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### 399. Sleep apnoea: clinical topics

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**P3844****Socioeconomic factors affecting the acceptance of continuous positive airway pressure in sleep apnoea syndrome patients**

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**Background:** CPAP therapy is often associated with suboptimal adherence rates and the assessment of patients' motivations and barriers is important for the treatment. The aim of this study was to investigate factors which may affect the acceptance of CPAP among patients with SAS.

**Patients and methods:** One hundred and nine patients who were diagnosed with SAS and prescribed CPAP during the last 2 years did not come to the follow-up visit despite the instructions. We contacted them via telephone and asked about the acceptance and the adherence to CPAP therapy.

**Results:** From 109 patients, 62(56.8%) (age  $49.2 \pm 11.3$  years, 93.5% male) were found and answered the questions. Twenty two patients(35.5%) did not purchase the CPAP device (group 1) mainly (50%) due to economic restriction, 12 patients (19.4%) abandoned CPAP therapy over time (group 2) mainly (50%) due to subjective perception of treatment ineffectiveness and 28 patients (45.1%) continue CPAP but they ignored the follow-up procedure (group 3). No significant correlations were observed between anthropometric characteristics, severity of SAS, socioeconomic and employment issues and the decision about the CPAP treatment

in each group, but group 1 had lower education level than the two others (basic level 36.4% vs 16.6% vs 25%). No significant differences were noted between the 3 groups with respect to method of CPAP titration, age, BMI, AHI but the ESS was higher in group 3 ( $p < 0.05$ ).

**Conclusion:** Individuals' economic situation and education status seems to influence their attitude to CPAP treatment. These factors should be taken into account in the CPAP prescription and follow up for their optimal management.

#### P3845

##### Effects of obesity on lung function and SaO<sub>2</sub> in children with habitual snoring

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**Background:** Habitual Snoring (HS) is a common pediatric condition with a prevalence ranged between 7 and 10%. It has a multifactorial etiology and it is often associated with several comorbidities. Many studies showed low spirometric values in overweight and obese children, but the association with HS is still unclear.

**Aim:** The purpose of this Study is to evaluate the relationship between obesity, lung function and nocturnal minimum oxygen saturation (SaO<sub>2</sub>) in a pediatric population with HS.

**Methods:** We enrolled 53 children (mean age 9,5, 34 male) in the Pediatric Department of Immunology and Allergy of Policlinico Umberto I in Rome. All patients were positive to a validated questionnaire for sleep disordered breathing, performed a spirometry and a nocturnal pulse oximetry. Percentile Body Mass Index (BMI) was calculated for each patient.

The selected patients were divided into 4 percentile BMI groups (Group I: percentile 0-25, group II: percentile 26-50, group III: percentile 51-75, group IV: percentile 76-100).

**Results:** We found that group IV (BMI > 75th percentile) had significantly lower values of SaO<sub>2</sub> and forced expiratory volume in one second (FEV<sub>1</sub>) when compared with the other groups (respectively  $p < 0.02$  and  $p < 0, 05$ ).

**Conclusions:** Lung function (reduced FEV<sub>1</sub>) and minimum SaO<sub>2</sub> are influenced by the progressive increase in percentile BMI with changes in FEV<sub>1</sub> better demonstrated when BMI > 75th percentile. Our findings suggest that in children with HS, the presence of obesity can cause a systemic inflammatory pattern that negatively influence lung function and blood SaO.

#### P3846

##### Influence of gender in obstructive sleep apnea characteristics and treatment

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**Introduction:** Obstructive sleep apnea (OSA) was initially recognized as a disease of men. However, prevalence of OSA in women is not as low as historically thought. Little is known about the influence of gender in OSA.

**Aim:** To assess gender differences in demographics, clinical presentation, sleep study findings and treatment parameters in OSA patients.

**Methods:** A transversal study was performed, including patients newly diagnosed with OSA, that initiated APAP treatment 6 months before.

**Results:** 187 patients were included, 128 male and 59 female. Women were older than men (60.5±7.9 vs. 54.4±13.0), their Body Mass Index (BMI) was higher (35.8±7.2 vs. 32.0±4.7) and neck circumference was lower (39.9±3.8 vs. 44.0±3.7). Comorbidities were more frequent in women, including hypertension. Women self-reported more frequently initial insomnia, awakenings, restless legs symptoms, gasping, nightmares, subjective poor sleep quality, depression and daytime sleepiness, but no difference was found in Epworth Sleepiness Scale. Self-reported snoring was similar in both genders. Apnea/hypopnea index (AHI) was higher in men (43.1±19.1 vs. 35.7±21.8), even after adjusting for age and BMI. Apnea/hypopnea duration was also higher in men (22.8±6.7 vs. 19.8±4.9 seconds). The 95th percentile of pressure (P95) at 6 months of APAP was superior in women (12.0±2.5 vs. 10.7±2.9).

**Conclusion:** Gender differences need to be aware when assessing women for OSA. Women report more symptoms and poor sleep quality at a lower AHI and have more significant comorbidities. Despite a higher BMI, OSA severity was lower in females.

#### P3847

##### Sleep-disordered breathing in children with craniofacial anomalies

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**Background:** Children with craniofacial anomalies are at risk for sleep disordered breathing (SDB). Their polysomnographic and laboratory findings may differ from those of infants and children with SDB secondary to adeno-tonsillar hypertrophy.

The aim of the study was to evaluate the rate, characteristics, severity and laboratory findings of SDB in children with syndromic craniofacial anomalies.

**Patients and methods:** Twenty-six consecutive infants and children with syndromic craniofacial anomalies and snoring or noisy breathing were referred for an initial PSG to rule out SDB.

**Results:** Specific diagnoses and syndromes were: Crouzon's (n=7), Apert (n=5), Saethre-Chotzen (n=1), Goldenhar (n=1), idiopathic craniosynostosis (n=2), achondroplasia (n=8) and Pierre-Robin (n=2). Their mean age was 5.1 years, none was overweight or obese. Of these patients, 19/26 (73%) had evidence of SDB and 7 (27%) had primary snoring. In patients with SDB, the mean apnea-hypopnea index (AHI) was 10.3 (median=5.7, range 2.5-65.0). Abnormally increased CO<sub>2</sub> was observed in 12/26 (46%). Laboratory results (mean, median, range) were: wide range CRP (7.2, 1.0, 0.1-33.5), total cholesterol (135, 125, 112-180), HDL (40, 37, 23-59), LDL (75, 67, 52-115), triglyceride - normal, fasting glucose and insulin - normal.

**Conclusion:** The results confirm a high prevalence SDB in children with craniofacial anomalies with a higher rate of carbon-dioxide retention. Underlying chronic inflammation exists also in these patients. Metabolic changes were not found.

#### P3848

##### Enuresis in obstructive sleep apnea syndrome patients

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**Introduction:** Although in children with obstructive sleep apnea syndrome (OSAS) secondary involuntary nocturnal voiding (enuresis) is a common and well recognized symptom, it is encountered less frequently in adults suffering from OSAS.

**Aims and objectives:** The aim of our study was to reveal the extent of the symptom of enuresis among adult OSAS patients in the Greek population.

**Methods:** The patients recruited in this study underwent overnight polysomnography and existing co-morbidities were recorded according to a relative questionnaire. The cohort consisted of 165 patients, 121 of which were males and 44 were females.

**Results:** Statistical analysis was performed using the ANOVA test. Our results revealed that patients presenting enuresis had a greater apnea/hypopnea index (AHI). Mean age of our patients was 55 years and the average BMI turned out 21.41 kg/m<sup>2</sup>. A percentage of 65% of the cohort population were current smokers, 75% were consuming at least one coffee daily and only 2% were consuming alcohol on a daily basis. We also used multivariate analysis to examine the role of several factors such as age, deliveries in women, coffee consumption, diuretics, Diabetes Mellitus (DM), the number of arousals, the lowest SaO<sub>2</sub> during sleep, smoking habits, sleep efficiency and AHI in enuresis in OSAS patients.

**Conclusions:** Our study showed that patients without enuresis had a lower AHI than those complaining for involuntary nocturnal voiding ( $p=0.03$ ). A better understanding of the pathogenesis of enuresis needs follow-up of the CPAP treatment and urodynamics of the bladder.

#### P3849

##### Bruxism among sleep apnea patients – Characteristics and CPAP compliance: The Icelandic Sleep Apnea Cohort

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**Objectives:** To analyze the clinical characteristics of sleep bruxism (SB) among subjects with obstructive sleep apnea (OSA) and upper airway morphology based on MRI. Also the effect of CPAP treatment on bruxism.

**Materials and methods:** The OSA subjects were newly diagnosed; 479 males and 111 females. The patients were assessed again after 2 years.

**Results:** Among OSA patients 18.8% reported SB. There was no gender difference. SB was more common in younger age groups ( $p < 0.001$ ). Subjects with SB had lower sleep apnea severity than those without SB. SB was not related to hypertension, respiratory diseases or the metabolic syndrome. SB was not related to insomnia, nocturnal sweating, RLS or excessive daytime sleepiness. Subjects with SB had based on SF-12, a lower mental quality of life than those without SB ( $p=0.002$ ) but no difference was found in physical quality of life. MRI of upper airway in those subjects with SB had significantly smaller volumes of the retropalatal airway ( $p=0.042$ ) and tongue ( $p=0.0145$ ) compared to non-SB. Subjects using CPAP full-time had a decreased prevalence of SB from 15.8% to 10.8% while no change in SB prevalence was observed in those subjects not using CPAP. Noncompliant CPAP subjects were more likely to report SB at baseline (27.2% vs. 15.8% for fully treated ( $p=0.007$ )).

**Conclusions:** SB is most prevalent among young OSA patients with a lower OSA severity. Subjects with SB had smaller volumes of the retropalatal airway and tongue compared to non-SB and lower mental quality of life. CPAP treatment of OSA decreases SB symptoms significantly but subjects with bruxism are also less likely to adhere to treatment.

**P3850****Respiratory symptoms, daytime sleepiness and quality of life – An epidemiological study on general populations in Iceland and Sweden**

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**Objective:** This prevalence of excessive daytime sleepiness (EDS) and the association of EDS with respiratory symptoms and large variety of health variables was investigated in two well characterized random samples from the general population.

**Methods:** Adults aged >40 and living in Reykjavik, Iceland (n=939) and Uppsala, Sweden (n=998), were invited (www.boldstudy.org). Response rates 81, 1% and 62, 2%. In addition, the participants were asked to answer: The Epworth Sleepiness Scale (ESS), Short Form-12 and standardised questions about sleep and health, diabetes and hypertension.

**Results:** In Reykjavik mean ( $\pm$  SD) ESS was 6.0 $\pm$ 3.9, compared to 6.1 $\pm$ 3.9 in Uppsala. The prevalence of EDS, defined as ESS scores >10, were 18.5% in Uppsala and 18.4% in Reykjavik. EDS was more common among men than women and was more prevalent in age groups <60years (p<0.0001) but not related to body mass index (BMI) or smoking status. Those reporting habitual snoring and apneas scored higher on ESS (p<0.0001) and so did also those with respiratory symptoms; wheeze and breathlessness (p<0.05), cough (p<0.0001), asthma (P<0.01) and nasal allergy (p<0.02). There were no difference in EDS depending on insomnia, diabetes or hypertension. Mental health scores on SF-12 were significantly lower among those with EDS (p<0.05). There was no difference regarding physical health scores.

**Conclusion:** Excessive daytime sleepiness is a common complaint in the general population both in Iceland and Sweden. It's more common among men than women, among those who snore and have apneas. EDS is also related to respiratory symptoms, allergy and decreased mental quality of life.

**P3851****Professional and frequent driving habits detected in the European Sleep Apnea Database (ESADA) – Call for a safety alert**

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Obstructive sleep apnea (OSA) is associated with an increased risk for motor vehicle accidents. Treatment of OSA leads to a reduced risk. Many, but not all, EU countries associate untreated OSA with impaired capability to drive. The strategy to improve traffic safety for sleep centers has not been well addressed. This study captured driving habits in the multinational ESADA cohort.

The ESADA database includes subjects with suspected OSA referred to 23 sleep centers in 16 EU countries. Reported parameters were obtained at regular clinic visits in association with an overnight sleep study in 8087 subjects (5789 males and 2298 females). Driving license status (no or A to E) was defined and mean yearly driving distance was recorded.

AB license was reported by 4676 subjects (58.8% in men, 55.4% in women), CDE license by 923 (15.0% in men, 2.3% in women) and no driving license by 2488. Men reported a higher yearly driving distance than women (21847 $\pm$ 478 km vs. 10681 $\pm$ 347 km). 63% of subjects with severe OSA (AHI  $\geq$ 30/h) were license holders. CDE license holders tended to be younger, less morbid and used fewer medications. Central obesity, OSA severity and daytime sleepiness were similar in AB and CDE drivers. 43.3% of all license holders were frequent drivers (>15,000 km/yr) and 35.4% (14.7% of male (female) frequent drivers had severe OSA.

Information from the ESADA confirms that professional and frequent driving is common in patients with OSA. Classification of driving habits should be included in the clinical routine at sleep centers and prospective outcome studies are warranted.

The ESADA study is supported by the EU COST Action B 26, RESMED and PHILIPS RESPIRONICS.

**P3852****Cardiovascular risk markers in patients with OSA. Effects of CPAP treatment**

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**Introduction:** Our main objective was to establish the etiological association between systemic inflammation and endothelial vascular dysfunction in OSA patients, as well as the effects of CPAP treatment.

**Methods:** Observational case control study in OSA patients and healthy individuals. All of them were tested for serum and urinary markers. Peripheral arterial tonometry by oscillometric sphygmomanometer (ENDO-PAT 2000) was used to measure endothelial dysfunction (Reactive Hyperemia Index-RHI). These measurements were repeated one year after with CPAP treatment. This study has been supported by Neumomadrid.

**Results:** This study involved 81 participants (53 with OSA and 28 healthy controls). Mean age: OSA 56,01, controls 53,03. Mean BMI: OSA 31,2, controls 26,8.

The OSA severity was severe in 54,8%, moderate in 20,7% and mild in 24,5% of them. In the results for the serum and urinary markers there were statistically significant in D-dimer (p 0,01) and microalbuminuria (p 0,01). There was statistically significant in the vascular endothelial dysfunction measured with RHI value (p 0,00). These markers, in 10 patients, and after CPAP treatment (mean pressure of 7,7 cm H2O and 5.8 mean hours of use), showed an increase in the RHI value from 1.42 to 1.80 (p 0,04).

**Conclusions:** An association between OSA and cardiovascular risk can be established by measuring D-dimer, microalbuminuria and RHI. Treatment with CPAP significantly improves endothelial dysfunction data.

**P3853****Serum vitamin D, physical activity and the obstructive sleep apnea syndrome**

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**Introduction:** Obstructive sleep apnea syndrome (OSAS) and vitamin D deficiency (VDD) are common conditions associated with excess adiposity and physical inactivity. Data on OSA, VDD and physical activity is lacking.

**Aims & objectives:** We hypothesized that OSAS patients might have low levels of vitamin D and that this may be related to physical activity and body composition.

**Methods:** Untreated subjects recently diagnosed with OSAS by nocturnal polysomnography gave informed consent. Weight, height and neck circumference were measured using standard protocols. The Diasorin assay was used to quantify 25-hydroxy-vitamin D (25(OH)D) levels. The SenseWear<sup>®</sup> armband (SWA) was used to assess free-living physical activity.

**Results:** 37 individuals (25 male, 12 female; mean age = 52; mean BMI = 36.3kg/m<sup>2</sup>) completed the evaluation. No participant had sufficient vitamin D (>80nmol/L). Subjects with severe OSA had higher body mass index (BMI) (p < 0.001) and a trend to lower 25(OH)D levels. 25(OH)D correlated negatively with apnea-hypopnea index (R = - 0.27; P = 0.058), this was not fully explained by the relationship of 25(OH)D and BMI (R=0.037; P = 0.417). 239 days of SWA data were included (Inclusion criteria >90% wear time). Mean steps/day = 7,110 (6,710–25,454). Mean sedentary time = 21h7m (16h2m–23h32m).

**Conclusions:** Among this sample, activity levels were low and adiposity was high. Lifestyle intervention should be encouraged for all overweight, sedentary OSAS cases. Consideration of hypovitaminosis D among OSAS cases is warranted, though its clinical significance is as of yet unclear.

**References:**

- [1] Hollis BW. *J Nutr.* 2005 Feb;135(2):317-22.
- [2] Dawson-Hughes B et al. *Osteoporos Int.* 2005 Jul;16(7):713-6.

**P3854****Relationship between snoring with sleep behavioral and movement disturbance (SBMD) in children**

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**Background:** Sleep disturbance is one of the most important subjects in pediatric medicine which its prevalence is 5% in society and have many important effects on child social function and quality of life. Sleep disturbance is seen in different kind of sign and symptom such as night terror, leg movement, walking and go to bed lately. Snoring prevalence is 12% in children that is one of the important reasons of sleep disturbance.

**Methods:** We have chosen 100 children with snoring as study group and 100 healthy children as control group. Their parents fill the questions about snoring and 22 item of SBMD like sleep walking, sleep talking, night terror. Pearson correlation coefficient was used to measure the strength of association between continuous variables. For analysis of qualitative parameters, we use from chi-square and if it was required, checked by fisher's exact test.

**Result:** The mean age of children was 6/8 years, mean height 116 cm, 41% were overweight or fatty and 52% were male. There were significant correlation among SBMD in case and control (8.54 vs 5.64 item, p<0.001), snoring and adenotonsillar hypertrophy (p<0.001), apnea and SBMD in case group (p<0.001), but no relationship among snoring and sex (p<0.001), snoring and age (p<0.001) and severity of snoring with SBMD in case group.

**Conclusion:** This study have showed the importance of sleep medicine in children we can prevent children from many sleep disturbance with on time diagnosis of snoring. It is important that we educated sleep subject to parents for helping to achieve better sleep in children.

**P3855****Gastroesophageal reflux in patients with obstructive sleep apnea syndrome: Value of isolated treatment with pantoprazole**

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**Objective:** To test the value of treatment of gastroesophageal reflux disease (GERD) in improving the obstructive sleep apnea syndrome (OSAS).

**Patients and methods:** The study included 63 patients diagnosed with OSAS after complete history taking, Epworth sleepiness scale (ESS), physical examination, and full night polysomnography. Of them 29 patients were diagnosed with concomitant GERD by standardized Reflux Disease Questionnaire (RDQ), upper endoscopy, and 24-hour pH monitoring and received Pantoprazole 40 mg once daily for 2 months. The patients were reevaluated by polysomnography, ESS, quality of life SF36 v2 questionnaire.

**Results:** The twenty-nine patients with OSAS and GERD had significantly higher body mass index (BMI), waist circumference, and reported non significant increase in sleep and daytime symptoms of OSAS. After 2 months treatment with Pantoprazole, there was significant decrease in apnea hypopnea index (AHI), snoring events, arousal index, and ESS. Meanwhile, there was a significant improvement in sleep efficiency, minimum O<sub>2</sub> saturation, desaturation index and quality of life parameters (SF 36 v2).

**Conclusions:** GERD and OSAS are common co morbid conditions. Adequate treatment of GERD with Pantoprazole, 40 mg/day for 2 months was effective in improving many subjective and objective findings of OSAS. In patients with OSAS and history suggestive of GERD, upper endoscopy, pH monitoring and treatment with proton pump inhibitors (PPIs) may be an important adjunct in controlling OSAS symptoms.

**P3856****Potential Impact of the financial crisis: Experience of a sleep clinic in northern Greece**

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Greece has entered a long period of economic crisis with adverse effects on various aspects of daily life. From 2009, poor countries with International Monetary Fund loans displace aid from public health and report negative effects on community health. The aim of our study was to evaluate the impact of the economic crisis on the population visiting a sleep clinic of a tertiary hospital between years 2008 and 2011.

**Methods:** Comparison of the number of patients, anthropometric data, symptoms and treatment acceptance between 2008 (-beginning of crisis) to 2011 (great impact of crisis on salaries, psychology).

**Results:** The number of patients that visited the sleep clinic was significantly reduced in 2011 (n=127) compared with 2008 (n=463) and 2009 (n=465). The age, BMI and ESS did not differ between the years (mean 52.23±13.7 years, 33±7.4 kg/m<sup>2</sup>, and 11.4±5.4 respectively). The main symptom of the patients was daytime sleepiness and the symptoms that were worse in 2011 compared with 2008 were headache (32.4% vs. 49.6%, p<0.001) and nightmares (44% vs. 75.9%, p<0.001). In 2008, 320 (69.1%) patients required treatment for Obstructive Sleep Apnea Syndrome with CPAP and 261 (81.5%) of them received CPAP. In 2011, 111 (87.4%) required treatment, but only 68% received CPAP.

**Conclusions:** By the observation of the population visiting a Sleep Clinic, the economic crisis can be reflected in the number of patients, their symptoms and their perspective in treatment options.

**P3857****The frequency of REM related OSA among patients with mild OSA and the relation between apnea and daytime sleepiness among these patients**

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**Aim:** The question if REM related OSA is a specific clinical entity or if it is an early sign of severe sleep disordered breathing as there is high occurrence of REM OSA in mild and moderate cases, recently have attracted the investigators. In this study, we aimed to see the frequency of REM related OSA among patients with mild OSA; and also to evaluate relation between apnea and daytime sleepiness among REM related OSA patients.

**Methods:** 134 patients with mild OSA (RDI=5-15) among 1267 patients with PSG examination at sleep laboratory of Bezmialem University Hospital between August 2010 and February 2012 were retrospectively evaluated. Patients having REM apnea/Non REM apnea >2 and Non REM apnea <15 are considered as REM related OSA.

**Results:** 80 of 134 (59%) patients with mild OSA were considered as REM related OSA. When REM related OSA and Non-REM OSA are compared for age, gender, daytime sleepiness, BMI, neck surround and additional diseases; mean age of REM related OSA group was found only significantly lower. Number of apnea in REM

was over 15 at 87.3% of REM related OSA group and over 30 at 39.3% of them. There was no relation between apnea number at REM and daytime sleepiness symptom (p=0,81).

**Conclusion:** We may consider the result of lower mean age in REM related OSA group as a supporting result for early sign of severe sleep disordered breathing. We consider to follow up this group of patients to answer the question about subject.

**P3858****Prevalence of symptomatic gastroesophageal reflux disease in Thai patients with obstructive sleep apnea: A cross-sectional telephone survey**

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**Background:** Many studies revealed association between gastroesophageal reflux disease (GERD) and obstructive sleep apnea (OSA). Prevalence of symptomatic GERD in Thai people was 7-10%. No prior study of symptomatic GERD in Thai patients with OSA appears to have been published.

**Methods:** All patients underwent polysomnography within 18 months were reviewed. Telephone survey of symptoms-based GERD questions was introduced to all patients diagnosed with OSA. Unconnected patients were reviewed with chart and medication history.

**Results:** 413 patients were reviewed, 296 patients diagnosed with OSA. 196 patients were diagnosed with severe OSA. Baseline characteristics and sleep parameters were as follows: mean age 51.57 years (±13.96), body mass index (BMI) 28.05 kg/m<sup>2</sup> (±7.13), neck circumference 15.37 inches (±1.74), Epworth Sleepiness Scale (ESS) 10.87 (±4.86), and respiratory disturbance index (RDI) 61.09 events/h (±41.32). Symptomatic GERD were reported in 53 (18%) patients. Prevalence of symptomatic GERD in severe OSA was 23% (46 from 196 patients), which was significantly different from that in mild-to-moderate OSA (7%, p<0.001). Univariate and multivariate analyses demonstrated relationship between the prevalence of symptomatic GERD and Obesity (BMI ≥30 kg/m<sup>2</sup>) (OR 3.11, 95%CI 1.27-7.62, p=0.03) and severe OSA (RDI >30 events/h) (OR 1.42, 95%CI 1.23-1.64), p<0.001). Multicollinearity revealed that these two factors was not correlated in this study.

**Conclusion:** Prevalence of symptomatic GERD in Thai OSA patients is higher than general Thai people. Obesity or severe OSA independently affect occurrences of symptomatic GERD in OSA patients.

**P3859****Prevalence of residual sleep apnea in patients treated with APAP and its predictive factors**

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**Introduction:** Auto-adjusting continuous positive airway pressure (APAP) is a safe and proven effective treatment for obstructive sleep apnea (OSA). There are limited data on prevalence of persistent OSA in patients under APAP therapy.

**Aim:** To determine the prevalence of residual sleep apnea (RSA) in patients under APAP and its predictive factors.

**Methods:** A transversal study was performed, including patients newly diagnosed with OSA, that initiated APAP 6 months before (51.9% under iSleep; 46.8% under AutoSet Spirit II or S9). Exclusion criteria: Obesity-Hypoventilation Syndrome and Central Sleep Apnea. Data were downloaded from devices and residual apnea-hypopnea index (AHI) was registered. Patients were considered to have RSA if AHI≥5. Only patients with acceptable leak were considered. Baseline demographic, clinical and sleep study were evaluated.

**Results:** 107 patients were included; 77 (72%) had acceptable leak, being considered for statistical analysis. Prevalence of RSA was 22.1%. Factors at baseline associated with RSA were: lower BMI (30.4±5.1 vs. 33.3±4.6) – p=0.028; severe OSA (31.2% RSA in severe OSA vs. 7.4% in moderate OSA) – p=0.018; higher central apnea index (3.11±4.24 vs. 0.98±2.25) – p=0.016; and higher apnea/hypopnea duration (24.0±7.3 sec vs. 20.8±4.1 sec) – p=0.045. Higher APAP pressures (95th percentile) were related to the occurrence of RSA (12.5±2.4 vs. 10.0±2.7) – p=0.001. APAP device was not related to RSA.

**Conclusion:** Residual OSA is common in patients treated with APAP. Lower BMI, severe OSA, higher central apnea index and longer duration of apnea/hypopnea are baseline predictors of RSA. These patients should be followed more closely to avoid suboptimal treatment.

TUESDAY, SEPTEMBER 4TH 2012

**P3860****The relation between cigarette smoking and the quality of sleep and sleep disorders**

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**Aim:** In this study, the relationship is investigated between cigarette smoking and sleep quality, and sleep disorders.

**Material and methods:** Voluntary patients and their relatives, admitted to our out-patient clinics of Medical School of SDU, answered the questionnaire consisted of questions about Pittsburgh Sleep Quality Index, Berlin Sleep Apnea Test (BSAT), Fagerstorm Tolerance Test. The demographic properties, smoking status and also alcohol, tea and coffee usage and the additional diseases were recorded.

**Results:** The volunteers who answered the questionnaire were 98 persons (52M/46W) with mean age 33.03±1.17 and with mean BMI 23.93±0.42 kg/m<sup>2</sup>. The mean ages of men and women are statistically significant (p<0.005), but not BMI (p>0.05). The neck circumferences of cigarette smoking persons and ex-smokers are higher than never smokers (p=0.046). The mean PSQI score greater than 5 was found in 26 smokers and in 21 never smokers (p<0.000). The BSAT indicated that 10 of current smokers and 5 of never smokers had a higher risk on obstructive sleep apnea (p<0.001). Eight of current smokers had habitual snoring and 4 of current smokers had apnea. Cigarette smoking is dependent to alcohol and tea-coffee usage (respectively, p=0.02, p=0.011). In stepwise regression analysis, the nicotine dependence status (FTT score) was associated with the mean PSQI score ≥ 5 and with high risk status of BSAT (respectively, p=0.015, p=0.043).

**Conclusion:** Cigarette smoking affects the quality of sleep adversely and increases the risk of sleep apnea. Also, during smoking cessation, relieving these disturbances should make quitting easier and prevent relapses.

**P3861****Obstructive sleep apnea and periodontitis among patients attending primary health care setting in Jordan**

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**Objectives:** To determine the association between periodontitis and the high risk for obstructive sleep apnea (HR-OSA).

**Methods:** 296 males with a mean (SD) age 40 (8.5) years were enrolled. Participants completed the Berlin questionnaire (BQ) after periodontal examination. Periodontitis was defined as the presence of four or more teeth with one or more sites with pocket depth (PPD) ≥4mm and clinical attachment level (CAL) ≥ 3mm. OSA risk was assessed using BQ. Scoring positive in two or more categories of Berlin questionnaire was considered HR-OSA.

**Results:** Based on the BQ, 15% of patients were considered as at HR-OSA. Patients with HR-OSA showed higher mean score of PPD and CAL compared with those with low risk for obstructive sleep apnea (LR-OSA) (2.35 (0.69) vs. 1.97(0.34) p=0.000) and (2.95(0.82) vs. 2.12 (0.55) p=0.000, respectively). The extent of periodontitis as assessed by CAL was significantly higher among patients with HR-OSA. Patients with HR-OSA were more likely to have periodontitis (OR = 2.3 (95% CI: 1.03, 5.10)) compared to patients with LR-OSA. Prevalence of periodontitis varies significantly only among patients according to their response to category 1 (37% in those responded positive and 20% in those responded negative (P=0.003). When the OSA variable was replaced by the individual categories (1,2, and 3), patients with positive category 1 (OR2.27, 95% CI: 1.14,4.45) were more likely to have periodontitis compared to patients with negative response.

**Conclusions:** Periodontitis risk in HR-OSA patients doubles that of LR-OSA patients. Habitual snoring was a risk factor for periodontitis. Further studies are needed to clarify this relationship.

**P3862****Effects of a lifestyle intervention in obese obstructive sleep apnoea patients treated with CPAP**

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Obstructive sleep apnoea (OSA) is a common condition characterised by repetitive closures of the upper airway during sleep. CPAP is the primary treatment and lifestyle changes are recommended, but there is no agreed structured intervention. This RCT assessed responses to a lifestyle intervention that incorporated exercise, dietary advice and behaviour change counselling. We hypothesised that the intervention would have a positive effect on anthropometry, functional capacity, cardiovascular risk and quality of life.

Sixty OSA patients were recruited either into an intervention (n=30) or control group (n=30). Assessments occurred at week 0, week 13 and week 26. The

intervention involved supervised exercise sessions, dietary advice and behaviour change counselling between weeks 0 and 13. Changes in body *habitus* and walking capacity (ISWD) between week 0, 13 and 26 were assessed using a mixed-design factorial ANOVA and 95% confidence intervals (CIs) of the net change in groups over time.

At 13 weeks, the intervention group improved body mass (-1.7kg; P=0.001) and body fat percentage (-1.1%; P=0.001) relative to the control group, although CIs between groups over time indicate changes were not clinically important. Changes in resting heart rate (-6 [-9, -2] beats min<sup>-1</sup>; P=0.002) and ISWD (+91 [52, 130] m; P<0.001) were possibly beneficial. At follow-up, changes in resting heart rate were likely trivial (-3 [-8, 1]; beats min<sup>-1</sup>; P=0.250) although ISWD was probably beneficial (+110 [71, 149] m; P<0.001).

These data suggest that a change towards exercise behaviour has occurred. Interventions have potential as part of the holistic management of obese OSA patients compliant with CPAP.