105 Evaluation of fungal diagnostic stains and prolonged sputum culture in cystic fibrosis fungal disease

I.C. Felton[1], S. Benson[2], K. Alshafi[2], A.G. Nicholson[3], N.J. Simmonds[1], D. Bilton[1]. *[1]Royal Brompton & Harefield NHS Foundation Trust, Adult Cystic Fibrosis, London, United Kingdom; [2]Royal Brompton & Harefield NHS Foundation Trust, Microbiology, London, United Kingdom; [3]Royal Brompton & Harefield NHS Foundation Trust, Histopathology, London, United Kingdom*

Objectives: Standard culture may fail to detect fungal pathogens. Reliance upon this technique alone amidst clinical decline or antifungal therapy can make clinical decision-making and disease-monitoring challenging. This pilot study aims to further evaluate the CF fungal airways burden in recognition of this unmet clinical need.

Methods: 16 adult CF patients with a spectrum of fungal disease provided spontaneous sputum samples at a single timepoint to be examined by 3 different techniques: (1) Prolonged fungal cultures (Sabouraud's Dextrose Agar + chloramphenicol and Dermasel Agar incubated at 37ºC 48 h then 30ºC and interpreted at Day 7, D14, D21, D28). (2) Microbiology stain: Calcofluor White (CFW) (3) Cytology stain: Grocott's Methenamine Silver (GMS).

Results: Prolonged fungal culture (>D7) yielded a positivity rate of 57% compared to 35% of samples at <D7. However CFW stain revealed fungal elements eg. hyphae, in 75% of samples. GMS stain revealed fungal findings in 73%. Of the fungal *culture-negative* samples, stains detected fungal elements in up to 50% (CFW 33%, GMS 50%).

Conclusion: Whilst the sample size in this preliminary cohort is small, the clinical utility for additional evaluation of fungal disease by a panel of laboratory techniques available to most hospital pathology departments is highlighted. Of note, *Scedosporium apiospermum* and *Exophiala dermatitidis*, two emerging fungal pathogens required >D7 culture. GMS stain a had greater detection rate for fungal elements compared to CFW in the fungal *culture-negative* samples. The evaluation of these techniques in monitoring disease over time and for early detection of fungal infection forms the focus of the next stage of this study.

106 Epidemiological study of *Achromobacter xylosoxidans* in a reference center for CF treatment in Brazil

C.P.C. Capizzani[1], N.C. Caçador[1], L.A.G.M.M. Torres[2], M.I.M. Fernandes[2], R. Martinez[3], L. Tonani[1], L.A. Pereira[3], A.L.C. Darini[1]. *[1]Faculdade de Ciências Farmacêuticas de Ribeirão Preto – Universidade de São Paulo, Ribeirão Preto, Brazil; [2]Hospital das Clínicas da Faculdade de Medicina de Ribeirão Preto-Universidade de São Paulo, Departamento de Puericultura e Pediatria, Ribeirão Preto, Brazil; [3]Hospital das Clínicas da Faculdade de Medicina de Ribeirão Preto-Universidade de São Paulo, Laboratório de Microbiologia, Ribeirão Preto, Brazil*

Chronic lung infection by *A. xylosoxidans* may lead to rapid clinical deterioration in cystic fibrosis patients (CFP). *A. xylosoxidans* is intrinsically resistant to cephalothin, cefoxitin, cefotaxime, aztreonam and aminoglycosides. The pattern of transmission of *A. xylosoxidans* from patient to patient is not fully understood. The purpose of this study was to evaluate the frequency of infection by *A. xylosoxidans* in CFP under treatment in a hospital in Brazil, the antimicrobial susceptibility and possible clonal similarity between the strain, correlating results with clinical data. During September 2011/2013, isolates were identified by PCR and biochemical tests. The MIC of antimicrobial activity was performed in accordance with CLSI. The macrorestriction profile was analyzed by PFGE (*Xba*I). From 106 patients, 7.5% showed two or more cultures with *A. xylosoxidans*. Their mean age was 18 years, BMI was around 19 and the Shwachman score was 50. However, lung function was very low with the means of FVC = 1.76 L and FEV1 = 1.06 L, and one girl died. Although controversial, two brothers showed the same macrorestriction profile and three other patients, without kinship, showed equal pulsotype. All of these patients showed colonization for other bacteria including *P. aeruginosa*, *S. aureus* and Bcc. *A. xylosoxidans* was 100% sensitive to imipenem, 81.8% to meropenem, 72.7% to piperacillin–tazobactam, 63.6% to ceftazidime, 54.5% to polymyxin B and 9% to ciprofloxacin. In conclusion, our group of patients with *A. xylosoxidans* showed a very compromised lung function and low Shwachman score without nutritional impairment, whereas bacteria showed a similar sensibility profile to literature.

107 Time trends in clinical indicators for cystic fibrosis (CF) patients at transition to adult care

H.K. Sandhu[1], J. Geake[1], S.C. Bell[1]. *[1]Adult Cystic Fibrosis Centre, The Prince Charles Hospital, Brisbane, Australia*

Objectives: To investigate whether respiratory infection in CF patients transitioning to adult care changed over 14 years.

Methods: All CF patients transitioning from paediatric care to TPCH CF Centre in Brisbane, over three time periods: 2000–2004, 2005–2009 and 2010–2013, were included. All sputum samples referred for microbiological analysis in Queensland in the 12 months prior to and after the date of transition were identified from a statewide pathology database. Rates of *Pseudomonas* infection, lung function and BMI were analysed with univariate analyses. Gender, location of paediatric care, *Pseudomonas* isolation at transition, and the number of sputum samples analysed were included in the multivariate analysis.

Results: 187 patients were identified. Over the three time points, the percentage of patients with *Pseudomonas* was 90.8%, 78.9%, and 72.2% respectively (p = 0.021). There were trends towards improvements in BMI, FEV_1 % predicted, and FVC % predicted. These trends were accounted for by the rate of *Pseudomonas* infection and number of sputum samples referred.

Conclusion: Improvements in lung function and nutrition in CF patients transitioning to adult care between 2000 and 2013 are associated with a reduction in rates of *Pseudomonas* infection, and a reduction in the number of sputa referred for microbiology. This raises the possibility that the improved health of CF patients is as a consequence of reduced rates of *Pseudomonas* infection at the time of transition.