

Oral Presentations

Workshop 10. Barebones of Physiotherapy

S23

WS10.5 Comprehensive exercise training during hospitalization for an acute CF exacerbation: a randomized controlled trial

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Objectives: The purpose of our study was to assess the effects of a comprehensive and intensive exercise program, including aerobic, resistance, and flexibility/postural training, on body structure/function outcomes during an inpatient stay for a CF exacerbation.

Methods: Patients admitted for an acute CF exacerbation for ≥ 7 days were randomly assigned to receive either self-selected mode and intensity of exercise (control) or moderate-to-high intensity, comprehensive exercise training protocol (experimental). On admission and discharge, endurance (modified shuttle test [MST]), upper, lower, and abdominal muscle performance (repetitions of bicep curls, sit-to-stand, and sit-ups, respectively), upper extremity range of motion (ROM)/flexibility (shoulder flexion), and posture (kyphosis) were assessed.

Conclusions: Despite the small sample size ($n=33$) and severe lung disease (mean FEV₁ 43(11) % predicted), patients (mean age 15(3) yrs) allocated to the experimental group had significant improvements compared to the control group. MST distance was 89 m farther in the experimental group [146 vs. 57 m ($p=0.04$)]. Abdominal/core muscle performance increased (7 vs. 2, $p=0.03$), but upper and lower extremity muscle performance did not differ between groups ($p=0.40$ and 0.23). Flexibility and posture also improved ($p=0.03$ and 0.009 , respectively). Exercise training is important even during an acute exacerbation of CF. In as little as 7 days, it is possible to have significant improvements in endurance, core strength, upper extremity ROM/flexibility, and posture; more specific interventions and/or more time may be needed to see improvements in upper and lower extremity muscle performance.

WS10.6 Canadian national airway clearance study: positive expiratory pressure mask versus high frequency chest wall oscillation

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Background: Positive Expiratory Pressure (PEP) mask is the most commonly used method of airway clearance (AC) in Canadians with cystic fibrosis (CF) whereas in the USA, High Frequency Chest Wall Oscillation (HFCWO) is the preferred form of AC. Prior to commencement of this study, the literature revealed no long-term comparative studies using HFCWO versus other forms of AC in the CF population.

Objectives: To determine the long-term efficacy of using HFCWO as compared to PEP mask therapy in the treatment of CF.

Methods: This was a randomized controlled study involving 12 CF Centres in Canada. After a 2 month washout period, subjects were randomized to either HFCWO or PEP mask therapy for one year. The primary outcome parameter was the number of respiratory exacerbations (REs); secondary outcomes included time to first RE, pulmonary function, Quality of Life, and physical activity level.

Results: 107 subjects were enrolled in the study. 51 were randomized to PEP (mean age 13.5 years), 56 were randomized to performing HFCWO (mean age 14.3 years). Of 19 dropouts within the study 16 occurred prior or at the time of randomization; only randomized patients were included in the intention to treat analysis. The overall number of REs was 1.59 per subject with a significantly higher number of REs occurring in the HFCWO group compared to the PEP group ($p=0.007$). There was no difference between groups in time to first RE.

Conclusion: The use of HFCWO was associated with an increased number of respiratory exacerbations compared to PEP mask.

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