Cochrane Database of Systematic Reviews - - Cochrane Review

Timing of dornase alfa inhalation for cystic fibrosis

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

Any trial of dornase alfa in people with cystic fibrosis where timing of inhalation was the randomised element in the study with either: inhalation before compared to after airway clearance techniques; or morning compared to evening inhalation.

List of included studies (5)

Anderson 2009; Bishop 2011; Fitzgerald 2005; van der Giessen 2007a; van der Giessen 2007b

Participants

People of all ages and of both sexes with CF diagnosed by genetic testing or evidence on sweat chloride or nasal potential difference, including all degrees of disease severity.

Interventions

Morning; Pre-ACT

Outcome measures

FEF25 (% pred); FEF25 (L); FEF25-75 (% pred); FEV1 (% pred); FEV1 (L); FVC (% pred); FVC (L)

Main results

115 trial reports representing 55 trials, of which five trials (providing data on 122 participants) met our inclusion criteria. All five trials used a crossâ€•over design. Intervention periods ranged from two to eight weeks. Four trials (98 participants) compared dornase alfa inhalation before versus after airway clearance techniques. Inhalation after instead of before airway clearance did not significantly change forced expiratory volume at one second (veryâ€•low quality evidence). Similarly, forced vital capacity (lowâ€•quality evidence) and quality of life (veryâ€•low quality evidence) were not significantly affected; forced expiratory flow at 25% was significantly worse with dornase alfa inhalation after airway clearance, mean difference â€•0.17 litres (95% confidence interval â€•0.28 to â€•0.05), based on the pooled data from two small trials in children (7 to 19 years) with wellâ€•preserved lung function. All other secondary outcomes were statistically nonâ€•significant. In one trial (25 participants), morning versus evening inhalation had no impact on lung function or symptoms (lowâ€•quality evidence)

Authors' conclusions

The current evidence derived from a small number of participants does not indicate that inhalation of dornase alfa after airway clearance techniques is more or less effective than the traditional recommendation to inhale nebulised dornase alfa 30 minutes prior to airway clearance techniques, for most outcomes. For children with wellâ€•preserved lung function, inhalation before airway clearance may be more beneficial for small airway function than inhalation after. However, this result relied on a measure with high variability and trials with variable followâ€•up. In the absence of strong evidence to indicate that one timing regimen is better than another, the timing of dornase alfa inhalation can be largely based on pragmatic reasons or individual preference with respect to the time of airway clearance and time of day. Further research is warranted.

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See also

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Keywords

Deoxyribonuclease; Airway clearance drugs -expectorants- mucolytic- mucociliary-; Inhalation OR nebulised;

pharmacological_intervention; Respiratory System Agents; Dornase alpha; Pulmozyme;