

*primary studies - published, non RCT*

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

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### **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 H<sub>2</sub>O) 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 H<sub>2</sub>O 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**

Canadian respiratory journal : journal of the Canadian Thoracic Society YR: 2003 VL: 10 DE: RCT NO: 2

### **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;