



Airway Clearance Techniques in Hospitalized Patients: A systematic review.

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Nonpharmacologic airway clearance techniques are used to reduce the sequelae of obstructive secretions. We systematically reviewed comparative studies of nonpharmacologic interventions that health professionals can employ to achieve mucus clearance in hospitalized or postoperative patients without cystic fibrosis over the age of 12 months. We searched MEDLINE and other databases from 1990 to 2012 to identify relevant literature. Two reviewers independently assessed each study against predetermined inclusion/exclusion criteria. Two reviewers also independently extracted data regarding participant and intervention characteristics and outcomes and assigned overall quality ratings. The 32 studies meeting review criteria included 24 RCTs, seven crossover RCTs, and one prospective cohort study. Studies were typically small and together included a total of 2,453 subjects (mean=76/study). Studies generally examined chest physical therapy/physiotherapy (CPT) modalities in postoperative or critically ill patients or those with chronic obstructive pulmonary disease (COPD). Interventions, comparators, and populations varied considerably across studies, hampering our ability to draw firm conclusions. Interventions including conventional CPT, intrapulmonary percussive ventilation, and positive expiratory pressure typically provided small benefits in pulmonary function, gas exchange, oxygenation, and need for/duration of ventilation, among other outcomes, but differences between groups were generally small and not significant. Harms of techniques were not consistently reported, though airway clearance techniques were generally considered safe in studies that did comment on adverse effects. Further research with clearly characterized populations and interventions is needed to understand the potential benefits and harms of these techniques.

KEYWORDS:

Airway clearance techniques, airway obstruction/therapy, breathing exercises, chest physical therapy, physical therapy modalities

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