

**205 What do our adult CF patients know about bone health?**

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**Background:** Reduced bone mineral density (BMD) is common in patients with CF. Many patients are unaware of the problems which low BMD can lead to, such as susceptibility to fractures, pain and disability. Education regarding CF bone health is currently undertaken as part of standard consultations by the team, including doctors, physiotherapists and dieticians.

**Method:** 50 randomly selected patients completed a questionnaire on bone health in CF, which assessed their knowledge of bone health, treatments, adherence to taking prescribed vitamins and pancreatic enzymes. Knowledge regarding exercise was evaluated by asking which activities could improve BMD and which should be avoided if an individual had low BMD.

**Results:** 74% patients were aware that people with CF tend to have low BMD. Vitamins (88%), calcium supplements (68%) and exercise (62%) were the most identified treatments for BMD. However 48% were unable to identify any exercises that might need to be avoided with low BMD. 68% of patients were aware that steroids might affect their BMD. Patients were unable to describe what osteopenia (84%) or osteoporosis (42%) was. 58% did not know what symptoms someone with low BMD might experience.

**Conclusion:** In general patients had a reasonably good knowledge of bone health in CF but reported suboptimal adherence to vitamin supplements and were unsure of the role of exercise in particular. Specific education about bone health in CF may be needed to improve awareness of bone health, to enable patients to understand how different treatments help maintain bone health. This might improve adherence to vitamin supplements and appropriate exercise.

**207 The development of a musculoskeletal screening tool for adults with cystic fibrosis: stage 2**

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**Introduction:** Following the presentation of stage 1 of the musculoskeletal (MSK) screening tool (ST) there was discussion around how it could be developed further to be used as a data collection tool and guide pathways of care.

**Objectives:**

1. To include validated pain and stress urinary incontinence (UI) questionnaires.
2. To increase the data set to enable future research into predictors of pain.
3. To develop care pathways guided by MSKST outcome.

**Method:** The MSKST was redeveloped. The McGill Pain Questionnaire (MPQ) and the International Incontinence Q (ICIQ-UI) were included. Care pathways for pain and UI were developed with assistance from msk and women's health physios. A pilot of 14 patients was carried out.

**Results:** Male = 8, female = 6.

Microbiological group: Ps group 1 = 6, Ps group 2 = 5, non-Ps = 3. 7 diabetics.

Median FEV<sub>1</sub> was 1.3.

10 complained of a pain with a mean MPQ of 48/150.

Site of pain: Spine = 8, peripheral = 1, non-msk = 1.

6 complained of UI with a mean ICIQ of 6/21.

13 had postural concerns with 4 having a fixed thoracic kyphosis.

Msk physio = 9, posture and exercise leaflet = 3, pelvic floor leaflet = 4, no intervention, screen in 1–2 years = 1.

**Conclusion:** The inclusion of the MPQ and ICIQ validates the MSKST to be used to assess and monitor severity of pain and UI.

The addition of care pathways ensures all patients have the opportunity to receive optimal management of their symptoms.

Large amounts of data need to be collected before analysis can be performed to gain insight into predictors of pain and correlation between pain and other parameters. It is hoped that the MSKST can be rolled out to other centers to help improve the management of these symptoms nationally.

**206 Stress urinary incontinence in adult CF patients: prevalence and physiotherapy management in Wales**

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Stress urinary incontinence (SUI) is an under diagnosed and under reported condition in CF. SUI affects males and females. However, previous reports show the prevalence in women with CF is higher than in their age matched peers.

**Purpose:**

- i. To identify the prevalence of adult CF patients experiencing symptoms of SUI
- ii. To compare current management of SUI with the CF Trust Physiotherapy Recommendations of Best Practice.

**Method:** A retrospective review of SUI in adult CF patients was conducted. Data was collected from the 160 (91 male) annual reviews completed between July 2010 and July 2011. All patients received care at the All Wales Adult CF Centre and had a confirmed diagnosis of CF. The following data was collected: Age; sex; FEV<sub>1</sub>; phenotype; number of exacerbations requiring IV's; any history of SUI; any physiotherapy assessment, intervention, investigations or referrals relating to SUI.

**Results:** SUI was reported in 10 (14.5%) female and 0 male patients. All patients identified with SUI were taught pelvic floor exercises. No formal objective assessments were completed. No follow up assessments were recorded. Females reporting SUI had a tendency to be older and have a lower FEV<sub>1</sub> but this was not statistically significant ( $p=0.07$  and  $p=0.47$ ). No correlation was seen between SUI and severity of phenotype or number of exacerbations requiring IV's.

**Conclusions:** The prevalence of SUI in both males and females identified in this cohort is lower than in previously published data. This could partly be due to under reporting of symptoms however this review highlights the need for development of a physiotherapy pathway for the identification and management of patients with SUI.

**208 Neuromuscular electrical stimulation in cystic fibrosis**

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The purpose of the present study was to evaluate the feasibility and efficacy of the addition of neuromuscular electrical stimulation (NMES) to endurance training (ET) in adults with cystic fibrosis (CF).

Fifteen patients with mild to moderate CF were randomised to 6 weeks of ET alone or combined with NMES (ET+NMES), performed at home. Each patient served as its own control and realized both training modalities. Ten healthy controls also performed the ET+NMES. Measurement of peripheral muscle strength and endurance, peak oxygen uptake, maximal aerobic power and lactate concentration determined during maximal incremental cycling test and six-min walking distance (6MWD) were obtained at baseline and after training.

Nine patients completed ET and ET+NMES and constituted the study group (age: 27±7 yr, FEV<sub>1</sub> = 52±15.7% predicted). ET+NMES was well tolerated in both groups. Improvements in 6MWD ( $p=0.01$ ) and maximal aerobic power ( $p=0.008$ ) were observed only after ET+NMES in CF patients. Trends towards improvement in quadriceps endurance ( $p=0.07$ ) and reduction in whole blood lactate for a given workload ( $p=0.07$ ) were also observed in this group after ET+NMES.

The addition of NMES to classic ET is safe and may improve some markers of muscle function and aerobic fitness in CF patients. However, further studies using larger cohorts of patients across the disease spectrum are required to confirm these preliminary findings.

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