primary studies - published RCT

Effects of flutter and PEP mask physiotherapy on symptoms and lung function in children with cystic fibrosis.

Code: PM9701429 **Year:** 1998 **Date:** 1998 **Author:** van Winden CM

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

Cross-over design. Randomised trial.

Participants

Participants were excluded if they had been clinically unstable during the 2 weeks prior to entering the study, according to PEFR and symptoms scores (criteria not specified). 22 participants (12 male); median age 12 years, range 7 - 17 years; median FEV1 82, range 55 - 129% predicted. CF confirmed by sweat tests or DNA mutation analysis.

Interventions

1. PEP treatment. Pressure 8 - 12 cm H2O. Seated participants breathed through an Astra Meditec PEP mask 15 times, followed by 3 huffs and coughing. 2. Oscillating PEP (Flutter). Participants inhaled deeply, held their breath for 2 - 3 seconds, then exhaled through the VarioRaw Flutter device 15 times, following which the participant again huffed 3 times and coughed. This sequence was also repeated 5 Each intervention was performed twice per day for 2 weeks, preceded by a one-week washout period. During the washout weeks, all participants performed "routine physiotherapy" with huff and cough manoeuvres. This sequence was repeated 5 times

Outcome measures

Oxygen saturation via pulse oximetry was measured before during and after the first and last treatments of each 2-week period. FEV1, FVC, and TLC were measured before the initial, 1-week washout period. These measures were repeated on the first day of each of the 2 treatment periods, before and 30 minutes after the first session of therapy. At the end of the 2-week treatment period

Main results

No significant changes in any lung function parameter occurred after a single session or after 2 weeks of physiotherapy with either method. There was no difference in acceptability and subjective efficacy. In conclusion, any superiority of the flutter over the positive expiratory pressure mask technique for expectoration could not be confirmed during 2 weeks of daily treatment in children with cystic fibrosis. Both methods are well accepted by children and do not change lung function.

Authors' conclusions

Long-term comparison of both methods, including expectoration measurements, seems to be required for further evaluation of the potential success of physiotherapy in cystic fibrosis.

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See also

Eur Respir J. 1998 Jul;12(1):143-7.

Keywords

Adolescent; Airway clearance technique; Artificial Ventilation; Child; flutter; non pharmacological intervention - devices OR physiotherapy; Oxygen mask; pharmacological_intervention; Vibration; Positive-Pressure Respiration- PEP- pep mask; Ventilators; Inhalation OR nebulised; oscillating devices; Chest physiotherapy;