compared to the least (MRC 2 and 3) (HR 0.40, 95% CI 0.18–0.88, p = 0.023).

Conclusion These data show that COPD patients who receive acute NIV have high risk of hospital readmission including requirement for repeat NIV treatment, which contributed to a significant number of hospital bed days. Although overall outcomes are better than previously reported (Murray, Thorax 2011), patients with high levels of premorbid dyspnoea have the highest mortality following acute hypercapnic exacerbations of COPD requiring NIV.

Airways disease: fungus and the bogeyman

S89 THE USE OF ASPERGILLUS POLYMERASE CHAIN REACTION TESTING TO GAIN A FURTHER UNDERSTANDING OF SEVERE FUNGAL ALLERGIC ASTHMA

JP Farrant, L Holmes, R Masania, L Chishimba, R Niven; *University Hospital of South Manchester, Manchester, United Kingdom*

10.1136/thoraxjnl-2013-204457.96

Background Severe Asthma with Fungal Sensitisation (SAFS) is a newly described phenotype of Fungal Allergic Asthma. There is much debate about the disease's mechanism of action, the best method of treatment and how treatment with antifungal agents such as Itraconazole brings about the improvement in disease control that has been shown in previous studies.

This study aims to answer those questions, through the use of Sputum Aspergillus Polymerase Chain Reaction testing as a method of determining whether a patient has pulmonary colonisation with Aspergillus.

Methods PCR samples were collected between September 2012 and May 2013 samples taken clinically in the previous 2 years were also included. Patients had their antifungal therapy status recorded and received Total serum IgE and Aspergillus Specific IgE testing when providing sputum samples. The study was split into 2 arms. The primary retrospective opportunistic arm had a patient cohort of 135 who provided 254 samples for testing and analysis. The secondary prospective arm of the study looked at 10 patient's commencing Itraconazole therapy. Patients received PCR testing before commencing treatment and then at every opportunity whilst on treatment.

Results

	PCR Positives	PCR Negatives	X^2 (p value)
SAFS Patients Off Antifungal Treatement	61 (70%)	26 (30%)	37.90 (<0.0001)
Control	3 (9%)	32 (91%)	

The primary study arm showed a 70% rate of pulmonary colonisation in the Untreated Severe Asthma population, which differs significantly to the 9% rate of positivity seen in the control population. The rate of PCR positivity fell to 23% in the SAFS population who were receiving treatment. The secondary arm showed that Itraconazole removed fungus from the airways of 9 patients; this was correlated with a decrease in patient's total serum IgE's.

Discussion The 70% rate of PCR positivity in the untreated SAFS population supports the concept that patients with SAFS have pulmonary colonisation with Aspergillus. The study has also shown that the antifungal agent Itraconazole removes this fungus from patient's airways and that is correlated with an improvement in patient's disease control. This study supports the use of Itraconazole in patients with SAFS.

S90 EFFECTIVENESS OF VORICONAZOLE IN THE TREATMENT OF ASPERGILLUS FUMIGATUS ASSOCIATED ASTHMA

J Agbetile, M Bourne, A Fairs, B Hargadon, D Desai, C Broad, J Morley, P Bradding, C Brightling, R Green, P Haldar, C Pashley, I Pavord, A Wardlaw; *University of Leicester, Department of 3I's, Leicester, United Kingdom*

10.1136/thoraxjnl-2013-204457.97

Background IgE sensitisation to *Aspergillus fumigatus* and a positive sputum fungal culture are common in refractory asthma. It is not clear whether these patients would benefit from anti-fungal treatment.

Objectives To determine if a three-month course of voriconazole improved asthma related outcomes in people with asthma who are IgE sensitised to *A. fumigatus*.

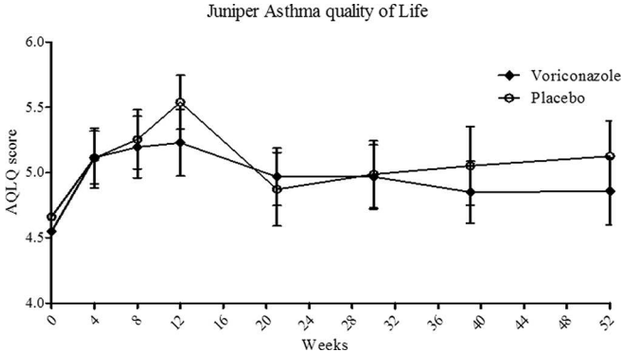
Methods Asthmatics IgE sensitised to *A fumigatus* with a history of at least two severe exacerbations in the previous twelve months were treated for three months with voriconazole two hundred milligrams twice daily, followed by observation for nine months, in a double blind, placebo controlled, randomised design. Primary outcomes were improvement in quality of life at the end of the treatment period and a reduction in the number of severe exacerbations over the twelve months of the study.

Results 65 patients were randomised. 59 patients started treatment (32 voriconazole and 27 placebo) and were included in an intention to treat analysis. 56 patients took the full three months of medication. There was no significant difference in the number of severe exacerbations between the voriconazole and placebo groups (1.25 vs 1.52/patient/year; mean difference 0.27; 95% CI 0.24 to 0.31) respectively, quality of life (change in AQLQ 0.44 vs 0.35, mean difference between groups 0.08; 95% CI 0.07–0.09), or in any of our secondary outcome measures between the two groups.

Conclusion We were unable to show a beneficial effect of three months treatment with voriconazole in people with moderate to severe asthma who were IgE sensitised to *A fumigatus* on either the rate of severe exacerbations, quality of life or other markers of asthma control.

REFERENCES

1. Fairs A, Agbetile J, Hargadon B, Bourne M, Monteiro WR, Brightling CE, *et al*. IgE sensitisation to Aspergillus fumigatus is associated with reduced lung function in asthma. *Am J Respir Crit Care Med*. 2010;182(11):1362–8.



Abstract S90 Figure 1.