primary studies - published RCT

Effects of an Educational Intervention of Physical Activity for Children and Adolescents With Cystic Fibrosis: A Randomized Controlled Trial.

Code: PM25140032 **Year:** 2014 **Date:** 2018 **Author:** Hommerding PX

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

2 randomized srudies

Participants

Over two separate studies, 10 and 11 mild to moderate CF patients were recruited for study I and II, respectively.

Interventions

Study I: Vibralung was used for 20 min with either no sound (NS: PEP only) or sound (S: PEP and sound) on randomized visits. Study II: over 5 days of in-hospital therapy, the Vibralung or vibratory vest therapy (Vest) were used for two therapy sessions per day, with sputum collected for 20 min following each therapy and pulmonary function accessed pre and post each 5-day period (days 1-5 or 7-11) in a randomized crossover design.

Outcome measures

Study I: Pulmonary function, diffusion capacity of the lungs for carbon monoxide and nitric oxide (DLCO/DLNO), symptoms, and peripheral oxygen saturation (SpO2) were measured at baseline and at 1 and 4 h post treatment. Expectorated sputum was collected over 4 h post treatment. Study II: sputum collected for 20 min following each therapy and pulmonary function accessed pre and post each 5-day period (days 1-5 or 7-11) in a randomized crossover design.

Main results

Vibralung usage resulted in no change from baseline to 4 h post in pulmonary function, SpO2 or symptoms ($p > 0.05$). At 4 h post therapy, the DLCO- and DLNO-derived measure of alveolar-capillary unit function (DM/ VC) showed improvement (DM/ VC = 12.5 +/- 5.5 versus 7.3 +/- 18.8% change, S versus NS) with no difference between S and NS ($p = 0.74$). Sputum expectoration was similar between S and NS conditions (wet sputum = 10.5 +/- 4.6 versus 9.9 +/- 3.2 g, S versus NS, $p = 0.25$). There were no differences in the improvement in pulmonary function between Vibralung and Vest during either 5-day period during the hospital stay.

Authors' conclusions

Vibralung was well tolerated and caused no detrimental changes in pulmonary function metrics. The Vibralung appears to be a safe ACT in individuals with CF.

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See also

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Keywords

Airway clearance technique; exercise; non pharmacological intervention - devices OR physiotherapy; Percussion; Vibration; Inhalation OR nebulised; Postural Drainage; Chest physiotherapy; oscillating devices;