primary studies - published RCT

Inhaled mannitol improves the hydration and surface properties of sputum in patients with cystic fibrosis.

Code: PM19880909 **Year:** 2010 **Date:** 2010 **Author:** Daviskas E

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

double-blind crossover study.

Participants

28 subjects with CF

Interventions

Mannitol or placebo 420 mg bid was inhaled over 2 weeks.

Outcome measures

Sputum was collected before and at the end of the 2-week treatment. The solids content, surface tension, contact angle, and viscoelasticity were measured.

Main results

Two-week treatment with mannitol reduced the solids from 7.3% +/- 3.0% to 5.7% +/- 3.0% (P = .012), surface tension from 83.1 +/- 7.2 to 78.6 +/- 8.0 mN/m (P < .039), and contact angle from 52.4 +/- 7.7 to 47.9 +/- 7.3 degrees. There was no significant change in the viscoelastic properties of sputum (P > .1). Placebo treatment had no significant effect on the sputum properties. The change in solids content correlated with the change in both FEV(1) (r = -0.78, P = .004) and forced expiratory flow in the middle half of the FVC (r = -0.80, P = .003), and the percentage change in surface tension and contact angle correlated with the percentage change in the FEV(1) (r = -0.73, P = .012 and r = -0.63, P = .03, respectively) in these subjects.

Authors' conclusions

Treatment with inhaled mannitol over 2 weeks improved the hydration and surface properties of sputum in patients with CF. This effect was sustained and correlated with airway function changes.

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See also

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Keywords

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