primary studies - published, non RCT

Effects of positive end-expiratory pressure on oscillated volume during high frequency chest compression in children with cystic fibrosis.

Code: PM12687028 **Year:** 2003 **Date:** 2003 **Author:** Dosman CF

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

A clinic-based prospective intervention study.

Participants

9 children with cystic fibrosis with little or no obstructive airway disease who were selected from the outpatient Cystic Fibrosis and Pediatric Pulmonary Clinics at the University of Alberta Hospital, Edmonton, Alberta.

Interventions

Each child received HFCC alone (at 10 Hz with chest wall pressure of 8 cm H2O) and HFCC plus PEEP. A closed circuit spirometry system was used to measure HFCC- and PEEP-induced changes in EELV, expressed as per cent baseline functional residual capacity (FRC) measured using helium dilution. An isothermic chamber permitted measurement of V(osc).

Outcome measures

EELV, FRC, V(osc)

Main results

HFCC caused a significant 9% decrease in EELV. Adding 2.0 +/- 0.3 cm H2O of PEEP increased EELV back to at least the FRC level. With HFCC alone, Vosc was significantly lower during spontaneous expiration than during spontaneous inspiration, but adding PEEP to HFCC increased V(osc), especially during spontaneous expiration.

Authors' conclusions

Adding PEEP during HFCC prevents the decrease in EELV and increases V(osc). Therefore, PEEP may improve HFCC-induced mucus clearance in children with cystic fibrosis.

http://www.mrw.interscience.wiley.com/cochrane/clcentral/articles/688/CN-00448688/frame.html

See also

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Keywords

Child; non pharmacological intervention - devices OR physiotherapy; High Frequency Chest Wall Oscillation -HFCWO-; Airway clearance technique; Positive-Pressure Respiration- PEP- pep mask; VEST Airway Clearance System; oscillating devices; Chest physiotherapy;