primary studies - published RCT

Comparison of inhaled mannitol, daily rhDNase and a combination of both in children with cystic fibrosis: a randomised trial.

Code: PM19996349 **Year:** 2010 **Date:** 2010 **Author:** Minasian C

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

RCT, open crossover study.

Participants

38 children with CF

Interventions

Subjects underwent an initial bronchial provocation challenge with dry powder mannitol. Those children with a negative challenge were randomly allocated to one of three consecutive 12-week treatment blocks (inhaled mannitol alone, nebulised rhDNase alone and mannitol + rhDNase).

Outcome measures

The primary outcome was forced expiratory volume in 1 s (FEV(1)). A number of secondary outcome measures were also studied.

Main results

20 children completed the study. Bronchoconstriction and cough associated with mannitol administration contributed to the high attrition rate. The mean increase in FEV(1) following 12 weeks of treatment was 0.11 litres (6.7%) (p = 0.055) for mannitol alone, 0.12 litres (7.2%) (p = 0.03) for rhDNase alone and 0.03 litres (1.88%) (p = 0.67) for rhDNase and mannitol. None of the secondary clinical outcomes was statistically significantly different between treatments.

Authors' conclusions

Inhaled mannitol was at least as effective as rhDNase after 3 months treatment. There was a marked individual variation in tolerance to mannitol and in response to treatment however. Children who do not respond to rhDNase may benefit from a trial of inhaled mannitol. The combination of mannitol and rhDNase was not useful.

http://dx.doi.org/10.1136/thx.2009.116970

See also

Thorax. 2010 Jan;65(1):51-6. Epub 2009 Dec 8.

Keywords

Adolescent; Child; Combined Modality Therapy; Deoxyribonuclease; Inhalation OR nebulised; Mannitol; pharmacological_intervention; Powders; Recombinant Proteins; Airway clearance drugs -expectorants- mucolytic- mucociliary-; Respiratory System Agents; Dornase alpha; Pulmozyme;