284 Is there a relationship between stress urinary incontinence and back pain in the Manchester Adult Cystic Fibrosis Centre female population?

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Introduction: Musculoskeletal problems and stress urinary incontinence (UI) have long been identified as complications of an ageing Cystic Fibrosis (CF) population. More recently links between back pain, respiratory disorders and stress UI have been reported in a general population of 38,050 women [1].
Aims: To investigate associations between back pain and stress UI and discuss pelvic floor weakness as a contributor to back pain in the female patient population at MACFC.
Method: Data was extracted from the physiotherapy records of 138 female patients from information recorded at annual assessment, musculoskeletal and women's health appointments.
Results: 52 (38%) females complained of both stress UI and back pain, 28 (20%) complained of stress UI without back pain and 20 (14%) complained of back pain without stress UI. 49 (36%) of the patients had been taught pelvic floor exercises. Of these, 10 (20%) reported no improvement in their symptoms, 19 (39%) improved in both stress UI and back pain, 13 (27%) improved in stress UI only and 7 (14%) improved in back pain only.
Conclusion: This study has confirmed that stress UI and back pain are prevalent in this population with 72% complaining of symptoms. The data has also suggested a strong link between the two conditions with 52% of the symptomatic population complaining of both stress UI and back pain. Of the 49 patients that were taught pelvic floor strengthening exercises 39 (80%) reported improvement in their UI, back pain or both. This leads to the suggestion that strengthening the pelvic floor will help both stress UI and back pain in the study population.

Reference(s)

[1] Smith et al, Aust. J Physio. 2006;52:11

285 Timing of dornase alfa (DNase) inhalation for cystic fibrosis (CF)

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Objectives: To determine whether the timing of DNase inhalation affects clinical outcomes in people with CF, specifically examining before vs after airway clearance techniques; morning vs evening; and long vs short dwell time.
Method: Relevant randomised and quasi-randomised controlled trials were identified from the Physiotherapy Evidence Database (PEDro), Google Scholar and international CF conference proceedings. Relevant data were extracted and, where possible, meta-analysed.
Results: The searches identified 87 trials, of which 6 trials (involving 140 participants) met our inclusion criteria. All 6 studies used a cross-over design. Intervention periods ranged from 2 to 8 weeks. Inhalation after instead of before airway clearance did not change FEV1 (SMD −0.22, 95%CI −1.36 to 0.93). Similarly, FVC and quality of life were unaffected. Some secondary outcomes were statistically significant in individual studies (eg MEF25 was significantly higher with inhalation before airway clearance), but these have not been confirmed by other studies. In one trial, morning vs evening inhalation had no impact on lung function or symptoms. In another trial, allowing DNase to dwell in the lungs longer (mean 11 hr) before airway clearance improved FEF25–75 and QOL significantly more than a short dwell time (0.2 hr).
Conclusion: The primary outcome examined by this review (FEV1) was not affected by the timing of DNase inhalation with respect to airway clearance, time of day, or dwell time. For the other outcomes of this review, there were some significant findings in individual studies, but further evidence is required.

286* Does body position during inhalation of a nebulised aerosol influence the pattern of deposition in adults with and without cystic fibrosis (CF)?

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Aim: To compare the effect of two positioning regimens during inhalation of a nebulised aerosol on the proportion of the loaded dose that deposits in the lungs, the uniformity of deposition, and the ratio of apical:non-apical deposition in people with CF and healthy controls.
Method: 13 adults (mean±SD age 30±6 y) with stable CF lung disease (FEV1%pred 50±21, range 25–88) and 13 adults (28±5 y) with normal lung function inhaled a 4 mL nebulised radioaerosol for 20 min on two days. Participants were randomised to sit upright for one nebulisation, and to alternate between left and right side lying at 2 min intervals during the other nebulisation. After each nebulisation, a transmission scan identified the three-dimensional margin of the lung fields and a gamma camera scanned the distribution of the deposited radioaerosol.
Results: The proportion of the loaded dose that deposits in the lungs in sitting was similar in CF (13±4%) and controls (11±6%), and was unaltered by sidelying in either group (11±3% and 11±6%, respectively). The deposition pattern was significantly less uniform in CF (variance in counts/voxel, 2156±753) than in healthy controls (1294±920) $p = 0.015$. This was unaltered by sidelying in either group. Deposition was significantly less concentrated in the apical regions than the rest of the lung, with apical:non-apical concentrations of 0.38±0.10 in CF and 0.44±0.18 in controls. Importantly, side lying significantly improved apical deposition in controls to 0.48±0.16 ($p = 0.02$), but not in CF (0.47±0.19%).
Conclusion: Side lying significantly improved apical deposition in healthy lungs with no negative impact in CF. Further research is needed in milder CF lung disease.

287 Can modern nebulisers improve patient outcomes?

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Aim: To evaluate whether the introduction of modern nebulisers using Vibrating Mesh Technology (VMT) has a significant impact on lung function in adults with Cystic Fibrosis (CF).
Method: Retrospective analysis of patients in an adult CF centre who used a nebuliser. We considered respiratory function (FEV_1 and FVC) 6 months pre introduction of the VMT device and 6 months post. In addition we reviewed frequency of exacerbation (prescription of IV or oral antibiotics), and considered patient satisfaction with the device used.
Results: 118 patients (age 15–66 yr) used a nebuliser: 45% (n = 53) used E-Flow, 37% (n = 44) used I-neb and 18% (n = 21) used Portaneb. Some data were incomplete due to patient transfer or archiving of notes rendering them unavailable for review, full analysis was therefore available for 62 patients using I-neb or E-Flow. There was no significant difference in FEV_1 or FVC between implementation of the device and the end of a 12 month evaluation period; median FEV_1 pre 1.76 L, post 1.79 L, $p = 0.907$. There was no significant difference between frequencies of exacerbation during the evaluation period.
Patients using the E-flow considered it time efficient and were extremely satisfied. Of the I-neb users, one discontinued use; citing actively breathing on the device as "too difficult" preferring the conventional portaneb. All others were extremely satisfied. The 96 remaining patients continue with their VMT. Patients reported improvement in adherence with nebulisation due to the delivery speed of the VMT, although this could not be formally assessed.
Conclusion: Modern nebuliser devices alone do not have a significant impact on the progressive nature of CF lung disease.