environment if anything predisposes to airways dysfunction. Exhaled nitric oxide is a promising non-invasive means of assessing eosinophilic airways inflammation in all elite athletes.

S133 EOSINOPHILIC AIRWAY INFLAMMATION IS ASSOCIATED WITH FEV1 DECLINE IN SEVERE ASTHMA

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Background Severe asthma is a multidimensional disease, with recent evidence supporting the notion that eosinophilic airway inflammation (EAI) is an important driver for exacerbations. In addition EAI has been shown to be associated with airflow limitation in cross sectional studies. However, it remains to be established whether EAI may drive FEV_1 decline.

Methods The severe asthma registry at Glenfield hospital, Leicester, was screened for patients with a physician diagnosis of asthma and at least 5 years of longitudinal data recording sputum eosinophils, pre- and post-bronchodilator spirometry, inhaled corticosteroid usage as well as standard demographic indices during stable scheduled follow-up visits. Linear mixed effects models were used to investigate the effect of log sputum eosinophils as a time varying covariate on decline of post bronchodilator FEV_1. Models were iteratively compared and refined using standard information criteria. Other fixed effects in the final model were, time and the interaction terms for time * log sputum eosinophils and time *daily dose of inhaled corticosteroids and pack years smoked. Individual variations in the slopes and intercepts of time and time*log sputum eosinophils were considered by adding them iteratively as random effects. A first-order autoregressive correlation structure was used to model covariance of random effects.

Results 92 patients, 46% male with severe asthma were identified from a registry cohort of 686 between 2000 and 2009. The mean (sem) age was 54(12.9) years and age of onset 23 (2.1) years. The mean (range) duration of follow-up and number of visits were 6 years (4.6–10.5), 2.7/year. We found a significant interaction between sputum eosinophils, time and post bronchodilator FEV_1. Indicating a net decline (95% CI) of −16.8 mls(25.8–7.8 mls) /annum/log unit increase in sputum eosinophils (F(1, 43.4); p<0.0001). In contrast there was a net decline 95%CI of −0.015 mls (0.029 to 0.0014 mls)/annum/mcg of inhaled beclamethasonediproprionate daily (F(1,726); p=0.031).

Conclusion Eosinophilic airway inflammation is associated with a significant decline in FEV_1 in severe asthma.

S134 WITHDRAWN

S135 CAN YOUR MOBILE PHONE IMPROVE YOUR ASTHMA?

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Background It is recognised that some 45% of the population exhibit poor asthma control. Over 90% of the population possess a mobile phone (>70% over 60 years of age). Mobile technology potentially addresses the barriers of low expectations and poor concordance which are factors in poor asthma control.

Hypothesis Using mobile phone recording of symptoms, lung function and medication use with instant feedback of asthma control, would improve control compared to using paper diaries.

Trial design A 6-month researcher-blinded randomised controlled trial

Setting UK primary care

Method Using central randomisation, we allocated patients ≥12 years of age with poorly controlled asthma (ACQ>1.5) to either mobile phone or paper-based monitoring. Clinical care was provided by practice asthma nurses in accordance with SIGN/BTS guidelines. Patients were reviewed monthly until control was achieved. A researcher, blinded to allocation assessed outcomes at 3 m and 6 m. Primary outcome measure: change in Asthma Control Questionnaire score between baseline and 6 months.

Results We randomised 288 patients from 32 practices (209 completed). Baseline characteristics of both groups were similar. Intention to treat analysis, before breaking the randomisation code, showed that control in both groups improved significantly and to a similar extent. ACQ: Group 1 (n=110) Baseline 2.17, 6m 1.25: Group 2 (n=99) Baseline 2.33, 6m 1.17. Mean (95% CI) improvement in ACQ: Group 1 (n=110) 0.84 (0.67, 1.02), Group 2 (n=99) 0.94 (0.77, 1.11) both p<0.001. Between group p=0.434 ns. Approximately 70% in each group improved by ≥0.5 (minimal clinically important difference).

Conclusion Both groups demonstrated significant improvement in asthma control from baseline. Use of mobile phone technology provided no additional benefit over paper diaries.

Abstract S135 Table 1

ACQ6 score	Group 1(n=110)	Group 2(n=99)	Between group p value
Baseline, median (IQR)	2.17 (1.67–2.67)	2.33 (1.67–2.67)	0.441
6 months, median (IQR)	1.25 (0.67–1.83)	1.17 (0.67–1.83)	0.995
Median difference (IQR)	0.83 (0.17–1.50)	0.83 (0.33–1.33)	0.586
Within group p value (Wilcoxon)	*<0.001*	*<0.001*	
Mean difference (95% CI)	0.84 (0.67 to 1.02)	0.94 (0.77 to 1.11)	0.434
Within group p value (t-test)	*<0.001*	*<0.001*	
MID*, n (%)			0.652
Improvement = MID	74 (67.3)	73 (73.7)	
Improvement < MID	20 (18.2)	16 (16.2)	
Deterioration < MID	6 (5.5)	5 (5.5)	
Deterioration = MID	10 (9.1)	5 (5.1)	

S136 FUNGAL SPUTUM CULTURE IN PATIENTS WITH SEVERE ASTHMA IS ASSOCIATED WITH A REDUCED POST BRONCHODILATOR FEV1

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Introduction and objectives IgE sensitisation to fungal allergens is common in severe asthma, but the clinical relevance of this, and the relationship to airway colonisation with fungi, is not known. Many of the fungi that can grow at body temperature are filamentous moulds from the genera *Aspergillus* and *Pencillium*. We report here the