primary studies - published RCT

Effect of high-frequency chest wall oscillation on the central and peripheral distribution of aerosolized diethylene triamine penta-acetic acid as compared to standard chest physiotherapy in cystic fibrosis.

Code: PM16537872 **Year:** 2006 **Date:** 2006 **Author:** Stites SW

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

crossover design

Participants

10 CF patients, ages 22 to 38 years, with moderate-to-severe obstructive disease were studied after documentation of stable lung function

Interventions

(133)Xe was administered to delineate total lung volume. DTPA was aerosolized (Pari LC Plus nebulizer and Pulmo-Aide compressor; Pari Respiratory Equipment Inc.; Richmond, VA)

Outcome measures

The central to peripheral deposition ratio (C/P ratio) of each lung was analyzed in each study group. Central regions were represented by the inner one third of the (133)Xe scan as demonstrated in previous research models.

Main results

The mean C/P ratio (+/- SD) for both lungs was 1.45 +/- 0.31 with HFCWO and 1.46 +/- 0.28 following SCPT (p = not significant [NS]). Right lung mean C/P ratio was 1.74 +/- 0.43 with HFCWO and 1.85 +/- 0.63 after SCPT (p = NS). Left lung mean C/P ratio was 1.25 +/- 0.29 with HFCWO and 1.21 +/- 0.35 after SCPT (p = NS). There was no correlation between C/P ratio and FEV(1) or FVC.

Authors' conclusions

Use of HFCWO in combination with aerosolized DTPA did not result in increased central deposition as compared with aerosolized DTPA administered after SCPT. Further study is required to determine if combining HFCWO with aerosolized medications can be modified to improve peripheral deposition.

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See also

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Keywords

Adolescent; Adult; Airway clearance technique; Biomarker; Chest Wall Oscillation; Inhalation OR nebulised; non pharmacological intervention - devices OR physiotherapy; non pharmacological intervention - diagn; pharmacological_intervention; High Frequency Chest Wall Oscillation -HFCWO-; VEST Airway Clearance System; oscillating devices; Chest physiotherapy;