primary studies - published RCT

Comparison of high-frequency chest wall oscillation with differing waveforms for airway clearance in cystic fibrosis.

Code: PM17890465 **Year:** 2007 **Date:** 2007 **Author:** Kempainen RR

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

controlled, randomized, double-blind, crossover study.

Participants

15 clinically stable, adult CF patients

Interventions

Patients performed airway clearance with each device once and at matched oscillation frequencies and pressures. Patients completed pulmonary function tests before and after each session, and rated the comfort of the two devices.

Outcome measures

Sputum wet and dry weight, FEV1, FVC, comfort of the 2 devices

Main results

Mean sputum wet and dry weight produced during sine waveform and triangular waveform HFCWO sessions did not differ ($p = 0.11$ and $p = 0.2$, respectively). Mean changes in FEV(1) and FVC following HFCWO therapy were also comparable ($p = 0.21$ and $p = 0.56$, respectively). However, there was a significant reduction in air trapping by residual volume/total lung capacity ratio following triangular waveform HFCWO ($p = 0.01$). In addition, in vitro cough transportability was 10.6% greater following therapy with the triangular waveform device ($p = 0.05$). Patients perceived the two devices as equally comfortable ($p = 0.8$).

Authors' conclusions

Single-session sputum production is comparable with sine and triangular waveform HFCWO devices. Longer term comparisons are needed to determine whether sustained use of the devices results in clinically important differences in outcomes.

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See also

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Keywords

Adult; Airway clearance technique; Chest Wall Oscillation; non pharmacological intervention - devices OR physiotherapy; High Frequency Chest Wall Oscillation -HFCWO-; VEST Airway Clearance System; oscillating devices; Chest physiotherapy;