

**303 Kwashiorkor – a clinical manifestation of cystic fibrosis**

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**Background:** A 4-month-old boy presented with failure to thrive. At hospital admission, with edema and worsening general condition, he had tachypnoea and desaturations, pale and marmorate skin, edema and liver enlargement. Weight was below the third centile. Laboratory tests revealed anaemia, hypoalbuminaemia, increased liver function tests and increased cell count in cerebrospinal fluid. CMV-PCR was positive in plasma, CSF and urine. He was under treatment with ganciclovir, ampicillin/sulbactam and daily substitution of human albumine.

Fecal elastase was <15 µg/g, sweat test was normal (28 mmol/l). Due to liver failure, devastating general condition, apathy, no spontaneous body movements, dyspnea, hepatomegaly, edema and erythematous eruptions the child was transferred to our clinic.

Pancreatic enzyme replacement and oral supplementation of vitamin D, K, E and zinc was initiated, antibiotics and antivirals continued. With this treatment general condition improved, edema and skin lesions resolved, weight increased and neurological status improved. Cystic fibrosis (CF) was diagnosed (sweat chloride 90 mmol/l) after edema had resolved and confirmed genetically [ΔF508/CFTRdele2,3 (21 kb)].

**Discussion and Conclusion:** CF still may present with life-threatening anemia, hypoalbuminaemia and edema (kwashiorkor). Infections due to impaired immunological status can further complicate the clinical course. False negative sweat tests are reported with kwashiorkor and must not lead to the exclusion of CF. To avoid these life-threatening conditions implementation of CF newborn screening is urgently demanded.

We will present cases of CF presenting with kwashiorkor from our clinic from previous years.

**305 Use of fidaxomicin for *Clostridium difficile*-associated diarrhoea (CDAD) in cystic fibrosis**

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**Introduction:** *Clostridium difficile*-associated disease (CDAD) is a problem widely seen in clinical care. *C. difficile* colitis can cause life-threatening illness in patients with cystic fibrosis (CF) and may present late with mild or atypical symptoms. We report the use of a novel antibiotic therapy, fidaxomicin, in the treatment of CDAD in a patient with severe CF.

**Results:** A 39 year old female CF patient on the lung transplantation waiting list had multiple episodes of CDAD over a 6-year period associated with intravenous (IV) antibiotics, oral steroids and proton pump inhibitors, including an episode of severe pancolitis necessitating stopping IV antibiotics and PPIs. Both glutamate dehydrogenase (GDH) and *C. difficile* toxin were positive on numerous occasions prior to May 2013. At this time, her CDAD was initially treated with oral vancomycin 250 mg QDS for 9 days. Her symptoms worsened and therefore a 10 day course of oral fidaxomicin was commenced. Her symptoms and CRP improved following this course. Despite numerous admissions since she has had only one significant episode of diarrhoea (GDH positive but *C. difficile* toxin negative); this did not require treatment. She experienced no adverse effects from fidaxomicin and has had no further symptoms of CDAD despite an increasing burden of IV antibiotic therapy and continued PPI.

**Conclusion:** This is the first reported case of fidaxomicin use for CDAD in CF. It can prevent recurrence of CDAD in CF patients and has lower CDAD recurrence rates over a 28 day period compared to vancomycin (Cornely 2012). This is thought to be due to its higher specificity to *Clostridium difficile* (Louie 2012).

**304 Incretin-based treatment of diabetes related to cystic fibrosis: a case study**

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**Objectives:** The most common co-morbidity of cystic fibrosis is probably diabetes. Pharmacotherapy of cystic fibrosis related diabetes (CFRD) is so far restricted to treatment with insulin. The primary defect in CFRD is a progressive insulin deficiency. In CFRD the incretin system is impaired and postprandial hyperglycemia the major clinical problem. In type 2 diabetes incretin-based treatment improves glucose-dependent insulin release and minimizes the risk of hypoglycemia. The introduction of incretin-based therapy in CFRD may therefore be an alternative or complement to insulin treatment. The aim of this study is to investigate if oral incretin therapy with a dipeptidyl peptidase-4 (DPP-4) inhibitor is useful for treatment of CFRD.

**Methods:** The DPP-4 inhibitor sitagliptin was given to 8 patients with CFRD with previous insulin therapy. All subjects suffered from problems with the glucose regulation. Six patients received 100 mg sitagliptin once daily and one patient 50 mg. Six patients were treated only with sitagliptin and 2 patients received additional insulin. So far the duration of the sitagliptin treatment varies from 2 to 21 months.

**Results:** The sitagliptin treatment was well tolerated without side effects. All subjects reached a stable and satisfactory glycemic control.

**Conclusion:** Incretin-based therapy with DPP-4 inhibitors is a promising new alternative for treatment of CFRD.

**306 Bisphosphonate related atypical fracture in cystic fibrosis (CF) – a case study**

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**Introduction:** CF related low bone mineral density (BMD) occurs in 34% of CF patients. Guidelines on its management advocate a combination of preventative and treatment strategies including use of bisphosphonates. Long-term bisphosphonate therapy has been linked to atypical fractures with clearly defined features however this has not been reported in CF. We report a case of a CF patient with bisphosphonate use leading to atypical femoral fracture.

**Results:** A 54 year old CF male on long term prednisolone for allergic bronchopulmonary aspergillosis was on daily Calcichew D3 forte and weekly alendronic acid for five years and changed to monthly ibandronate for the next four years due to worsening BMD on DXA scan. This was stopped after he sustained a low-impact fracture of the 5<sup>th</sup> metatarsal bone and replaced with daily subcutaneous Teriparatide to aid bone healing. A year later he complained of worsening left groin pain without any prior history of trauma. Pelvic Xray revealed an undisplaced transverse lateral cortex subtrochanteric fracture fitting the criteria for a bisphosphonate related atypical fracture. He underwent intramedullary nailing of the femur. Vitamin D, PTH, calcium and Procollagen Type 1 Amino Terminal Peptide (P1NP) levels were normal. Bone biopsy showed degenerative change. Urinary NTX is awaited. He remains on crutches five months postoperatively due to poor bone healing.

**Conclusion:** This is the first reported case of bisphosphonate related atypical femoral fracture in a CF patient and highlights the importance of recognising unusual drug side effects in an ageing CF population with multimorbidity and polypharmacy and consideration of a 'drug holiday'.