Cochrane Database of Systematic Reviews - - Cochrane Review

Autogenic drainage for airway clearance in cystic fibrosis

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Study design (if review, criteria of inclusion for studies)

Randomised controlled trials and quasi-randomised controlled trials

List of included studies (8)

App 1998; McIlwaine 1991; McIlwaine 2010; Miller 1995; Osman 2010; Pfleger; Pryor 2010

Participants

Children and adults with CF

Interventions

autogenic drainage vs all other airway clearance techniques either as a single technique or in combination with other techniques.

Outcome measures

Primary outcomes: FEV1, FVC, FEF25-75, sputum weight (gr) and volume (ml) dry and wet

Main results

Searches retrieved 64 references to 37 individual studies, of which eight (n = 212) were eligible for inclusion. One study was of parallel design with the remaining seven being crossâ€•over in design; participant numbers ranged from 4 to 75. The total study duration varied between four days and two years. The age of participants ranged between seven and 63 years with a wide range of disease severity reported. Six studies enrolled participants who were clinically stable, whilst participants in two studies received treatment whilst hospitalised with an infective exacerbation. All studies compared autogenic drainage to one (or more) other recognised airway clearance technique. Exercise is commonly used as an alternative therapy by people with cystic fibrosis; however, there were no studies identified comparing exercise with autogenic drainage. The certainty of the evidence was generally low or very low. The main reasons for downgrading the level of evidence were the frequent use of a crossâ€•over design, outcome reporting bias and the inability to blind participants. The review's primary outcome, forced expiratory volume in one second, was the most common outcome measured and was reported by all eight studies; only three studies reported on quality of life (also a primary outcome of the review). One study reported on adverse events and described a decrease in oxygen saturation levels whilst performing active cycle of breathing techniques, but not with autogenic drainage. Seven of the eight included studies measured forced vital capacity and three of the studies used mid peak expiratory flow (per cent predicted) as an outcome. Six studies reported sputum weight. Less commonly used outcomes included oxygen saturation levels, personal preference, hospital admissions, intravenous antibiotics and pseudomonas gene expression. There were no statistically significant differences found between any of the techniques used with respect to the outcomes measured except when autogenic drainage was described as being the preferred technique of the participants in one study over postural drainage and percussion.

Authors' conclusions

Autogenic drainage is a challenging technique that requires commitment from the individual. As such, this intervention merits systematic review to ensure its effectiveness for people with cystic fibrosis, particularly in an era where treatment options are changing rapidly. From the studies assessed, autogenic drainage was not found to be superior to any other form of airway clearance technique. Larger studies are required to better evaluate autogenic drainage in comparison to other airway clearance techniques in view of the relatively small number of participants in this review and the complex study designs. The studies recruited a range of participants and were not powered to assess nonâ€•inferiority. The varied length and design of the studies made the analysis of pooled data challenging

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See also

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Keywords

Adolescent; Adult; Airway clearance technique; Child; Drainage; non pharmacological intervention - devices OR physiotherapy; Self-Management; Chest physiotherapy; Postural Drainage; Percussion; Active Cycle of Breathing Technique -ACBT-; forced expiration technique; Positive-Pressure Respiration- PEP- pep mask; High Frequency Chest Wall Oscillation -HFCWO-; VEST Airway Clearance System; oscillating devices; Acapella; flutter; Intrapulmonary Percussive Ventilation; Vibration; exercise; Autogenic drainage;