

timepoint analysis was more affected. With only 2 readings, sensitivity was reduced for all scores. Specificity was unaffected by data reduction (Table 1).

Abstract P63 Table 1 Sensitivity and (specificity) at each randomisation and data reduction

	Oasys score	ABC score	Timepoint analysis
Pre-Randomisation	75 (84)	69 (93)	64 (84)
Randomisation 1	67 (73)	61 (89)	58 (84)
Randomisation 2	72 (68)	55 (86)	44 (86)
Randomisation 3	86 (86)	69 (93)	53 (86)
≥7 readings per day	73 (86)	65 (95)	62 (86)
6 readings per day	73 (80)	65 (100)	58 (81)
5 readings per day	69 (84)	65 (97)	62 (84)
4 readings per day	73 (84)	69 (97)	54 (84)
3 readings per day	69 (81)	65 (97)	50 (81)
2 readings per day	50 (86)	34 (97)	27 (91)

Conclusion Specificity was not reduced by adding random errors to the peak flow measurements nor through data reduction. Sensitivity was reduced, relatively more for the timepoint analysis, but in 2/3 randomisations it was preserved for the Oasys and ABC systems. Oasys analysis is robust despite decreasing data quality and quantity.

P64 IS RESPIRATORY PROTECTIVE EQUIPMENT EFFECTIVE IN ABOLISHING THE WORK EFFECT IN PATIENTS SENSITISED TO METAL WORKING FLUID?

¹A Ilgaz, ¹VC Moore, ²W Robertson, ³AS Robertson, ¹PS Burge. ¹Birmingham Heartlands Hospital, Birmingham, UK; ²University of Warwick, Coventry, UK; ³University Hospitals Birmingham, Birmingham, UK

10.1136/thoraxjnl-2015-207770.201

Background Removing exposure to the causative agent in workers with occupational asthma or hypersensitivity pneumonitis is the main goal. The effectiveness of Respiratory Protective Equipment (RPE) in sensitised workers with usual exposures in their workplace is not known. We aimed to assess changes in serial peak expiratory flow (PEF) in workers with sensitisation to metal working fluid before and after the introduction of RPE.

Methods Workers who had been requested to keep 2-hourly PEF measurements before and after the introduction of RPE at a particular engine manufacturing plant were searched for on the Oasys PEF database. Those who had completed a minimum of 1 week before and after the introduction of RPE and had a positive area between curves (ABC) score for occupational effect from Oasys analysis (≥ 15 L/min/hr) on either record were included. All PEF measurements were made outside the working area where the RPE could be removed. Workers who remained symptomatic after cleaning and replacement of the metal-working fluid were only allowed to continue work if they complied with the strict use of respiratory protective equipment (RPE) using powered filtration and external changing facilities.

Results 19 workers fulfilled the inclusion criteria. The mean ABC score before RPE use was 27.85 L/min/hr (SD 17.69) and after RPE use was 19.65 L/min/hr (SD 22.77) showing a mean

overall decrease of 8.20 L/min/hr (SD 28.60). 9 workers (47%) no longer showed an occupational effect on their PEF record once RPE was instated, 7 workers continued to show an occupational effect and 3 workers showed a new occupational effect which was not present before RPE use.

Conclusion Serial PEF measurements assessed with the ABC score from the Oasys system allowed quantification of the effect of RPE in sensitised workers. The RPE abolished falls in PEF associated with work exposure in 47% of workers, the remaining 10 workers had significant falls in PEF despite rigorously applied RPE. RPE should still remain a last resort in the hierarchy of control for occupational health.

P65 RESPIRATORY ILL HEALTH IN THE SILICA EXPOSED STONE WORKING SECTOR

D Fishwick, J Sumner, CM Barber, E Robinson, A Codling, L Lewis, C Young, N Warren. Centre for Workplace Health, HSL, Buxton, UK

10.1136/thoraxjnl-2015-207770.202

Introduction Exposure at work to inhaled respirable crystalline silica (RCS) has previously been linked with silicosis, tuberculosis, lung cancer and COPD. Whilst the risk of developing silicosis is largely a function of cumulative lifetime RCS exposures, current workplace exposures contribute to this risk. New cases of silicosis continue to be reported in the UK. The stone working sector is one where exposures to RCS continue to place workers at risk.

Methods A cross sectional GB based workplace study of stone workers was carried out, in order to identify a subsequent longitudinal cohort. Consenting workers were asked to complete an interviewer led questionnaire, undergo lung function testing and complete a full occupational history including details of lifetime exposure to RCS. Consenting workers had a PA Chest Radiograph using a mobile facility, and levels of RCS exposure in the personal breathing zone were measured.

Results 128 workers took part; with a mean age of 40.1 years and 11 years median (range 0.5–44) years worked overall in industry. One had radiological evidence of silicosis. Respiratory symptoms were common; for example 22.7% reported cough, 33.6% wheeze in the last 12 months, 16.4% reported ever having asthma. 14.1% reported at least one work related respiratory symptom. Mean lung function values (n = 127) were as follows; mean (SD) percentage predicted FEV₁ 97.5 (14.5) and FVC 103.6 (12.2).

Twenty four workers had measured airways obstruction (as defined by an FEV₁/FVC <0.7); in this cross sectional analysis its presence did not significantly relate to current smoking status or duration of RCS exposure, although was associated with the reporting of a diagnosis of (ever having) asthma or chest tightness and difficulty in breathing.

Conclusions This cross sectional study of stone workers has identified a cohort for longer term follow up. Future work will allow the development dose response relationships (using measured current, and historic, RCS levels) corrected for other relevant factors, between cumulative RCS exposure and FEV₁ decline. These approaches will assist in the development of future workplace interventions to reduce the health risks associated with RCS exposure in stone workers.

Asthma phenotyping and biomarkers

P66 CAN WE IDENTIFY ASTHMA AND COPD OVERLAP SYNDROME (ACOS) FROM A SEVERE DIFFICULT ASTHMA CLINIC PATIENT COHORT?
R Singal. *Barts Health NHS Trust, London, UK*

10.1136/thoraxjnl-2015-207770.203

Introduction Asthma-COPD Overlap Syndrome (ACOS) is characterised by persistent airflow limitation with several features usually associated with asthma and several features usually associated with COPD, which can be difficult to define. In response to the document produced by GINA and GOLD (2014) there is a need for further studies to identify the proportion of ACOS patients within treatment centres. Patients with features of ACOS are reported between 15–55% and have outcomes that are far worse than COPD or asthma alone.¹

Objectives To locally identify the proportion and current management of ACOS patients within a tertiary treatment centre.

Method The study was carried out retrospectively reviewing patient data over a 6 month period from electronically documented clinic letters, discharge summaries, pathology and lung function results. Patients included were identified from a severe difficult asthma clinic list at a large tertiary centre in London.

Results 101 patients were reviewed with a mean age of 49.1 years. Table 1 identifies patients with chronic airflow limitation with a cohort of 6.9% (n = 7) diagnosed as asthma and COPD; showing fixed airway obstruction (n = 6), mean age 54.6 years. There are no patients receiving LABA mono therapy, however 7.9% patients have no ICS in their treatment plan.

Abstract P66 Table 1

		Patient Cohort (n = 101)	Mean
FEV1/FVC	≤ 70%	50.5% (n = 51)	67.6%
	>70%	49.5% (n = 50)	
Blood Eosinophil	<0.5 (×10 ⁹ /L)	63.4% (n = 64)	0.5
	≥0.5 (×10 ⁹ /L)	27.7% (n = 28)	
Blood Neutrophil	<7.0 (×10 ⁹ /L)	70.3% (n = 71)	5.5
	≥7.0 (×10 ⁹ /L)	20.8% (n = 21)	
Total IgE	<81	18.9% (n = 19)	357
	≥81	43.6% (n = 44)	
Smoking History	Non Smoker	54.5% (n = 55)	
	Ex Smoker	22.8% (n = 23)	
	Smoker	9.9% (n = 10)	
BTS/SIGN STEP 4–5		39.6% (n = 40)	
BDP equivalence range		400–4000	1705
Doctor diagnosed as Asthma and COPD		6.9% (n = 7)	
Current Treatment	SAMA Monotherapy	2.0% (n = 2)	
	LAMA Monotherapy	3.0% (n = 3)	
	ICS Monotherapy	4.0% (n = 4)	
	ICS/LABA	77.2% (n = 78)	
	Omalizumab	11.9% (n = 12)	
Non - ICS		7.9% (n = 8)	

ACOS can potentially be identified in 10 patients with a raised IgE and eosinophil count, FEV1/FVC ≤ 70% showing fixed airway obstruction who are listed as non-smokers; these patients are currently on ICS/LABA treatment.

Conclusion This review of severe difficult asthma clinic patients highlights the challenge in identifying ACOS patients. Spirometry results documented are of limited value in diagnosis between asthma, COPD and ACOS; reversibility testing would be more indicative for future work. Interestingly we have a relatively young patient population on high BDP doses and some potentially at risk due to no ICS treatment. Further prospective studies in the form of patient questionnaires is required in order to identify detailed clinical history to aid earlier diagnosis and management.

REFERENCE

- 1 Diagnosis of Diseases of Chronic Airflow Limitation: Asthma, COPD, and Asthma – COPD Overlap Syndrome (ACOS). GINA and GOLD, 2014

P67 BRONCHIECTASIS IN SEVERE UNCONTROLLED ASTHMA

¹K Dimakou, ¹M Toumbis, ¹K Tsikritsaki, ²K Malagari, ¹A Liapikou, ¹M Kaponi, ¹C Triantafyllidou. ¹"Sotiria" Chest Diseases Hospital, Athens, Greece; ²"Attikon" University Hospital, Athens, Greece

10.1136/thoraxjnl-2015-207770.204

Introduction and objectives Bronchiectasis can contribute to severe and difficult to control asthma. It is important to recognise bronchiectasis in asthmatics and treat them accordingly. In order to estimate the presence of bronchiectasis in severe asthma, and the relation with the clinical and functional parameters we studied 40 patients with severe uncontrolled asthma, in a stable condition.

Methods The symptoms, the duration of asthma diagnosis, the number of exacerbations/year, cycles of corticosteroids and antibiotic treatment/year, spirometry, and bronchial colonisation were estimated. High resolution computed tomography (HRCT) was performed to evaluate the presence and extent of bronchiectasis. HRCT were studied by an expert thoracic radiologist, according to Smith scale for bronchiectasis (score 0–24), taking a score ≥ 3 as radiologically significant.

Results Forty patients were studied, 28 women, mean age (±SD) 57.9 years (±12.4), 32 non smokers. Mean ACT score was 14.2 (±4.9).

The main symptoms were: cough (92%), wheezing (95%), dyspnea (92%), sputum production (72%) of which mucoid (52%), mucopurulent and purulent (48%). Mean duration of asthma diagnosis was 16.5(±11.5) years, exacerbations: 4.4 (±2.7)/year, corticosteroid per os cycles/year: 4.4 (±3.1), antibiotic cycles/year: 2.8(±2.2).

In 27 patients (67,5%) bronchiectasis was diagnosed: Smith score: 5.2(±4.2).

The mean FEV₁ was 72.6% (±21.1) of predicted, FVC 79.1% (±19.4), FEV₁/FVC ratio 67.3 (±9.7). Nine patients (22.5%) were colonised with pathogens, 6 of whom with *Pseudomonas Aeruginosa*. Patients with sputum production had a higher Smith score compared to those without expectoration (6.3 ± 4.2 vs 2.3 ± 2.2 respectively Z = 2.8, p = 0.005). In addition, patients with pathogens in sputum cultures had a higher Smith score compared to those with normal flora (10 ± 4.2 vs 3.8 ± 3 respectively, Z = 3.5, p < 0.0001) (Figure 1).