

141* Pulmonary exacerbations in adult patients with cystic fibrosis associated with positive viral PCR

R. Naseer¹, S. Kassim¹, C. Etherington¹, S. Conway¹, D. Miles¹, P. Whitaker¹, D. Peckham¹. ¹St James's University Hospital, Regional Adult CF Unit Cystic Fibrosis Unit, Leeds, United Kingdom

Introduction: Studies show the prevalence of respiratory viruses in patients (pts) with cystic fibrosis (CF) and increased respiratory symptoms ranges from 13% to 52% and infection is associated with increased morbidity. Given the recent H1N1 pandemic we investigate the clinical impact of positive virus isolates in adult CF pts with an exacerbation.

Method: We routinely undertake throat swabs for viral PCR in all pts starting i.v. antibiotics (abx). A retrospective analysis of all pts receiving i.v. abx for an exacerbation between 01/12/08 and 01/12/09 was undertaken. Pts with positive viral PCR were compared to negative controls. Exclusion criteria included pregnancy, transplant and continuous I.V. therapy.

Results: A total of 42 pts (median age 26.5) had positive viral PCR (overall prevalence 9.5%), with 7 having H1N1. Negative PCR occurred in 440 IV courses (189 pts). The 1st course of treatment for each patient was used as a control. Positive PCR was associated with a significantly worse baseline lung function and weight with a higher proportion of pts on enteral feed. The viral group had a higher CRP ($p < 0.05$), wcc ($p < 0.05$) and neutrophil count ($p < 0.05$) at the start of treatment. Viral infection was associated with a greater drop in FEV1 between pre exacerbation baseline and end of treatment in comparison to controls.

	Duration of treatment (d)	Change with treatment					Weight
		%FEV1	FEV1	%FVC	FVC	CRP	
Control	14	5%	0.16 L	5.5%	0.19 L	2.15	0.4kg
Virus	18	2%	0.065 L	0	0	16.65	-0.05 kg
p	0.0018	0.0101	0.0159	0.0446	0.1756	0.0002	0.0142

Conclusion: Pulmonary exacerbations with viral infections are associated with a greater inflammatory response, longer duration of treatment and greater impact on lung function.

142 Clinical impact of H1N1 compared to other viral infections in pulmonary exacerbations of cystic fibrosis

R. Naseer¹, C. Etherington¹, M. Denton¹, S. Conway¹, P. Whitaker¹, D. Peckham¹. ¹St James's University Hospital, Regional Adult Cystic Fibrosis Unit, Leeds, United Kingdom

Introduction: Previous studies suggest adult patients (pts) with cystic fibrosis (CF) who have viruses isolated at exacerbation have an increased length of treatment and morbidity. Given the recent H1N1 pandemic we report the clinical impact of positive viral isolates on exacerbations in adult pts with CF.

Method: Our unit has routinely performed surveillance throat swabs for viral PCR before treatment for an exacerbation. We retrospectively analysed all pts with positive PCR between 1/12/08 and 1/12/09. Data from pts who were pregnant, post lung transplant or on continuous i.v. antibiotic therapy were excluded. Data was analysed using the Mann-Whitney U test with a p value of < 0.05 being significant.

Results: Over a 12 month period there were 42 viral isolates identified in 440 exacerbations in 189 pts (9.5% prevalence). There were 29 rhinovirus, 1 adenovirus & rhinovirus, 7 H1N1 & 5 other viruses. Peak incidence of H1N1 was between Sept and Nov 2009. In all pts with positive PCR there was no significant improvement in lung function at the end of treatment and there was a significant decrease in their end of treatment lung function (FEV1 and FVC) when compared to pre-exacerbation baseline. When comparing Rhinovirus pts with all other viral pts there was no significant difference in length of treatment, improvement in lung function, increase in weight or change in inflammatory markers. When comparing H1N1 pts with all other viruses the only significant difference was a higher starting CRP ($p < 0.05$) and the change in CRP with treatment ($p < 0.05$).

Conclusion: H1N1 exacerbations were not associated with increased length of treatment or morbidity in comparison to other viral exacerbations.

143 Influenza A/H1N1 in patients with cystic fibrosis in Italy: a multicenter survey of the Italian CF Society

C. Colombo¹, V. Lucidi², M. Collura³, V. Terlizzi⁴, E. Bignamini⁵, B.M. Assael⁶, S. Quattrucci⁷, R. Gagliardini⁸, A. Manca⁹, L. Ratcliff¹⁰, D. Salvatore¹¹, G. Magazzù¹², R. Padoan¹³, F. Poli¹⁴, A. Negri¹⁵, G. Pizzamiglio¹⁶, V. Motta¹, T. Repetto¹⁷. ¹CF Center of Milano, Milano, Italy; ²CF Center of Roma Bambino Gesù, Roma, Italy; ³CF Center of Palermo, Palermo, Italy; ⁴CF Center of Napoli, Napoli, Italy; ⁵CF Center of Torino, Torino, Italy; ⁶CF Center of Verona, Verona, Italy; ⁷CF Center of Roma La Sapienza, Roma, Italy; ⁸CF Center of Ancona, Ancona, Italy; ⁹CF Center of Bari, Bari, Italy; ¹⁰CF Center of Cerignola, Cerignola, Italy; ¹¹CF Center of Potenza, Potenza, Italy; ¹²CF Center of Messina, Messina, Italy; ¹³CF Center of Brescia, Brescia, Italy; ¹⁴CF Center of Trieste, Trieste, Italy; ¹⁵CF Center of Livorno, Livorno, Italy; ¹⁶CF Adult Center of Milano, Milano, Italy; ¹⁷CF Center of Firenze, Firenze, Italy

Aim: The aim of this survey was to characterize the impact of 2009 pandemic influenza A (H1N1) in the Italian CF population.

Methods: A questionnaire was sent to the 34 Italian CF Centers to collect data of patients who had presented suggestive symptoms and tested positive for A/H1N1 virus at nasopharyngeal swab (RT-PCR).

Results: Overall 64 cases with confirmed A/H1N1 infection were reported from 17 Centers. Among the 64 patients positive to A/H1N1 virus, there were 38 males (59%), median age was 14 yrs (range 0.5–39). Median FEV1 was 58.5% predicted (range 12–134); 43 of the patients (67%) had preexisting chronic infection by *P. aeruginosa* or other Gram negative bacteria; 3 patients had undergone organ transplantation and were on immunosuppressive treatment. Four patients had received one dose of the specific vaccine within 2 weeks of influenza onset. After diagnosis, all patients were treated with oseltamivir for a median period of 5 days. Influenza had a median duration of 5.5 days and was uncomplicated in 21 cases (33%), including the 3 CF patients on immunosuppressive treatment. In 31 patients FEV1 was assessed one month after recovery and was not significantly different from values recorded before influenza. However, during the course of the illness pulmonary exacerbation occurred in 43 patients (67%). Other complications included late resolution pneumonia (2 patients) and long term need for oxygen therapy (1 patient); 3 patients with severe pulmonary disease (FEV1 $< 30\%$) died of respiratory failure.

Conclusions: Complications from influenza A/H1N1 occur frequently in CF and in a few patients may be quite severe.

144 Is rhinovirus associated with exacerbations in adults with CF?

J. Helm¹, R. Bright-Thomas¹, A. Brennan¹, K. Webb¹, K. Mutton², A. Jones¹. ¹Wythenshawe Hospital, Adult CF Centre, Manchester, United Kingdom; ²Manchester Royal Infirmary, Virology, Manchester, United Kingdom

Introduction: The role of Rhinovirus as a cause of exacerbations in adults with CF is unclear. We reviewed the outcome for adult patients with CF who had a sputum positive PCR result for Rhinovirus infection.

Methods: Sputum samples were sent from patients presenting with symptoms of a corzyal illness during 2009 and investigated using an in-house PCR method to detect Rhinovirus. Permission for the study was granted by the local medical ethics committee.

Results: 12 of 52 patients had Rhinovirus detected in their sputum. Of the 12 patients with Rhinovirus isolated from sputum: 6 = male, 6 = female, median age = 29 years (range 19–68 years). 4 were treated with additional oral antibiotics and not hospitalised, and 8 were treated with intravenous antibiotics, 7 of whom were hospitalised.

Mean (SD) %FEV1 at presentation = 42.6% (21.0), at end of treatment = 48.2% (19.5) ($p = 0.042$). Mean (SD) %FVC at presentation = 58.3% (18.7), at end of treatment = 67.2% (20.0) ($p = 0.008$).

The admitted patients spent mean (SD) 14.4 (8.2) days in hospital on IVs and 15.1 (7.7) days on IVs in total. Six of the 7 admitted patients had blood tests pre and post treatment, with mean (SD) CRP = 58.8 (43.8) at admission, 14.08 (14.1) at discharge ($p = 0.074$), mean (SD) lymphocyte count 1.31 (0.57) at admission, 1.61 (0.63) at discharge ($p = 0.169$), mean (SD) neutrophil count 9.62 (3.59) at admission, 7.06 (2.18) at discharge ($p = 0.150$), mean (SD) total wcc count 12.1 (4.00) at admission, 7.06 (2.18) at discharge ($p = 0.329$).

Conclusions: Rhinovirus was associated with clinical symptoms of exacerbations among this group of adult patients with CF.