primary studies - published RCT

Inhaled hypertonic saline increases sputum expectoration in cystic fibrosis.

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

Randomised parallel group trial, unblinded

Participants

On stable medications regime for last 14 days. Exclusion criteria: > 20% fall in FEV1 at baseline assessment Exacerbation of CF in last four weeks requiring admission to hospital Exacerbation requiring admission to hospital during trial period. n = 58. HS (n = 27). Males = 18, females = 9. IS (n = 25) males = 13, females = 12. mean age 16.7 years, range 8 to 36 years. Severity of lung disease, FEV1 % of predicted 30 to 70%. Inclusion criteria: Diagnosis of CF with positive sweat chloride test. Able to do pulmonary function tests. Cough and daily sputum production. Regular chest physiotherapy at home. Reasonable distance from clinic. Mean age 16.1 years, range 7 years to 25 years

Interventions

Pre-treated salbutamol 600 mcg MDI and volumatic spacer device HS 6% 10 ml BD for 2 weeks (treatment group) IS BD for 2 weeks (control group)

Outcome measures

Mean change in FEV1 at 2 weeks Mean change FVC at 2 weeks VAS for cleared chest at 1 and 2 weeks VAS for fatigue VAS for appetite VAS for exercise tolerance VAS for quality of sleep VAS for general well-being Adverse effects; increased cough, haemoptysis, chest tightness and pharyngitis VAS for dyspnoea

Main results

Sputum expectoration (median; Q1,Q3) from the beginning of the inhalation of HS or IS to the final spirometry measure 60 min post-physiotherapy was significantly greater after HS than IS [17.2g (11.7, 34.8) vs 11.3g (6.5, 16.1): P = 0.006]. A clinical score of the patient's own judgement of a cleared chest was significantly better after HS than IS. Spirometry results did not change following either of the two inhalations.

Authors' conclusions

These data show that the inhalation of 6% HS prior to physiotherapy can increase sputum expectoration in patients with CF and suggest that HS might be an effective, safe and cheap adjunct to regular physiotherapy in patients with CF.

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See also

J Paediatr Child Health. 1996 Feb;32(1):48-50.

Keywords

Adolescent; Adult; hydration; Hypertonic Solutions; Inhalation OR nebulised; non pharmacological intervention - devices OR physiotherapy; pharmacological_intervention; Exacerbation; Respiratory Tract Infections; Infection; Bacterial Infections; Respiratory System Agents; Respiratory Tract Diseases;