laterolateral dimensions at level3, hyoid bone position, ESS and neck circumference.

Conclusion In OSA ,significant alteration of anthropometry of upper airway occurs and is associated with severity of OSA.

P218 THE EFFECTS OF SUPPLEMENTAL OXYGEN ON BLOOD PRESSURE IN OBSTRUCTIVE SLEEP APNOEA DURING CPAP WITHDRAWAL

[1]CD Turnbull, [2]N Petousi, [1]D Sen, [1]JR Stradling, [3]M Kohler. *[1]NIHR Biomedical Research Centre, University of Oxford, Oxford, UK; [2]Nuffield Department of Medicine, University of Oxford, Oxford, UK; [3]Division of Pulmonology and Sleep Disorders Centre, University Hospital of Zurich, Zurich, Switzerland*

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Introduction Intermittent hypoxia and/or intermittent arousals are thought to be the two key pathological mechanisms in the development of hypertension in obstructive sleep apnoea (OSA). We aimed to investigate the effect of abolishing the hypoxia on the rise in blood pressure (BP) that has been shown to follow continuous positive airway pressure (CPAP) withdrawal in patients with OSA. In addition, we explored the effect of supplemental oxygen on obstructive events during sleep.

Abstract P218 Table 1 The results of early morning blood pressure and overnight sleep studies on supplemental oxygen and supplemental air. Paired t-tests were used for home early morning blood pressure and heart rate measurements. Wilcoxon rank tests were used for home respiratory sleep study derivatives which were not normally distributed

	Supplemental air		Supplemental oxygen			
Home early morning blood pressure and heart rate measurements						
	Baseline	Follow-up	Baseline	Follow-up	Mean difference in change in BP (95% confidence interval)	p
Mean systolic BP (mmHg)	129.2 ±14.1	136.1 ±14.9	129.6 ±15.1	129.8 ±13.6	−6.6 (-11.3 to −1.9)	**0.008**
Mean diastolic BP (mmHg)	78.3 ±7.8	85.3 ±9.6	79.3 ±8.0	81.6 ±8.0	−4.6 (-7.8 to −1.5)	**0.006**
Mean heart rate (bpm)	61.7 ±8.3	64.9 ±8.9	61.9 ±9.4	64.1 ±9.1	−1.0 (-3.9 to+1.9)	0.50
Home respiratory sleep study derivatives						
	Supplemental air		**Supplemental oxygen**		Difference in medians	p
AHI (/hour)	34.4 (22.7–44.4)		30.4 (23.6–42.6)		−3.6	0.98
ODI (/hour)	31.4 (21.0–49.2)		4.5 (1.1–19.0)		−28.0	**0.001**
Mean oxygen saturations (%)	93.7 (92.1–95.2)		98.0 (96.6–98.6)		+4.4	**0.001**
Sleep study length (mins)	392 (364–448)		394 (377–404)		+4	0.80

Methods Patients with OSA, established on CPAP≥1 year, and with ≥4 hours/ night usage, underwent a week of screening oximetry and were eligible if they had a nocturnal oxygen desaturation index ≥4% (ODI) of <10 on 3 nights on CPAP, and an ODI≥20 on at least 1 of 4 nights off CPAP. Patients then received overnight supplemental oxygen or air (via real or sham concentrators) at a flow rate of 5 l/min during 2 weeks off CPAP. After at least two weeks 'washout' back on CPAP, subjects crossed over. Treatment order was randomised. The primary outcome was early morning home BP which was recorded daily in triplicate, and averaged over the penultimate three mornings prior to each patient visit. Patients underwent overnight home respiratory sleep studies (including nasal airflow) on night 14 of each treatment arm. Differences between treatment arms were analysed using paired t-tests or Wilcoxon rank tests as appropriate.

Results Twenty-five patients completed the study. Their mean ±standard deviation age was 63±7 years, mean BMI was 35.3±6.7 kg/m^2, median (interquartile range) ODI at diagnosis was 48/hour (25, 68), and 21 (84%) were male. Table 1 shows the Results of the primary outcome and the overnight sleep studies.

Discussion Supplemental oxygen abolished the rise in early morning blood pressure during CPAP withdrawal when compared to supplemental air. As expected, supplemental oxygen substantially attenuated intermittent hypoxia and had only a small non-significant effect on the apnoea hypopnoea index. Thus intermittent hypoxia appears to be the dominant determinant of the rise in morning blood pressure seen in patients with OSA, rather than any other consequence of the obstructive events.

P219 THE USE OF ORAL MODAFINIL IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE PATIENTS WITH CHRONIC HYPERCAPNIC RESPIRATORY FAILURE

VA Varney, G Quirke, C Kearon, S Adeyemo, H Parnell. *Respiratory Department, St Helier Hospital, Surrey, UK*

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Hypercapnic respiratory failure (HRF) is common in advanced COPD. The standard treatment is usually nasal ventilation (NIV) to reduce the blood carbon dioxide level acutely or regular nocturnal use in chronic cases. Not all patients tolerate such treatment and failures occur. Published studies are conflicting showing variable benefit and a 2013 Cochrane review concluded that there was no evidence of significant benefit in any of the measured parameters.[1] Other studies suggest a reduction in re-admission and death at 1 year between regular nocturnal NIV use and standard care.

We have used oral modafinil 200 mg/day as a respiratory stimulant for chronic HRF in COPD without NIV. We present the data from the first 11 cases (6 out of study and 7 in our current open randomised crossover study). The study patients had documented HRF for 6–12 months with $PaC0_2$ ≥6.5 before entry but refused NIV. We present the data at baseline and day 10 and 40 of modafinil, including mean arterial oxygen and carbon dioxide, Daytime and overnight oxygen saturations along with spirometry. We compare these Results with 2 published studies of NIV reported, one after 4 weeks[2] and the other 12 months.[3]

The study showed a mean improvement by day 40 of +1.8 kPa in $Pa0_2$ and a reduction in $PaCO_2$ by 2.7 kPa. Daytime saturations, improved by +15% and overnight

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.

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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

[1]SS Sadhra, [2]OP Kurmi, [3]GI Walters. *[1]University of Birmingham, Birmingham, UK; [2]University of Oxford, Oxford, UK; [3]Heart of England NHS Foundation Trust, Birmingham, UK*

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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 ≥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.

P221 SILICOSIS AND MYCOBACTERIUM DISEASE: IS IT A PROBLEM IN THE UK?

C Hayton, J Hoyle. *North Manchester General Hospital, Manchester, 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