primary studies - published RCT

Effect of increasing doses of hypertonic saline on mucociliary clearance in patients with cystic fibrosis.

Code: PM9404379 **Year:** 1997 **Date:** 1997 **Author:** Robinson M

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

Randomised cross-over trial

Participants

FEV1 % predicted 60.8 SEM 29.7 range (27 to 112) n = 12 Males = 9 Females = 3 Mean age = 21.9 years, range 18 years to 28 years (SD 3.0) FVC % predicted 77.4 SEM 22.4

Interventions

IS single inhalation (control group 1) Pre-treated with nebulised salbutamol 5 mg HS 7% 7 ml single inhalation (treatment group 1) Amiloride 3 mg (A) single inhalation (treatment group 2) HS + a single inhalation (treatment group 3) Voluntary cough single episode. All done 1 week apart (control group 2)

Outcome measures

Sputum isotope clearance 60 minutes Mucociliary clearance rate* Change in FEV1

Main results

There was a significant increase in the amount of activity cleared from the right lung with all concentrations of hypertonic saline (HS) compared with control. The amount cleared at 90 minutes on the control day was 12.7% (95% confidence interval (CI) 9.8 to 17.2) compared with 19.7% (95% CI 13.6 to 29.5) for 3% HS, 23.8% (95% CI 15.9 to 36.7) for 7% HS and 26.0% (95% CI 19.8 to 35.9) for 12% HS. The improvement in mucociliary clearance was not solely due to coughing as the number of coughs recorded on the control day exceeded that recorded on any other day. The hypertonic saline did not induce a clinically significant change in FEV1.

Authors' conclusions

Within the range of concentrations examined in this study, the effect of hypertonic saline appears to be dose dependent. Inhalation of hypertonic saline remains a potentially useful treatment for patients with cystic fibrosis.

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See also

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Keywords

Adult; hydration; Hypertonic Solutions; Inhalation OR nebulised; pharmacological_intervention; Airway clearance drugs -expectorants-mucolytic- mucociliary-; Amiloride; ENaC antagonists - Sodium Channel Blockers; Respiratory System Agents;