

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

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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% \pm 3.0% to 5.7% \pm 3.0% ($P = .012$), surface tension from 83.1 \pm 7.2 to 78.6 \pm 8.0 mN/m ($P < .039$), and contact angle from 52.4 \pm 7.7 to 47.9 \pm 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.

<http://dx.doi.org/10.1378/chest.09-2017>

See also

Chest YR: 2010 VL: 137 NO: 4

Keywords

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