primary studies - published RCT

The effect of inhaled mannitol on bronchial mucus clearance in cystic fibrosis patients: a pilot study.

Code: PM10543292 **Year:** 1999 **Date:** 1999 **Author:** Robinson M

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

Randomised 4-way cross-over design

Participants

Mean age = 22.1 years, range 19 years to 28 years (SD 3.8 years) n = 10 Males = 7 Females = 3. FEV1 % predicted 52.0% SD 6.7 range 31 to 84%

Interventions

HS 12% single dose (treatment group 3) Pre-treated with nebulised salbutamol 5 mg HS 3% single dose (treatment group 1) HS 7% single dose (treatment group 2) Voluntary cough and IS combined as the control Each participant took part in each arm

Outcome measures

Sputum isotope % clearance at 30 minutes Sputum isotope clearance at 90 minutes* Mucociliary clearance*

Main results

Neither mannitol nor HS improved BMC during the actual intervention period compared with their respective controls. However during the post-intervention measurement there was a significant improvement in BMC for both the mannitol (8.7+/-3.3% versus 2.8+/-0.7%) and HS (10.0+/-2.3% versus 3.5+/-0.8%). There was also a significant improvement in cough clearance with the Mannitol (9.7+/-2.4%) compared with its control (2.5+/-0.8%). Despite premedication with a bronchodilator, a small fall in forced expiratory volume in one second (FEV1) was seen immediately after administration of both the mannitol (7.3+/-2.5%) and HS (5.8+/-1.2%). Values of FEV1 returned to baseline by the end of the study.

Authors' conclusions

Inhaled mannitol is a potential mucoactive agent in cystic fibrosis patients. Further studies are required to establish the optimal dose and the long-term effectiveness of mannitol.

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See also

Eur Respir J. 1999 Sep;14(3):678-85.

Keywords

Adolescent; Adult; hydration; Hypertonic Solutions; Inhalation OR nebulised; Mannitol; pharmacological_intervention; Airway clearance drugs -expectorants- mucolytic- mucociliary-; Respiratory System Agents;