pulmonary infections can be life threatening for children with neuromuscular diseases who have impaired ability to clear secretions. Intrapulmonary percussive ventilation (IPV) is a pneumatic device that delivers air and aerosol to the lungs at frequencies of 200 to 300 cycles per minute at peak pressures from 20 to 40 CmH₂O. Anecdotal reports and pilot studies show its safety and effectiveness in mobilizing secretions in patients with cystic fibrosis.

OBJECTIVE: To test the hypothesis that IPV used in a pulmonary program for adolescents with neuromuscular disease would reduce the number of days of antibiotic use for pulmonary infection.

METHODS: A randomized, controlled study was conducted to compare efficacy of IPV with incentive spirometry (IS) in reducing number of days of antibiotic use in adolescents with neuromuscular disease. The secondary endpoints were the number of respiratory infections, hospitalizations, and school days missed.

RESULTS: A total of 18 patients were enrolled (9 IPV, 9 IS). Antibiotic use was significantly higher with IS (24/1000 patient-days) compared with IPV (0/1000 patient-days), (incidence rate ratio, 43; 95% confidence interval, 6-333). The IS group spent more days hospitalized (4.4/1000 patient-days vs 0/1000 patient-days) than the IPV group (incidence rate ratio, 8.5; 95% confidence interval, 1.1-67). The IPV group had 0 episodes of pneumonia or bacterial bronchitis compared with 3 events in the IS group, although this did not meet statistical significance.

CONCLUSION: Intrapulmonary percussive ventilation as part of a preventive pulmonary regimen reduced days of antibiotic use and hospitalization for respiratory illness in adolescents with neuromuscular disease.

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