



Effects of the intermittent intrapulmonary deflation technique on airway clearance in patients with cystic fibrosis

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Abstract

Background: The intermittent intrapulmonary deflation (IID) technique is a new airway clearance strategy that produces a succession of very short air depressions in the bronchial tree. In patients with bronchial hypersecretion, the IID aims to decrease viscoelastic properties of sputum and to increase the rate of sputum clearance.

Objectives: To assess the effects of adding the IID technique to a conventional airway clearance technique (autogenic drainage[AD]) compared to AD alone in patients with cystic fibrosis (CF) hospitalised for intravenous antibiotic therapy by assessing the sputum weight expectorated after one session.

Methods: Patients with CF were recruited to receive a 30-min session of IID+AD vs AD alone, separated by at least 48 hours, in a randomized order. Sputum weight was collected during each airway clearance session and for a 24-hour period following both sessions. Sputum samples were weighted and then dried for 24h at 100°C in an oven to also obtain dry sputum weight. The sputum solids content (dry to wet weight ratio) was calculated and analysed.

Results: 17 patients with CF (aged 29±11 years; FEV1%:57.1±20.1) were recruited. The sputum wet weight collected during AD (median[IQR]:4.427g [2.321-14.441]) was statistically higher than during IID+AD (3.721g [2.290–8.186]), p=0.03. No between-group difference was found in dry weight and sputum solids content during

airway clearance sessions. No between-group difference was found in wet and dry weights or solids content in the expectorated sputum collected for 24h after the sessions.

Conclusions: The IID added to AD does not increase the amount of sputum expectorated compared to AD alone in hospitalised patients with CF.

Chronic diseases Cystic fibrosis Physiotherapy care

Footnotes

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