

Obstructive Sleep apnoea was classified as mild, moderate and severe based on AHI (mild <15/h, moderate 15–30/h and severe >30/h). TIA was defined as a neurological deficit which resolved completely within 24 h and was not associated with any changes on CT/MRI. Stroke was classified according to the territory involved and accompanied by CT/MRI changes. Cholesterol was checked in all the patients and associated Diabetes mellitus was noted as well.

**Results** In this cohort, more patients had severe sleep apnoea (62%). There was an increased incidence of cerebrovascular morbidities in the severe group as compared with the mild and moderate groups. 20% of all patients had hypercholesterolaemia (45% in the severe group), 10% of all patients had Transient Ischaemic Attack (80% in the severe group), 2% had Stroke (100% in the severe group) and 16% had Diabetes mellitus.

**Conclusions** Our study showed significant cerebrovascular comorbidities in patients with obstructive sleep apnoea. There is evidence to suggest that effective treatment of the sleep apnoea improves cerebrovascular outcomes. The fact that most of our patients with cerebrovascular comorbidity had TIA rather than strokes suggest that there is a window of opportunity to prevent further events by effective treatment. This certainly reduces the physical, social and financial burden incurred by strokes. We suggest that all patients with TIA should be screened for Obstructive Sleep apnoea and treated appropriately.

Abstract P205 Table 1

Severity	Male (77)	Female (23)	Hypercholesterolaemia (20)	TIA (10)	Stroke (2)	Diabetes (16)
Mild (8)	6	2	4	0	0	3
Moderate (30)	20	10	7	2	0	8
Severe (62)	51	11	9	8	2	5

**P206 COMPLIANCE WITH CPAP: SUBJECTIVE VERSUS OBJECTIVE METHODS OF ASSESSMENT AND REGIONAL VARIATIONS**

doi:10.1136/thx.2010.151068.7

<sup>1</sup>A Lal, <sup>1</sup>L Dale, <sup>1</sup>T Lucas, <sup>2</sup>B Chakraborty, <sup>3</sup>D Banerjee, <sup>1</sup>D Brocklebank. <sup>1</sup>Alexandra Hospital, Redditch, UK; <sup>2</sup>Birmingham University, Birmingham, UK; <sup>3</sup>Heartlands Hospital, Birmingham, UK

**Background** OSA is a significant public health problem which can be treated effectively with CPAP. Compliance of 4 h/night is required to achieve clinical effectiveness. Sleep clinics regularly monitor CPAP compliance subjectively, for example, patient questionnaires, but such estimates may differ from actual compliance.

**Aim** The aim of the study was to measure errors in estimating compliance and to look for regional variations in degrees of error.

**Methods** This is a prospective, two-centre study, carried out in 2009–2010. Centre 1 is a Tertiary centre with a local population including large numbers of South Asian people and those with lower socio-economic status. Centre 2 is a District General Hospital with a predominantly Caucasian local population. Both centres have similar sleep clinic setups and routinely download CPAP machine hours. Subjective compliance was assessed by patient questionnaires and objective evidence of compliance was obtained from machine usage data simultaneously.

**Results** 107 patients were included from each centre. In centre 1, 80% patients over-estimated their compliance, the mean objective usage of CPAP was 5.0 h/night and the mean error in estimating compliance was +2.2 h/night. In centre 2, 52% of patients over-estimated their compliance, the mean objective usage of CPAP was 5.67 h/night and the mean error in estimating compliance was

+1.03 h/night. Patients in Centre 2 had significantly higher CPAP usage (5.67 vs. 5 h/night, p=0.02) and a lower percentage of people over-estimating their compliance (52% vs 80%, p<0.00001). Overall, there was still a significant error in estimating compliance, although this was lower in Centre 2 (1.03 vs 2.2 h/night, p<0.00001).

**Discussion** This study highlights the fact that patients tend to be significantly inaccurate about their compliance. Reasons for this are uncertain but may include aiming to please the health professional, poor cognitive insight into their usage and fear of relinquishing their machine. Electronic assessment of CPAP usage data should therefore be routine in all sleep clinics. Furthermore, there seem to be regional variations both in usage and in degrees of error. This may be attributed to differences in education levels and socio-economic status. Ethnicity may also contribute because of different cultural beliefs and lifestyles.

Abstract P206 Table 1

	Centre 1	Centre 2	p-Value
Mean usage (h/night)	5.0	5.67	p=0.02
Mean subjective error (h/night)	2.2	1.03	p<0.00001
Percentage of over-estimators (%)	80	52	p=0.00002

**P207 OBSTRUCTIVE SLEEP APNOEA IN PATIENTS UNDERGOING BARIATRIC SURGERY—A LONDON TEACHING HOSPITAL EXPERIENCE**

doi:10.1136/thx.2010.151068.8

C J Jolley, S Zimmerman, S Shah, N Davison, S Singh. Chelsea & Westminster Hospital NHS Foundation Trust, London, UK

**Introduction and Objectives** Obstructive sleep apnoea (OSA) is common in patients scheduled for bariatric surgery and increases the likelihood of peri-operative adverse events. We aimed to describe the prevalence of OSA and risk profile of patients referred for pre-bariatric assessment locally.

**Methods** A retrospective observational study of patients referred to the sleep clinic for assessment before bariatric surgery between June 2008 and February 2010. Clinical and anthropometric data were collected from the hospital notes and sleep studies. Patient-reported STOP BANG model scores were recorded or derived retrospectively from clinical data. Non-parametric statistics were used due to non-normally distributed data.

**Results** 140/164 patients referred were seen in clinic. Referral rates increased from 2/month to 15/month in February 2010. The median (range) age was 46.5 (18–68) years, 71% female, weight 135.5 (87.4–180 kg), BMI 48.4 (35.3–84.5) kg/m<sup>2</sup>, and median ESS was 11 (0–24). STOP BANG scores were reported or could be calculated in 84 patients, in whom the median score was 5/8 (2–8). When incomplete STOP BANG scores were included, 124/130 scored >2. 53% were non-smokers, 15% current smokers and were 37% ex-smokers. Comorbidities included: diabetes/IGT 70%, hypertension 50%, hypercholesterolaemia 39%, ACS/heart failure 9%, CVA 2%, COPD 3%, asthma 19%, and hypothyroidism 19%. Sleep studies were requested for 129 patients, completed in 116 patients. 114 were technically adequate for AHI and 106 for pulse oximetry. The median total AHI was 10.5 (0–111.2)/h, ODI 20.8 (0.2–145.2)/h, and mean SpO<sub>2</sub> 93.4 (78.3–98.6)%. 27% had AHI ≥5/h, 12% ≥15/h and 25% ≥30/h. Correlations between sleep study outcomes and clinical data are shown in Abstract P207 Table 1. Using STOP BANG >2 to screen for AHI ≥5 had a sensitivity and specificity of 99.0% (95% CI 92.4 to 100%) and 5.6% (0.7–18.7%), respectively.

Abstract P207 Table 1 Correlations between sleep-study measurements and clinical, demographic and anthropometric variables

	Age	Weight	BMI	Collar	Hip Circ.	Waist/Circ.	Waist/hip ratio	ESS	STOP BANG
Total	r 0.32	0.22	0.23	0.30	0.02	0.20	0.01	-0.41	0.35
AHI	p 0.004*	0.02*	0.02	0.11	0.94	0.41	0.97	0.68	0.002*
	n 114	114	114	29	17	19	17	104	72
ODI	r 0.22	0.30	0.28	0.41	0.12	0.37	0.11	0.02	0.31
	p 0.02*	0.02*	0.003*	0.04*	0.66	0.12	0.68	0.87	0.01*
	n 106	106	106	27	17	19	17	97	67
Mean	r -0.36	-0.24	-0.24	-0.46	-0.11	-0.18	-0.02	-0.10	-0.297
SpO <sub>2</sub>	p <0.001*	0.01*	0.01*	0.02*	0.68	0.46	0.93	0.32	0.02*
	n 106	106	106	27	17	19	17	97	67

\*Denotes statistical significance at p<0.05.  
r, Spearman coefficient. Circ., circumference; ESS, Epworth Sleepiness Score; AHI, Apnoea Hypopnea Index; ODI, Oxygen Desaturation Index.

**Conclusions** Referral rates for sleep studies pre-bariatric surgery have risen exponentially over the past 20 months, and 37% of patients studied had at least moderate OSA, presenting a burden for sleep services and CPAP provision. 35% of patients studied had no evidence of OSA. Although a sensitive test, STOP BANG alone did not reliably identify these lower-risk patients.

**P208 A PROSPECTIVE OBSERVATIONAL STUDY TO EVALUATE THE EFFECT OF SOCIAL AND PERSONALITY FACTORS ON CPAP COMPLIANCE IN OSA**

doi:10.1136/thx.2010.151068.9

A Gulati, K Jordan, M Ali, R Chadwick, I E Smith. *Papworth Hospital, Papworth Everard Cambridge, UK*

**Introduction** Continuous positive airway pressure (CPAP) treatment for Obstructive sleep apnoea (OSA) is associated with variable initial acceptance and subsequent compliance with no consistent association with the severity of symptoms or physiological variables. There are very few data on the role of socioeconomic status, level of education and personality type. A recent retrospective study showed type D personality to be associated with poor compliance.<sup>1</sup>

**Methods** All patients with a confirmed diagnosis of OSA, recommended CPAP were considered. Baseline questionnaires were completed to assess employment and socio-economic status and type D personality. Compliance was measured at 6–10 weeks and 6 months.

**Results** 265 patients participated in the study. Seven switched to Bi-level PA, 2 were excluded and four withdrew their consent; 224 were still using CPAP at 6 months. At baseline mean age was 52.1 (SD 11.0)/y; M:F 205:60 (3.4:1), Epworth sleepiness score (ESS) 14 (SD 4.4), BMI 37.1 (SD 7.8), 4% Desaturation index (DI) 27.9 (SD 20.6)/h and AHI 28.0 (SD 18.6)/h. Mean compliance at 6–10 weeks and 6 months was 5.68 (SD 2.3) h and 5.31 (SD 2.3) h, respectively. 20.5% were using CPAP <4h/night at 6 weeks and 25.9% at 6 months. In comparison to individuals who were working (or retired from work), those who were long term unemployed (n=17) had a lower average CPAP usage at 6–10 weeks (4.08 h; SD 2.3) and 6 months (3.2 h; SD 2.6). This group was also more likely to use CPAP <4h/night at 6–10 weeks and 6 months (OR 5.06, p=0.001 and OR 3.62, p=0.01 respectively). No association was found between different Socio-economic classes for people in work, type D personality, education level, sex, age, baseline ESS, DI and AHI with 6–10 weeks or 6 month compliance. Compliance at 6–10 weeks correlated strongly with 6 months compliance (rs=0.82).

**Conclusion** In our practice there is no significant association between CPAP compliance with socio-economic status, education

level or the personality type. People who are long term unemployed may need more intensive support to get optimal benefit from CPAP.

**REFERENCE**

1. Brostrom A. Journal of sleep research, Dec 2007.

**P209 WHAT MIGHT PATIENTS MEAN BY "SLEEPINESS"?**

doi:10.1136/thx.2010.151068.10

R Ghiassi, L O'Byrne, A R Cummin, M R Partridge. *NHLI division, Imperial College, London, UK*

**Introduction** Patients describe the symptoms of obstructive sleep apnoea syndrome (OSAS) in diverse ways. Clinicians and scientists may have difficulty in differentiating sleepiness from tiredness and tools to measure subjective or objective sleepiness do not always match clinician assessment of sleepiness. To better understand how patients' view 'sleepiness' we asked those under investigation for OSAS to describe in their own words what sleepiness means to them.

**Methods** 24 patients (20 male and 4 female) participated in the study. ESS scores were recorded the morning after sleep study when patients were also asked to record in their own words what sleepiness means to them. Three independent scorers, (nurse, scientist and physician) and an independent academic referee, themed answers. Participants also underwent on Oxford Sleep Resistant Test (OSLER) to quantify objective daytime sleepiness as a comparator.

**Results** ESS scores were grouped into the following ranges: ≤10, 11–15, 16–24 and mean OSLER scores calculated for each group, table 1. Individually, OSLER scores did not correlate well with ESS scores and there was great variability in levels of objective daytime sleepiness. On average each patient gave 6 descriptors relating to sleepiness. Descriptors of sleepiness fell into three main categories: *mental function* (eg, "mugginess"), *physical sensation* (eg, "even moving about is exhausting") and *related to sleep or actual sleep* (eg, "I always fall asleep in the cinema"). Patients with an ESS: ≤10 gave more descriptors relating to *physical sensations* of sleepiness. Conversely patients with an ESS ≥11 gave more descriptors *related to sleep or actual sleep*.

Abstract P209 Table 1

ESS ranges	N (m:f)	Mean		Median		No. sleepiness descriptors			
		ESS	SD	OSLER	SE	IQR	M	p	S
≤10	9 (7:2)	8.9	1.0	22.5	4.7	23.2	7	23	9
11–15	7 (5:2)	13.6	1.0	16.3	6.1	9.7	16	13	23
16–24	8 (8:0)	18.5	2.1	17.6	6.2	15.1	10	12	22

M, mental function; P, physical sensation; S, related to sleep or actual sleep.

**Conclusion** This study has begun to assess how patients using their own words, describe the symptom of 'sleepiness'. Answers fell broadly into one of three categories: *mental function*, *physical sensation* and *related to or actual sleep*. Further understanding the construct of sleepiness to the patient may have importance in determining who is likely to benefit from therapy with CPAP.

**Developments in the delivery of lung cancer care**

**P210 THE NATIONAL LUNG CANCER AUDIT—YEAR 5 COMPLETENESS AND OUTCOMES**

doi:10.1136/thx.2010.151068.11

<sup>1</sup>P Beckett, <sup>1</sup>J Woolhouse, <sup>2</sup>R Stanley, <sup>1</sup>M D Peake. <sup>1</sup>Royal College of Physicians, London, UK; <sup>2</sup>The Information Centre for Health and Social Care, Leeds, England

**Introduction** The National Lung Cancer Audit aims to record outcomes in lung cancer on a large scale and through case-mix