

primary studies - published RCT

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

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### 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;