Abstract P219 Table 1

Study Data n=11	Baseline Pre- modafinil	Day 10 modafinil 200 mg/day	Day 40 Modafinil 200 mg/ day	Improvement At 40 days	4 week NIV ²	Improvement After 4 weeks Of NIV	1 year study of NIV ³	Improvement At 1 year
Mean Arterial PaO ₂ kPa On air (range)	5.8 (4.3–7.3)	6.7 (4.1–8.1)	7.67 (5.5–9.3)	+1.87 kPa	7.5	+1.7	7.0	+2.4
Mean Arterial PaCO ₂ kPa On air(range)	8.6 (6.5–13.4)	6.7 (5.2–8.0)	5.9 (5.0–6.3)	–2.7 kPa	7.5	–0.7	7.2	–1.35
Mean daytime saturations on air (range)	75% (58–89)	85% (65–92)	90% (79–95)	15%	No data	No data	No data	No data
Mean overnight saturations on air (range)	72% (58–86)	79% (67–89)	83% (68–91)	+11%	79%	0%	No data	No data
Mean FEV-1 (%)	28%	30%	32%	+4%	31%	+6%	25%	–1%
Mean FVC (%)	48%	45%	53%	+5%	No data	No data	54%	No data

saturations by +11%. FEV-1 and FVC improved by +4%–5% which may reflect reduced acidosis on ventilatory muscles. Compared with studies of nocturnal nasal ventilation, modafinil equalled the effects of NIV and tolerance was excellent. It could provide a cheaper and more effective alternative for patient unable to use long term NIV in HRF.

REFERENCES

1. N S Hill. *JAMA on line* 21 may, 2017.
2. P Sivasothy. *ERJ* 1998;11:34–40.
3. RD McEvoy. *Thorax* 2009;64:561–566.

Danger at work: occupational lung disease and asthma

P220

PROFILING OF OCCUPATIONS AND EXPOSURES OF PATIENTS DIAGNOSED WITH OCCUPATIONAL RESPIRATORY DISEASES AT A UK REGIONAL REFERRAL UNIT

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Introduction Patients with suspected work-related respiratory symptoms are referred to tertiary NHS clinics in the UK for diagnosis of an occupational lung disease. Analysis of diagnosis data provides an opportunity to understand the profile of occupations and workplace exposures.

Methods The study population comprised 500 patients who were referred to a tertiary occupational respiratory unit (Heart of England NHS Foundation Trust, UK) and diagnosed with an occupational respiratory disease. The 500 cases were randomly selected from a database of 2400 patients diagnosed over the period 2010–2015. Information on patients included: occupation (current), industry type, gender, diagnosis and date of diagnosis. The occupation titles were first reviewed and then coded (using CASCOT) at the four-digit level using SOC

2000. The automated assigned codes were accepted where percentage match was $\geq 50\%$, the remainder of jobs coded manually using information on industry type. A UK general population JEM (ACEJEM) was then linked to the assigned SOC codes. The job coding was conducted independently of knowledge of diagnosed lung diseases.

Results Job titles and diagnosis were available for 497 patients. 73% of the job titles were coded automatically. The most common diagnosis was asthma 141 (28%), pleural plaques 119 (24%) and pneumoconiosis 81 (16%). 402 (81%) of the patient jobs were allocated to three of nine main SOC occupational groups; 'skilled trade occupation', 'process, and machine operators' and 'elementary occupations'. Over 89% of asthma and pneumoconiosis cases were exposed to vapours, gases, dust or fumes (VGDF). Of the asthma cases the highest proportion were exposed to dusts (81%, 114/141) and mineral dusts (66%, 93/141), and assigned as exposed to moderate or high level of dust exposure. Only 29% of the asbestosis cases were assigned as exposed to fibres. The most common 4 digit code for asthma was 5241 (Electricians and electrical fitters), followed by 5315 (carpenters and joiners).

Conclusion The use of a general population JEM and coding of patient jobs enables a standardised approach to understanding the nature of occupations and workplace exposures for different lung disease. The approach overcomes the reliance on patient recall of workplace exposures.

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SILICOSIS AND MYCOBACTERIUM DISEASE: IS IT A PROBLEM IN THE UK?

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Introduction and objectives An association between silicosis and mycobacterium disease is well reported globally particularly amongst gold miners.¹ The rate of mycobacterium infection in silicosis cases in the last 15 years in the UK is unclear. The aim of this study was to establish the frequency of either

tuberculosis (TB) or non-tuberculous mycobacterium (NTM) disease in a UK cohort.

Methods An occupational lung disease database (2004–2017) identified those with an MDT diagnosis of silicosis. Case notes were examined.

Results 22 patients were identified. 100% men, mean age 59.1 years (24–83) and mean length of silica exposure of 23.0 years (2–51). 63.6% were current or ex-smokers with a mean pack year history of 27.1 pack years (5–40). Figure 1 shows the relevant occupational history. 5 (22.7%) had an obstructive pattern of spirometry, 5 (22.7%) restrictive, 5 (22.7%) mixed and 7 (31.9%) normal spirometry. Mean FEV1 was 79% predicted (29%–106%) at presentation and FVC 90% predicted (48%–116%). 36.4% of patients had evidence of progressive massive fibrosis on chest radiology at presentation. 18.2% of patients were classified as accelerated silicosis (onset within 10 years of exposure). 19 of 22 (86.4%) silicosis cases identified had actively been screened for TB. 6 of 22 (27.3%) received anti-mycobacterium treatment. 5 of 6 received empirical treatment for TB prior to a diagnosis of silicosis being confirmed, of these 2 later relapsed and had NTM confirmed and treated. The other patient received empirical treatment for TB while awaiting lung transplantation and subsequently died of pulmonary TB. 3 of 6 had NTM grown on at least one occasion.

Conclusion This study indicates that rates of TB and NTM in silicosis are relatively high, supporting previously published international data. In addition, this study also highlights the difficulty in diagnosis of TB/NTM in silicosis due to similar clinical and radiological features, frequently leading to patients being treated empirically for TB and high relapse rates. The need for lung transplantation in accelerated disease may also necessitate careful screening for TB/NTM.

Abstract P221 Figure 1 Occupations. n=22.

REFERENCE

1. Cowie RL. The epidemiology of tuberculosis in gold miners with silicosis. *Am J Respir Crit Care Med* 1994;150(5 pt 1):1460–1462.

P222

FOLLOW UP OF PATIENTS DIAGNOSED WITH OCCUPATIONAL ASTHMA OR RHINITIS AT ROYAL BROMPTON HOSPITAL

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Background Occupational asthma (OA) is common with c.15% of cases of new or relapsed adult asthma attributed to work. The lifetime cost of a diagnosis is estimated to be £100 million and is largely borne by the patient – who may need to change their job with subsequent loss of earnings – and the State.¹ We sought to understand changes in symptoms over time and the impact of a diagnosis of OA or occupational rhinitis (OR) on patients attending our clinic.

Methods Twelve months after diagnosis we sent a postal questionnaire to all patients with occupational rhinitis (OR) or asthma (OA) seen in the Royal Brompton Hospital Occupational Lung Disease. Reminders were sent on one occasion. We present responses from the first 100 completed questionnaires.

Results 73 respondents had OA (response rate 61%) and 27 OR (response rate 39%). 68% of all respondents were male; mean age was 44 years (SD 10.6). Of those with OA, 24 (33%) were bakers and 19 (25%) laboratory animal workers; 29% were in other manual jobs and 13% were in other non-manual jobs. Occupational groups were similar for those with OR but with a higher proportion of laboratory animal workers (38%) and fewer other manual workers (11%). The majority (83%) of patients were referred to our clinic from Occupational Health services. Most patients, especially those with OR, reported fairly rapid improvement in their condition once removed from exposure although many of those with OA reported consequent difficulties with careers and incomes (table). Overall, almost all patients (OA 87%; OR 93%) claimed that they were ‘glad’ that their diagnosis had been recognised.

Conclusions Prognosis is generally good for patients attending our clinic with most reporting an improvement in their symptoms after diagnosis. Early diagnosis and removal from

Abstract P222 Table 1 Changes in OA/OR symptoms and impact of their diagnosis on other factors after 12 months

		Occupational Asthma	Occupational Rhinitis
Change in symptoms	better	55 (76%)	22 (81%)
	same	9 (12%)	5 (19%)
	worse	8 (11%)	0
Time to improvement in months (median, IQR)		3 (1–6)	4 (1–6)
Career	held back	55 (79%)	8 (31%)
	unaffected	14 (20%)	17 (65%)
	improved	1 (1%)	1 (4%)
Income	held back	43 (60%)	3 (11%)
	unaffected	25 (35%)	23 (85%)
	improved	4 (6%)	1 (4%)
Claimed IIDB		31 (44%)	4 (15%)
Quality of life	affected	41 (57%)	4 (15%)
	unaffected	27 (37%)	21 (78%)
	unsure	4 (6%)	2 (7%)

IQR: Inter-quartile range IIDB: Industrial injuries disablement benefit

exposure is known to result in a better prognosis; health care professionals need to have a low threshold for suspecting OA so that patients can be identified early.

REFERENCE

1. Ayres JG et al. *Thorax* 2011;66(2):128–33.

P223

UPDATE OF THE BRITISH OCCUPATIONAL HEALTH FOUNDATION (BOHRF) EVIDENCE-BASED GUIDELINES ON THE PREVENTION AND MANAGEMENT OF OCCUPATIONAL ASTHMA

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Introduction and Objectives Occupational asthma (OA) can be prevented by eliminating or at least minimising exposures to the causal agents at work. However, the rapid development of industrial technologies constantly introduces new potential asthmagens at work and therefore up-to-date knowledge of these changes is pivotal to diagnose and prevent new OA cases. The current evidence-based guidance on the prevention and management of OA was commissioned by the British Occupational Health Foundation (BOHRF) in 2010.¹ Our aim was to update these guidelines to help stakeholders reducing

the incidence of OA by improved prevention, and the severity of individual cases of disease by earlier identification and better management.

Methods We conducted a literature systematic review according to state-of-the-art methods via search of two electronic database (Embase and Medline), using the Ovid interface, from January 2009 to November 2016. Both MeSH and free-text terms were used for combinations of ‘work’ and ‘asthma’. The retrieved references were managed using EndNote software and evaluated blindly by paired reviewers. Critical appraisal of the included articles was performed using the GRADE (Grading of Recommendations, Assessment, Development and Evaluations) scoring system to link evidence-quality evaluations to clinical recommendations.

Results From the 2424 references retrieved, 133 met the inclusion criteria (see attached PRISMA flow-chart diagram). Briefly, in terms of occupations, many previously identified were confirmed, such as bakers, and painters, but new ones emerged such as cleaners, suggesting also underlying irritative-mediated causal mechanisms. Not substantial changes in the diagnosis of OA emerged, but new potential frameworks for better management and health surveillance of OA arose.

Conclusions Exposure to respiratory hazards at work is still an important cause of asthma worldwide and in the UK, with important costs for both the individual and the society. Updated evidence-based guidelines on the prevention and management of OA are key to guide healthcare workers’ decision-making in their routine clinical practice.

REFERENCE

1. British Occupational Health Research Foundation. *Occupational Asthma – Identification, Management and Prevention: Evidence Based Review and Guidelines* 2010. Available at http://www.bohrf.org.uk/downloads/Occupational_AsthmaEvidenceReview-Mar2010.pdf

Abstract P223 Figure 1 PRISMA flow diagram.