primary studies - published RCT

Adults with cystic fibrosis prefer hypertonic saline before or during airway clearance techniques: a randomised crossover trial.

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

randomised crossover trial with concealed allocation, intention-to-treat analysis, and blinded assessors.

Participants

50 adults with cystic fibrosis and stable lung function at the end of a hospital admission.

Interventions

Participants performed 3 sessions of airway clearance techniques per day for 3 days. On each day, participants were randomised to inhale hypertonic saline either before, during, or after the airway clearance techniques. Participants readmitted within one year repeated the 3-day study.

Outcome measures

The primary outcome was the change in forced expiratory volume in one second (FEV(1)) from before to 2 hours after an entire airway clearance session. Secondary outcomes were change in forced vital capacity, perceived efficacy, tolerability, satisfaction, adverse events, and adherence

Main results

All 50 participants completed the study. The effects on lung function were non-significant or were of borderline statistical significance favouring inhalation of hypertonic saline before airway clearance techniques. Satisfaction was rated significantly worse on a 100mm scale when hypertonic saline was inhaled after the airway clearance techniques: mean differences 20mm (95% CI 12 to 29) compared to before the airway clearance techniques and 15 mm (95% CI 6 to 24) compared to during the techniques. Perceived effectiveness showed similar effects but other outcomes were unaffected. All 14 participants who were readmitted repeated the study and most preferred the same timing regimen.

Authors' conclusions

People with cystic fibrosis could be encouraged to time hypertonic saline before or during airway clearance techniques to maximise perceived efficacy and satisfaction, even though lung function may not be better with these timing regimens.

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See also

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Keywords

Adult; hydration; Hypertonic Solutions; Inhalation OR nebulised; non pharmacological intervention - devices OR physiotherapy; Respiratory Tract Diseases;