Bronchoalveolar lavage (BAL) findings in symptomatic preschool children with and without CF

K. De Boeck1, N. Feytael1, M. Proesmans1, 1University Hospital Leuven, Pediatric Pulmonology, Leuven, Belgium

Neutrophilic lung infection and inflammation are typical for CF but have also been reported in preschool children with recurrent wheeze. We therefore compared BAL results in 143 symptomatic preschool (≤5y) children: CF and persistent lung infection (n = 19), recurrent lung infection without wheeze (LI) (n = 77), recurrent lung infection with persistent wheeze (WH) (n = 47). Medians and IQR are reported; for group comparison Kruskal-Wallis was used.

Results: Total cell count (>10^3/ml) was higher (P < 0.001) in CF 1323 (430–2200) than LI 176 (100–311) and WH 207 (120–437); % neutrophils was also higher (p < 0.001) in CF 87% (72–92) than in RI 16% (4–38) and WH 23% (8–56). % eosinophils was <1 in all groups and did not differ between LI and WH. % macrophages was lower in CF 5 (5–20) than in RI 44 (42–84) and WH 56 (29–78) but lipid laden macrophage index was higher (p = 0.007) in CF 132 (100–175) than RI 68 (44–105) and WH 68 (50–98). BAL cultures were +ve for S. aureus in 42% of CF (p < 0.01) compared to 4% of RI and 8% of WH. H. influenzae was present in 16% of CF, 21% of RI, and 11% of WH. S. pneumoniae was present in 0% of CF, 13% of LI, 4% of WH. P. aeruginosa was not isolated.

Conclusion: Symptomatic preschool children with CF have higher BAL total cell counts due to marked increase in neutrophils compared to children with LI and WH. In CF cultures are more often positive with S. aureus prevailing. Eosinophilia is not detected in BAL, not even in group WH. Absolute macroage count is similar in all groups but lipid laden macrophage index in higher in CF children suggesting that recurrent aspiration may be associated with their persistent symptoms.

Microbiological yield of induced sputum vs throat swab in CF patients unable to produce spontaneous sputum

C. Vazquez1, M. Santigo1, E. Barandiaran1, J. Martin1, N. Paniagua1, A. Sojo1, A. Gomez1, N. Martinez1, B. Matia1, G. de la Fuente1, E. Lopez de Santamaria1, B. Galdiz1, J. Barron1. 1Hospital Cruces, Barakaldo, Spain

We obtained an induced sputum sample (i.s.) in 175 (90%) times out of 193 inductions in 50 CF patients aged 11.7 (5–18) unable to produce spontaneous sputum (s.s.).

Protocol: 1. throat swab (t.s.) after voluntary cough, 2. Spirometry and sputum (s.s.).

Results: Inductions in 50 CF patients aged 11.7 (5–18) unable to produce spontaneous sputum

1. Infection with persistent wheeze (WH) (n = 47). Medians and IQR are reported; for group comparison Kruskal-Wallis was used.

2. Spirometry and


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Detection of viruses in pulmonary exacerbations in CF

I. De Schutter1, E. De Wachter2, F. Van Ginderdeuren1, S. Vanlaethem1, O. Soetens2, D. Piérard2, A. Malfron1, 1Universitair Ziekenhuis Brussel (UZ Brussel), CF Clinic, Brussels, Belgium; 2Universitair Ziekenhuis Brussel (UZ Brussel), Microbiology, Brussels, Belgium

Aims: To evaluate the involvement of viruses in CF pulmonary exacerbations and to identify the main viral pathogens.

Methods: Respiratory viruses were searched for, at the onset of any acute pulmonary exacerbation, in respiratory secretions obtained by nasal wash or bronchoalveolar lavage (BAL) using multiplex-PCR and culture, and potentially blood for viral serology.

Results: For 199 acute pulmonary exacerbations in 86 CF-patients (median age = 11 y 4 m, sex ratio: F/M = 42/44), a viral pathogen was detected in 64/199 (32.2%) episodes and in 3/64 episodes 2 viruses were found. The 3 main viral pathogens were influenza A virus, respiratory syncytial virus and human metapneumovirus, respectively found in 15, 15 and 8 episodes. In 56/64 (87.5%) episodes the viral pathogen was detected on respiratory secretions (nasal wash: 52%, BAL: 4%) and only in 9/30 (30%) by serology. Common viruses were found in all ages, however influenza A was mostly detected in adults (in 11/24 = 45.8%) whereas RSV was more present in the 0–2 yrs old (in 7/14= 50%).

Conclusions: Common respiratory viruses seem to play a role in an unexpected high proportion (32%) of pulmonary exacerbations in CF-patients of all age groups. PCR and culture on respiratory secretions obtained by nasal wash is a rapid, sensitive and non-invasive method for viral detection compared to serology.

Clinical features of Swine Flu in a major adult CF unit in London

D.J. Dhansana1, K. Duck1, K. Gyi1, M. Hodson1,2, D. Bilton1,2, 1Royal Brompton Hospital, Department of Cystic Fibrosis, London, United Kingdom; 2Imperial College, London, United Kingdom

Introduction: In the Swine Flu (SF) pandemic, UK guidelines advised that patients sought antiviral treatment after telephone discussion. In July 2009, we set up a Triage Service for an adult unit serving approximately 600 patients to provide advice and monitoring beyond antiviral therapy alone.

Methods: An information letter was distributed to all patients that included UK screening criteria for suspected SF (fever, cough, myalgia, vomiting/nausea, headache, rhinorrhoea) and a dedicated phone number. Risk stratification, based on baseline FEV1, resting O2 saturations and exacerbation frequency, was used to advise either home treatment with antibiotics and antivirals, or hospital review.

Results: During the period 3rd July 2009 – 16th January 2010, 165 cells were received for advice and 67 with symptoms. 29/67 (43%) calls and a further 2 direct referrals resulted in hospital review with the following outcomes: 20 (65%) admissions; 21 (68%) given antivirals (20 Oseltamivir, 1 Zanamivir); 28 (90%) given antibiotics (19 intravenous); SF-confirmation via antigen/antibody testing or PCR in 11 cases. Cases of confirmed vs non-confirmed SF showed increased fever (82% vs 41%), headache (73% vs 20%), raised CRP (94 mg/l vs 52 mg/l), lower length of stay (10d vs 4d).

Conclusions: Common respiratory viruses seem to play a role in an unexpected high proportion (32%) of pulmonary exacerbations in CF-patients of all age groups. PCR and culture on respiratory secretions obtained by nasal wash is a rapid, sensitive and non-invasive method for viral detection compared to serology.