

P135 PREVALENCE OF SENSITISATION TO SOYA FLOUR IN THE BAKING INDUSTRY WITHIN THE UK

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Introduction Soya flour is routinely used as a baking additive to increase shelf life, improve colour and introduce a nutty flavour to bread. Although a large number of bakers are exposed to soya flour, there is little information as to the prevalence of sensitisation to soya flour in the baking industry. One study reports sensitisation to soya flour in four bakers who were sensitised to flour and alpha amylase and a bronchial challenge to soya flour elicited an immediate or dual asthmatic response. Studies in soy processing plant (slightly different to bakeries) report soy-specific IgE in 21% of soy processing workers compared with only 4% in health care workers, suggesting soya is an important occupational allergen in the soy processing industry.

Methods To determine prevalence of sensitisation to soya flour in bakery workers, we carried out skin prick testing to soya flour (Allergopharma 598) in bakery workers exposed to soya flour (n = 196) and in non-bakery controls (n = 50), who attended an occupational lung disease clinic. Skin tests were categorised as positive if they induced a wheal with a mean diameter of ≥ 2 mm greater than the response to a negative (saline) control and histamine was used as a positive control.

Results In a total of one hundred and ninety five bakery workers exposed to soya, forty two bakers were sensitised to soya flour (21%), and forty of those bakers were also sensitised to either flour and or alpha amylase (95%) In comparison, none of the control group (n = 50) were sensitised to soya flour.

Conclusion In our preliminary study of bakery workers exposed to soya flour, we found that around a fifth of the population were sensitised to soya flour. The clinical significance of soya flour need further investigation, although it seems prudent to include soya flour in the diagnostic tests for bakers asthma.

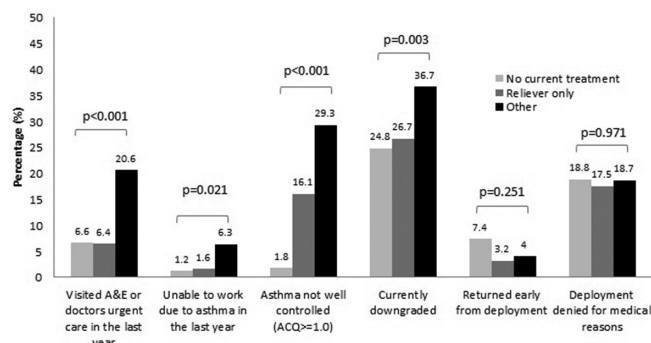
P136 ASTHMA IN ROYAL AIR FORCE (RAF) PERSONNEL: MEASURING SEVERITY, CONTROL AND PREVIOUS IMPACT ON SERVICE CAREER

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Background The overwhelming majority of UK military recruitment occurs in the age group (18–24) in which the recent increases in childhood asthma have been greatest. Concerns about operational risks associated with asthmatic individuals are reflected in selection policies excluding applicants taking asthma treatment, reporting symptoms in the last five years or since the age of 16. This study was designed to characterise the severity and impact of asthma on current RAF serving personnel.

Methods Questionnaires were sent to all current service personnel with a diagnosis of asthma on their medical record; an equivalent number of non-asthmatic personnel (matched on age and sex) were also surveyed to provide a referent population. Information on asthma symptoms and treatment, reported change in deployment, medical fitness category and career intention was collected.



Abstract P136 Figure 1 Prevalence of asthma and service-related outcomes in RAF asthmatics, stratified by asthma treatment

Results Of 463 asthmatics who responded to the survey, 167 (36.1%) were not currently on asthma treatment, 63 (13.6%) were on reliever therapy only and 233 (50.3%) were on regular asthma treatment. Two-thirds reported adult onset asthma. Those on regular treatment were more likely to have needed urgent/unscheduled treatment, been unable to work due to their asthma and have a current ACQ score indicating uncontrolled disease; whilst this group were more likely to be currently downgraded, they were no more likely to have returned early from deployment than those in other groups (Figure). Comparing individuals with asthma and matched referents, those with disease were significantly more likely to be downgraded (OR 2.36 (95% CI 1.48–3.77), $p < 0.001$), prevented from deploying for medical reasons (OR 2.47 (95% CI 1.41–4.34), $p = 0.006$) and be assigned unfit (OR 1.79 (95% CI 1.20–2.73, $p = 0.006$)). Very few individuals had to return early from deployment, suggesting that restrictions were effective in mitigating risks posed by uncontrolled asthma.

Conclusions The findings from this cohort suggest that asthmatics in the RAF, particularly those taking regular treatment, are being restricted from some jobs and environments; this affects few individuals and does not appear to have a negative impact on service career. Decisions at recruitment are likely to have greater impact and would benefit from being studied prospectively.

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Predicting clinical outcomes in acute respiratory illness

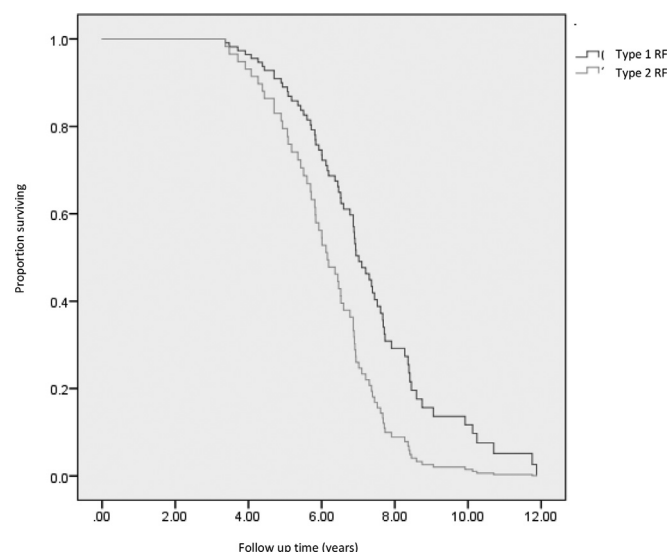
P149 CHARACTERISTIC AND PROGNOSIS OF PATIENTS WITH COPD AND TYPE 2 RESPIRATORY FAILURE

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Introduction Factors associated with type 2 respiratory failure (T2RF) in COPD have been poorly described. Co-existent obstructive sleep apnoea is thought to play a part,¹ and episodes of worsening hypercapnia, associated with acidosis (AHRF), at the time of exacerbations is a well recognised feature.² We hypothesised that the development of hypercapnia or type 2 respiratory failure would associate with a higher risk of subsequent AHRF and higher mortality.

Methods 292 patients who had been prescribed oxygen for their COPD during 2006–2010 were studied. Medical records were



Abstract P149 Figure 1

reviewed for lung function, blood gases in the stable state, episodes of AHRF and mortality up to the end of March 2014. Cross-sectional analyses seeking associations of hypercapnia and T2RF were carried out, together with comparisons of FEV1 decline, AHRF and mortality between those with and without T2RF.

Results Mean follow up duration was 6.7 years. 164 patients died and 90 had one or more episodes of AHRF; AHRF was more common in T2RF ($p = 0.046$). Cox regression analysis, adjusting for age, demonstrated that death was more likely in those with T2RF compared to T1RF (Figure 1; $p = 0.018$). A rise in CO_2 after administration of oxygen during the test of LTOT eligibility showed a similar association, but it was less strong ($p = 0.041$). Lung function was strongly associated with T2RF and subsequent use of NIV for AHRF; 53% of those with $\text{FEV}_1 < 30\%$ predicted eventually required it. This increased to 81% if FEV_1 was less than 20% predicted. After adjusting for baseline FEV_1 in the regression model, FEV_1 decline did not differ between T2RF and T1RF.

Conclusions LTOT patients with T2RF are at higher risk of AHRF and death, thus should be followed up more closely and more effort made to record advance wishes regarding NIV, if appropriate.

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P150

HOSPITAL RE-ADMISSIONS WITH EXACERBATION OF OBSTRUCTIVE PULMONARY DISEASE IN ILLICIT DRUG SMOKERS

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Introduction Patients with obstructive pulmonary disease (asthma or chronic obstructive pulmonary disease – COPD) who smoke illicit drugs are at an increased risk of hospital admissions.

We compared hospital re-admission rates due to exacerbations of obstructive pulmonary disease amongst current/ex-illicit drug smokers versus current/ex-tobacco smokers.

Hypothesis

'Are those who smoke illicit drugs admitted to hospital with a clinical diagnosis of exacerbation of COPD more likely to be re-admitted with a further exacerbation than current/ex-tobacco smokers?'

Methods Re-admission was defined as any admission, after the first, with an exacerbation of obstructive pulmonary disease during the study period. All admissions with a presumptive diagnosis of 'exacerbation of COPD' between January 2009 and September 2011 were reviewed. This was performed retrospectively using our COPD admission database.

Results There were 950 sequential hospital admissions in 709 patients over a 33 month period. We found 250 ex-tobacco smokers, 370 current tobacco smokers and 89 current or ex-illicit drug smokers. Re-admission rates with exacerbation of obstructive pulmonary disease were higher in illicit drug smokers compared to current/ex-tobacco smokers (1.00 v. 0.22/0.26, $p < 0.001$). Illicit drug smokers were younger (50 v. 72.9/69.9 [mean 71.2] years, $p < 0.001$) and had shorter length of hospital stay (7.44 v. 9.28/10.69 [mean 9.87] days, $p = 0.038$). Illicit drug smokers with $\text{FEV}_1 < 1$ litre (L) had higher readmissions (2.56) than ex/current tobacco smokers (0.6) with $\text{FEV}_1 < 1\text{L}$ ($p < 0.001$) [Table 1]. Illicit drug smokers with $\text{FEV}_1 > 1\text{L}$ did not show this trend ($p = 0.236$). Tobacco pack years were higher in tobacco smokers (40.22) compared to illicit drug smokers (22.47), p .

Admissions requiring non-invasive ventilation (NIV) for type 2 respiratory failure were more common in illicit drug smokers (8.4 v. 3%, $p < 0.002$).

Conclusion We have shown that readmission rates in illicit drug smokers are higher than in tobacco smokers. These patients tend to be younger, have a male predominance, have shorter length of hospital stay and are more likely to require NIV; readmissions were more predominant in illicit drug smokers with an FEV_1 .

Abstract P150 Table 1 Re-admission rates in illicit drug and combined (ex/current) tobacco smokers assessed by FEV_1

	Illicit drug smokers (n = 35)			Tobacco smokers (n = 216)			χ^2	p value
	No.	Readmissions	Mean	No	Readmissions	Mean		
Spirometry								
$\text{FEV}_1 < 1\text{ L}$	16	41	2.56	105	63	0.6	19.66	0.0001
$\text{FEV}_1 > 1\text{ L}$	19	19	0.894	111	60	0.504	1.399	0.236

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CAN THE DECAF SCORE BE USED TO GUIDE PROGNOSIS AFTER AN ACUTE ADMISSION FOR COPD EXACERBATION?

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Introduction Each year chronic obstructive pulmonary disease (COPD) causes approximately 23,000 deaths in England. Patients are admitted daily with exacerbation of COPD which can often be life-threatening. Steer *et al* have shown the use of DECAF score to predict inpatient mortality in COPD exacerbation. The DECAF score stratifies patients into low, intermediate and high risk dependant on their admission score.