primary studies - published RCT

Comparison of settings used for high-frequency chest-wall compression in cystic fibrosis.

Code: PM20507651 **Year:** 2010 **Date:** 2010 **Author:** Kempainen RR

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

controlled randomized crossover study.

Participants

16 clinically stable, adult CF patients

Interventions

Patients performed airway clearance with HFCWC, once each with lower-pressure/mid-frequency HFCWC and higher-pressure/variable-frequency HFCWC, on separate occasions.

Outcome measures

All sputum produced during each session was collected. Patients completed pulmonary function tests before and after each session.

Main results

Median sputum wet weight was greater with higher-pressure/variable-frequency HFCWC than with lower-pressure/mid-frequency HFCWC (6.4 g, range 0.49-22.0 g, versus 4.8 g, range 0.24-15.0 g, P = .02). Dry sputum weight differences did not reach statistical significance (higher-pressure/variable-frequency HFCWC 0.20 g, range 0.009-0.62 g, lower-pressure/mid-frequency HFCWC 0.12 g, range 0.0001-1.0 g, P = .23). Higher-pressure/variable-frequency HFCWC and lower-pressure/mid-frequency HFCWC resulted in similar increases in FEV(1) (70 mL vs 90 mL, P = .21) and forced vital capacity (80 mL vs 80 mL, P = .94). Post-therapy sputum viscoelastic properties did not differ. Patients perceived the 2 regimens as equally comfortable and effective (P = .35 and P = .35, respectively).

Authors' conclusions

In adult CF patients, single-session higher-pressure/variable-frequency HFCWC resulted in greater sputum expectoration by wet weight, but not other differences, compared to the commonly used lower-pressure/mid-frequency settings. Longer-term comparisons are needed in a larger, more diverse population to determine whether sustained use of the higher-pressure/variable-frequency settings results in clinically important differences in outcomes.

See also

Respir Care. 2010 Jun;55(6):695-701.

Keywords

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