386. Obstructive sleep apnoea as a comorbidity

P3454

Optimizing the screening of OSA in patients undergoing bariatric surgery

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Obstructive Sleep Apnea (OSA) is common in patients waiting bariatric surgery (BS). International consensuses recommend OSA preoperative assessment to avoid perioperative complications. Full-night polysomnography (PSG) is the standard diagnostic method but it is expensive and time-consuming. The aim of the study was to select by a simple predictor model, those patients who merit treatment prior BS.
Methods: A prospective cross-sectional study was conducted in 158 consecutive bariatric subjects. PSG was performed in all. The outcome variable was severe OSA defined as apnea-hypopnea index (AHI) ≥30. Predictors evaluated were anthropometrical, clinical and analytical in a first model (clinical) and adding oxygen desaturation index (ODI3%) obtained by PSG in a second model. Predictive models were constructed using multivariate logistic regression analysis. The best model was selected depending on the area under receiver operating characteristic curve (AUROC).
Results: The first model indentified four independent predictive factors of AHI ≥30: age, waist-to-hip ratio, systolic blood pressure and witnessed apneas (Apn) with predictive values: sensitivity (Se) 78%, Specificity (Sp) 81%, AUROC 0.81. The second model (clinical plus ODI3%) indentified two independent predictive factors (Apn, ODI3%) with predictive values: Se 89%, Sp 89%, AUROC 0.95. We proposed a two-step screening: first, applying the clinical model and then, the second model; 47% of subjects would be rule out (21% and 26% by the first and second steps). Only 53% would require PSG prior BS.
Conclusions: The proposed two-step model could be useful to optimize the screening of severe OSA in bariatric subjects improving the limiting resources of PSG.

P3455

Is lung transplantation a cause of sleep apnea hypopnea syndrome? Preliminary data

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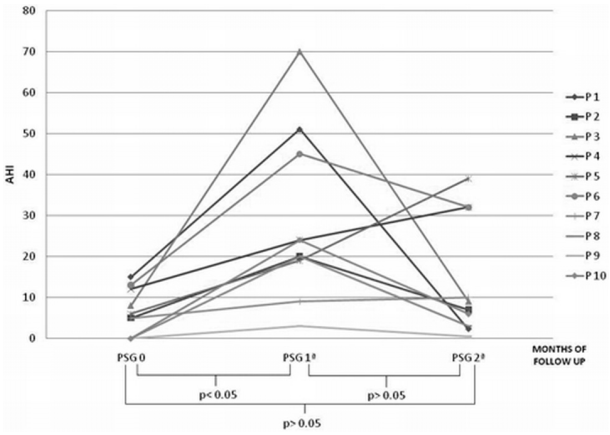
Aims: To analyze the presence of Sleep Apnea Hypopnea Syndrome (SAHS) in a cohort of patients before and after lung transplantation (LT).
Methods: All consecutive LT recipients with at least 2 polysomnographies (PSG) during one-year post-LT follow up have been included. The study was done in a tertiary hospital. Period of study: September 2008-February 2011. Anthropomorphic measurements, Epworth scale and PSG (before LT, 6 and after 12 months post-LT) were performed. Data about type and cumulative dose of immunosuppressive drugs were collected. SAHS was defined as an apnea-hypopnea index (AHI) ≥ 10/hour.
Results: Ten patients were included, 60% males, with a median age of 53.5 (range 15 to 63) years. 4 LT were unilateral and 6 bilateral. The SAHS prevalence was 30% (n=3) pre-LT, 80% (n=8) at the first PSG after LT, and 40% (n=4) at the second one. There were significant differences between mean AHI in the pre-LT sleep study and AHI in the first study after LT, but not with the one after 12 month of follow up. The data are shown in the figure:



Considering AHI values and SAHS presence there were not found any statistical relationship among them and the variables analyzed that could explains the SAHS prevalence progression in LT recipients.
Conclusions: The prevalence of SAHS is higher in the patients listed for LT compared with general population. It increases during the first months after LT and decreases over the time.

P3456

Obstructive sleep apnea syndrome (OSAS) and asthma in a general Norwegian population

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Background: Several studies have investigated associations between OSAS and asthma, with inconsistent results.
Aim: To determine if asthma and bronchodilator reactivity (BDR) are independent risk factors for OSA in the Norwegian population.
Methods: An age and sex stratified random sample of all adults aged 47-48 and 71-73 living in Bergen, Norway, were invited to a cross-sectional survey. The 3506 attendants (69%) completed a questionnaire including symptoms of OSAS. Subjects were classified as having OSAS if they reported snoring, breathing cessations, and daytime sleepiness using the Karolinska Sleep Questionnaire, previously validated against polysomnography. Subjects were classified as asthmatics if they had ever received a doctor's diagnosis of asthma and currently were on antiobstructive medication. Spirometry including bronchodilator test inhaling 400 µg Salbutamol was performed by all subjects. Two logistic regression models were fitted with OSAS as the outcome variable; one with current asthma and one with BDR as main explanatory variable. Both models included age, sex, body mass index (BMI), waist-hip ratio and smoking.
Results: The prevalence of OSAS was 4,5% (147/3289) in subjects without asthma, and 9,7% (21/217) in subjects with asthma [P=0.001]. Subjects with current asthma had an increased risk for OSA with an OR of 2.2 (1.3, 3.7), after adjustment for all confounders. BDR, measured by difference in ml between pre- and post-bronchodilator spirometry, did not seem to confer increased risk for OSAS; OR 1.0 (0.3, 3.8).
Conclusions: Our study confirms asthma as an independent risk factor for OSAS. We were not able to demonstrate a relationship between bronchodilator reactivity and OSAS.

P3457

Sleep disordered breathing in Prader Willi syndrome post recombinant human growth hormone therapy

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Introduction: Recombinant human growth hormone (rhGH) is licensed for treatment in Prader Willi Syndrome (PWS) for improvement of body composition, height velocity, mobility, behaviour and quality of life. Sleep disordered breathing (SDB) disorders are common in individuals with PWS. It has been suggested that rhGH exacerbates SDB.
Aim: To identify PWS children who have changes in SDB on polysomnography (PSG) at 6 weeks of commencement of rhGH in a tertiary paediatric sleep setting.
Methods: We retrospectively reviewed PWS patients who underwent PSG pre and

6 weeks post commencement of rhGH. The PSG was conducted in a sleep lab using standardized procedure and reported by a sleep physician.
Results: We studied 26 patients (13 Boys and 13 Girls) with age range between 1.6 to 17.9 years. 16 patients (61.5%) had normal PSG study indicating no deterioration in SDB since commencing on rhGH, 5 patients (19.2%) had mild increase in Apnoea Hypopnoea Index (AHI). 1 patient (3.8%) required an increase in support of non-invasive ventilation (NIV) and 4 patients (15.4%) were advised to cease rhGH treatment as PSG showed significant increase in AHI since rhGH commencement.
Discussion: 80% of our PWS patients on rhGH had either no evidence of change in SDB six weeks post rhGH treatment or mild increase in AHI. 19.2% (5 Patients) in which 4 patients (15.4%) studied ceased rhGH and in 1 (3.8%) NIV support was increased.
Conclusion: As we have no predictors of who will have SDB deterioration with rhGH, patients with PWS should have PSG before and after starting rhGH and monitoring of children with pre and post growth hormone PSG studies and clinical evaluation is essential in treatment.

P3458
Periodic breathing and oxygenation pattern depending on severity of bronchopulmonary dysplasia
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Objective: Periodic breathing (PB) is a common breathing pattern in premature infants. Our aim was to study PB occurrence and its impact in oxygenation in infants with moderate to severe and mild bronchopulmonary dysplasia (BPD) compared to infants without BPD.
Methods: We performed pneumography on 25 premature infants with BPD (1 case of severe, 8 of moderate, and 16 of mild BPD) and 25 non-BPD prematures comparable in gestation age (26-30 weeks). Infants were examined 1–3 times at ages of less then 29 days, 29-50 days, more than 50 days. Incidence of main neurologic abnormalities appeared not to differ among groups.
Results: Occurrence and duration of PB did not differ in infants with mild BPD and without BPD at all ages. Infants with moderate to severe BPD demonstrated no PB during first 28 days, lesser incidence of PB at 29-50 days (1 of 3 infants), lesser duration of PB at 50 days and older (4,3±3,1% of recording length) compared to infants with mild BPD (8 of 10 infants; 18,3±6,7%, respectively; P<0,05) and without BPD (17 of 18 infants; 13,3±5,3, respectively; P<0,05). In most cases PB was accompanied by arterial O2 saturation (SpO2) oscillation. The minimal SpO2 values during this oscillation were >80% in all except one cases of PB in infants without BPD. In BPD group in 5 of 9 PB cases at 29-50 days and 5 of 15 PB cases at 50 days and older SpO2 was 80% and lower; these were infants with both moderate to severe and mild BPD.
Conclusion: Infants with mild BPD seem to have more active peripheral chemoreceptors compared to prematures with moderate to severe lung disease. PB may be associated with significant desaturations in infants with BPD regardless of its severity.

P3459
Effects of sleep disordered breathing, asthma and socio-economic status on behavioural parameters in children
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Background: Inner-city children with asthma have increased prevalence of sleep disordered breathing (SDB) and these children have more pronounced behavioral problems.
Aim: To study the effect of asthma and SDB on behavior in children by socio-economic status (SES).
Methods: This cross sectional study was performed in 6 primary schools; 3 with low and 3 with high SES. These schools were determined by a previous study which evaluated the SES of students. ISAAC questionnaire for asthma, pediatric sleep questionnaire for SDB and a standardized SES questionnaire were completed by the parents. Additionally, parents completed the Strengths and Difficulties Questionnaire (SDQ), a brief behavioral screening instrument which reflects emotional and peer problems (internalizing behaviors (IB)) besides conduct and hyperactivity problems (externalizing behaviors (EB)). The prosocial scores derived from SDQ indicated the psychosocial adjustment.
Results: 641 children (52% girls) were included to the study. Mean age was 8.7±1.0 years. Rates of ever wheezing, doctor-diagnosed asthma and SDB were 15.4%, 8.8% and 8.1%, respectively. The EB were higher in boys (p< 0.001) and problem behaviors tended to decrease by increasing SES (p< 0.05). Prosocial adjustment scores were higher in girls (p< 0.05). In the presence of ever wheezing and SDB; both IB and EB increased (p< 0.001 for both).
Conclusion: Increased rates of externalizing and internalizing problems in inner-city primary school children with SDB might reflect a negative impact on overall neurobehavioral health. Being male, coming from lower SES, and the presence of both wheezing and SDB might increase negative behavioral problems.

P3460
Sleep disordered breathing, asthma and socio-economic status in children: How do they interact?
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Background: Sleep disordered breathing (SDB) and asthma have been closely linked. Both conditions are affected by socio-economic status (SES).
Aim: To study the rate of asthma and SDB by SES in children.
Methods: This cross sectional study was performed in 6 primary schools; 3 with low and 3 with high SES. These schools were determined by a previous study which evaluated the SES of students. All children in the 1st to the 4th grades were included. ISAAC questionnaire for asthma, pediatric sleep questionnaire for SDB and a standardized SES questionnaire were completed by the parents.
Results: 1383 children (51% female) were included. Mean age was 8.7±1.1 years. Rates of ever and current wheezing were 25.8% (95%CI: 23.5-28.2%) and 19.8% (95%CI:17.7-21.9), respectively. 11.4% (95%CI:9.8-13.2%) children had doctor diagnosed asthma and 7.1% (95%CI:5.8-8.5) had SDB. Children attending schools in poor neighbourhoods tended to have higher rates of SDB (p=0.05). Although children in both groups had similar rates of ever and current wheezing, those with lower SES had less doctor diagnosed asthma (p=0.03). Children with SDB had increased risk of ever and current wheezing and risk increased in children with lower SES. Presence of SDB increased the risk of ever wheezing among children with low and high socieconomic status with an OR of 4.4 and 3.2, respectively (p<0.05).
Conclusion: SDB is more common in children with lower SES. Children with SDB have higher rates wheezing and risk increases in children with lower SES.

P3461
Obstructive sleep apnea syndrome and insomnia: The development of insomnia symptoms with CPAP treatment
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Rationale: Insomnia is frequently reported in obstructive sleep apnoea syndrome (OSAS) patients due to the high prevalence of both diseases and, potentially, a causal relationship between them.
Objective: To assess the evolution of insomnia under long-term continuous positive airway pressure (CPAP) treatment.
Methods: Eighty apneic patients (age = 54.9±10.6 years, respiratory disturbance index = 45.0±24.6/h) on CPAP were followed prospectively for 24 months. Depression was assessed at baseline (T0) with the QD2A scale, and assessment of insomnia and sleep quality used the Insomnia Severity Index (ISI) (an ISI $\geq$ 14 defining insomnia) and the Pittsburgh Sleep Quality Index (PSQI) at T0 and T24. A multivariate correlation analysis identified the major explanatory factors for the ISI at T24.
Results: The median ISI was 14 at T0 and 6 at T24. The ISI (13.7±5.7 vs. 8.2±6.3) and PSQI (8.2±3.7 vs. 5.9±3.8) significantly decreased at T24 (p = 0.0001) for the patients as a group. Forty-three subjects (54%) had insomnia at T0, and 14 (17.5%) were still insomniac at T24 (p = 0.0001). The ISI_{T0} (ρ = 0.41), $PSQI_{T0}$ (ρ = 0.40), antidepressant use $_{T0}$ (ρ = 0.36), depression score $_{T0}$ (ρ = 0.33) and female gender (ρ = 0.28) correlated with ISI_{T24} (p < 0.01), but CPAP compliance $_{T24}$ did not.
Conclusion: Insomnia was no longer measurable with CPAP treatment in two-thirds of initially insomniac patients. Residual insomnia was associated with high levels of initial insomnia and depressive symptoms.

P3462
Are sleep, nocturnal breathing and daytime performance impaired at moderate altitude?
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Background: There are concerns that even mild hypoxia at altitude has unfavorable health effects. The current study evaluates the hypothesis that sleep quality and daytime performance of lowlanders are impaired during a stay at moderate altitude.

Methods: 50 healthy men, mean±SD age 26±9 y, living at <600m, were studied at Zurich (490m) and while staying in the Swiss Alps at Davos Wolfgang (1630m, 2 days) and Jakobshorn (2590m, 2 days), in randomized order. Sleep studies, psychomotor vigilance tests (PVT), snow board simulator tests and questionnaire evaluations were performed at all locations.
Results: Compared to 490m, sleep studies at altitude revealed reduced oxygen saturation, a higher central apnea/hypopnea index and reduced slow wave sleep. Multiple logistic regression did not show an independent effect of altitude on reaction times in PVT and snowboard simulator when controlled for various confounders.

	490 m	1630 m, 1st night	259 0m, 1st night
Nocturnal oxygen saturation, %	96±1	94±1*	90±2*§
AHI total, 1/h	6±6	10±10*	23±24*§
AHI central, 1/h	3±2	7±7*	19±22*§
Slow wave sleep, %	24±7	23±6	21±6*§
Snowboard, sec	38±5	37±4	38±5
PVT reaction time, ms	208±27	208±36	206±28
Subjective sleep quality, cm	6±2	6±2	6±2

Means ± SD. Snowboard: simulator racing time; subjective sleep quality: visual analogue scale from 0 = extremely poor to 10 = excellent. *p<0.05 vs. 49 0m; §vs. 1630 m.

Conclusion: In healthy men, mild nocturnal hypoxemia and periodic breathing at moderate altitude are associated with subtle sleep disturbances but neither subjective sleep quality nor psychomotor vigilance during daytime are impaired.
Grants: Zurich Centre for Integrative Human Physiology, Swiss Federal Accident Insurance.

P3463
Prevalence of thyroid disease in patients with obstructive sleep apnea
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Background: Previous studies have reported conflicting results with regard to thyroid disease in obstructive sleep apnea (OSA) patients.
Objectives: To determine the prevalence and predictors of thyroid disease in OSA patients.
Methods: Consecutive patients who were referred for an overnight polysomnography (PSG) in the study period underwent serum TSH and thyroxine (FT4) measurement within 4 weeks of PSG using the electrochemiluminescence immunoassay method. Standard definitions were used to define clinical hypothyroidism, subclinical hypothyroidism, clinical hyperthyroidism and subclinical hyperthyroidism.
Results: During the study period, 271 patients with OSA and a mean age of 48.7±14.1yr, body mass index (BMI) of 37.7±9.6 kg/m^2 and apnea hypopnea index (AHI) of 55.2±37/hr and 76 non-OSA patient (control group) with a mean age of 40.8±14.9yr and BMI of 33.7±8.9kg/m^2 and AHI of 3.8±3.1/hr were included. Among OSA patients, a total of 26 (9.6%) were known cases of clinical hypothyroidism. The prevalence of newly diagnosed clinical hypothyroidism was 0.4% and the prevalence of newly diagnosed subclinical hypothyroidism was 11.1% in OSA patients. In the non-OSA patients, the prevalence of newly diagnosed clinical hypothyroidism was 1.4%, and the prevalence of newly diagnosed subclinical hypothyroidism was 5%. There were no cases of clinical or subclinical hyperthyroidism in the studied group. Female gender was the only predictor of clinical hypothyroidism.
Conclusion: The prevalence of newly diagnosed clinical hypothyroidism was very low in OSA patients to warrant routine testing for thyroid function. On the other hand, subclinical hypothyroidism was common among patients with OSA.

P3464
Isolated nocturnal hypoxia in sickle cell disease (SCD)? Is it initial feature or separate entity?
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Introduction: Hypoxia is detrimental to patients with sickle cell disease (SCD) as it causes polymerisation of sickle haemoglobin. Whilst daytime oxygen saturations in patients with SCD are normal or near normal, overnight oxygen levels are not known and are not routinely assessed in these patients.
Aim: To evaluate and describe the prevalence and characteristics of nocturnal oximetry changes in patients with SCD.
Methods: SCD patients referred by haematology for lung function testing also underwent overnight oximetry. Nocturnal oximetry findings were manually scored and results were correlated with lung function. Nocturnal hypoxia (NH) was defined as 30% total sleep time with SpO2 90%.
Results: Lung function testing showed that one patient had airway obstruction, while the rest had normal spirometry. The average KCO was Mean ± SD 91.63±20.54% predicted. The average daytime saturation in this group was 94.90±2.13%. However, the mean night time oxygen saturation in the group was 91.14±4.32.
NH was evident in 4/10 patients in this group and percentage of sleep time nocturnal desaturation was mean of 83.78±18.02 (SD). NH of < 85% was 7.92±13.10. None of the patients had a 4% oxygen desaturation index 10 events per hour.
Conclusion: Patients with SCD can have a normal gas transfer and a borderline normal daytime oximetry. However, during sleep, SCD patients can have long periods of moderate to severe hypoxia.
Our observation showed NH can be seen in SCD even in the abscence of OSA and COPD.
The pathophysiology of night time hypoxia in SCD and the possible therapeutic potential of night time oxygen for these patients deserve further studies.

P3465
Correlation between intermittent nocturnal hypercapnia and depressive symptoms in patients with obstructive sleep apnea syndrome
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Background: It is still controversial whether sleep disordered breathing could play an independent role in the development of depression. The role of nocturnal hypercapnia is still unclear.It is disputive whether non-invasive ventilation is beneficial.
Materials and methods: 58 patients with OSA participated in our study. OSA was proved using Compumedics polysomnography. The patients were divided into two groups – patients with obesity hypoventilation syndrome (OHS) and OSA; and patients with OSA only. Nocturnal hypercapnia was determined by measurement of end-tidal carbon dioxide (ETCO2) – Nonin Medair. In each group depression was diagnosed using the International Classification of Diseases.criteria. The severity of depressive symptoms was determined using the Zung and Hamilton scales. Patients were on bilevel positive airway pressure therapy and were followed up for 6 months.
Results: Thirty of the patients (51,7%) had depressive symptoms. There was no correlation between AHI and the severity of depression (p=0.328). The analysis of the hypnogram showed that sleep fragmentation, characterized by arousal index had a significant impact on depressive symptoms (p=0.048, r=0.265). Another important factor that determines daytime affective status was nocturnal hypercapnea (p=0,05, r=0,265). Body mass index (BMI) also showed a statistically significant relationship with the depressive symptoms (p=0.006, r=0.368).
Conclusion: The degree of OSA determined by AHI and the desaturation index do not contribute to the development of depressive symptoms in patients with OHS/OSA. BMI, sleep fragmentation, nocturnal hypercapnea are of greater importance.

P3466
CPAP therapy in idiopathic pulmonary fibrosis patients with obstructive sleep apnea
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Background/Aim: Recent literature shows an increased incidence of Obstructive Sleep Apnea (OSA) in patients with Idiopathic pulmonary Fibrosis (IPF) and there are no published studies related to CPAP treatment in these patients. We aimed to assess CPAP effectiveness in sleep and quality of life in IPF patients with OSA and recognize difficulties in CPAP initiation and acceptance.
Methods: Five male patients with newly diagnosed IPF and moderate to severe OSA were included. CPAP therapy was initiated. The patients completed the Epworth Sleepiness Scale (ESS), the Pittsburgh Sleep Quality Index (PSQI), the Functional Outcomes in Sleep Questionnaire (FOSQ), the Fatigue Severity Scale (FSS), the SF-36 quality of life questionnaire and the Beck Depression scale (BDS) before and 1 month after CPAP therapy.
Results: Small, although not statistical significant, improvement was noted in ESS score (11.6 vs 12.8), PSQI (14.8 vs 15.2), FOSQ (15.2 vs 14.8), FSS (38.6 vs 41), SF-36 (66.2 vs 62.6) and BDS (10.2 vs 11) after one month of CPAP therapy. Three out of 5 patients had difficulties in CPAP acceptance (nocturnal cough, claustrophobia, insomnia) and needed intense follow up by the CPAP clinic.
Conclusion: One month of CPAP therapy did not show statistical significant improvement in parameters related to sleep quality, quality of life and depression in IPF patients with OSA. The possibility of CPAP poor compliance was high and could only be eliminated with intense follow up by the CPAP clinic. Despite difficulties, CPAP therapy should be tried in these patients and long-term studies are needed in order to assess possible positive influences in quality of life but also disease related morbidity and mortality.

P3467
The effect of concomitant COPD on obstructive sleep apnea syndrome severity and sleep structure
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Aim: To investigate the effect of concomitant chronic obstructive pulmonary

disease (COPD) on obstructive sleep apnea syndrome (OSAS) severity and sleep structure

Material and Method: The files of 874 OSAS patients diagnosed in our sleep laboratory between January 2005 – January 2010 were retrospectively analysed. Polysomnography was performed with Sleep Screen - Viasys device and scorring was done according to the criteria of Rech-Schaffen Kales. Chi-square and student's t-test was used in statistical analysis.

Results: Of 874 OSAS cases, mean age was 49.1±10.7 and 602 (68.9%) were male, 272 (31.1%) were female. The severity of OSAS was mild in 235 (26.9%), moderate in 224 (25.6%) and severe in 415 (47.5%). In 91 (10.4%) patients there was Overlap Syndrome (OSAS+COPD). Overlap Syndrome (OS) was seen 12.5% of male patients while OS was in only 4.4% of female patients ($p<0.001$). There was no statistically significant relation between OS and severity of OSAS ($p=0.199$). Again, OS and pure OSAS patients showed no statistically significant difference regarding BMI, AHI, AI, ODI, sleep stages, sleep efficiency an minimum saturation ($p>0.05$). Mean age of OS patients was significantly higher when compared to pure OSAS patients (53.6 vs. 48.7; $p<0.001$).

Conclusion: COPD has no effect on OSAS severity and sleep structure. COPD is more frequent in male and older OSAS patients as if in community.

P3468

Are upper airways resistance syndrome and obstructive sleep apnea a side-effect of oral cancer therapy?

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Background: Reconstructive surgery and radiotherapy cause changes in airway calibre and tone which may lead to Upper Airways Resistance Syndrome (UARS) and Obstructive Sleep Apnea (OSA). We aimed to study the prevalence of UARS and OSA in treated Oral Cancer patients.

Methodology: 78 patients (69 males, 9 females, mean age 49 years) treated for Oral Cancer were administered the Epworth Sleepiness Scale (ESS). Patients' perception of sleep quality (SLq) and mental health status were noted from Mental Health and Quality of Life Questionnaires (GHQ28, EORTC QLQ-C30 (V03), QLQ-H&N35) and all underwent Polysomnography. They were categorised on the basis of Respiratory Disturbance Index (RDI) {i.e.Apnea-Hypopnea Index (AHI) with Respiratory Effort Related Arousals (RERAs)} into Normal (RDI<5/h), UARS (RDI 5-15/h), OSA (RDI>15/h) and Sleep Disordered Breathing (SDB) where (SDB=UARS+OSA: RDI>5/h).

Results: 66 patients underwent surgery with adjuvant (chemo)radiation and remaining 12 (chemo)radiation.SDB defined by RDI was present in 70.5% as compared to 29.5% defined by AHI. 48.7% had UARS and 21.8% had OSA.SLq was significantly associated with high GHQ28 scores (p=0.002) and SDB (p=0.04).

Conclusions: Upper Airways Resistance Syndrome and Obstructive Sleep Apnea are a common yet unrecognised problem in treated Oral Cancer patients.Apnea-Hypopnea Index underestimated SDB,UARS and OSA significantly (29.5%,24.4% and 5.1% respectively)with a higher prevalence (70.5%,48.7% and 21.8%) as per the Respiratory Disturbance Index which included Respiratory Effort Related Arousals.Poor mental health is associated with disturbed sleep in these patients,but Sleep Disordered Breathing may also be a contributing factor.

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Microparticles from OSA patients induce hyper-reactivity through up-regulation of pro-inflammatory proteins

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Obstructive sleep apnea (OSA) is characterized by repetitive apnea-hypopnea cycles during sleep, which are associated with oxygen desaturation and sleep disruption. It has been shown that level of circulating microparticles (MPs), vesicles released from plasma membrane during cell activation and apoptosis, is altered in OSA patients and contribute to endothelial dysfunction. However, their participation to reactivity in response to vasoconstrictor agonists has not yet been assessed. Two age-matched groups of patients undergoing polysomnography for OSA were compared: 15 patients with an apnea-hypopnea index (AHI)≥5 events/h were included in the OSA group and 17 control subjects with an AHI<5. MPs obtained from blood either from OSA patients or control subjects, or a vehicle were injected iv to mice. Injection of MPs from OSA patients induced vascular hyper-reactivity in response to serotonin in aorta. Interestingly, hyperreactivity was not affected by inhibition of nitric oxide (NO)-synthase (NOS) compared to control subjects and was associated with downregulation of endothelial NOS (eNOS) and decreased NO production. The non selective cyclooxygenase (COX) inhibitor or the selective COX-2 inhibitor reduced serotonin-induced hyperreactivity in aorta from OSA MP-treated mice. This effect was associated with increased COX-2 and NF-κB expressions. These data provide evidence that circulating MPs from OSA patients induce ex vivo vascular hyperreactivity by a combination of an upregulation of proinflammatory proteins and a reduced eNOS activity and NO production. These results highlight vascular dysfunction induced by MPs that might participate to events associated in OSA.

P3470

Obstructive sleep apnea syndrome in non-arteritic anterior ischemic optic neuropathy

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Introduction: The acute vision loss associated with non-arteritic anterior ischemic optic neuropathy (NAION) frequently occurs upon awakening, suggesting that a pathological event during sleep may trigger NAION. Several recent studies have reported links between NAION and obstructive sleep apnea syndrome (OSAS).

Objective: To evaluate newly diagnosed NAION patients for the existence of an associated OSAS.

Methods: Newly identified NAION patients, from the department of Ophthalmology, underwent overnight laboratory polysomnography. The prevalence of sleep apnea in NAION patients was compared to the prevalence previously found in the general population. The classic risk factors associated with NAION were also identified.

Results: A total of 23 patients were recruited (16 men and 7 women), mean age 63,6±8,6 years, body mass index 30,2±5,6 kg/m^2. 13 of these 23 NAION patients (56,5%) had OSAS and 20,8% had severe OSAS (RDI > 30/h). In this study, 69,2% of the patients had hypertension, 61,5% had dyslipidemia, 38,5% had past history of transient ischemic attack and 30,8% had diabetes. The mean cumulative time with oxygen saturation less than 90% (CT90) was 13,7±24,3%. Treatment with autoadjusting positive airway pressure (APAP) was started in 76, 9% of the OSAS patients. The relative risk for a NOIAN patient to have sleep apnea was 3.1 compared to the general population.

Conclusions: Our results suggest an association between OSAS and NOIAN. The prevalence of OSAS was lower than in other studies. The explanation for these results is probably due to the size of our sample. However, more than 50% patients with NOIAN had associated OSAS, reinforcing the need for screening these patients.

P3471

Sexual dysfunction (SD) in obese women: Is there a role for obstructive sleep apnea?

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SD in premenopausal obese women is frequent but the association with OSA has not been well recognized. We enrolled 35 women (age 41.4±7.7 yrs; BMI 42.8±5 kg/m^2, waist circumference 130.6±10.3 cm) that were evaluated by means of Female Sexual Function Index (FSFI), Female Sexual Distress Scale (FSDS), General Health Questionnaire (GHQ), Perceived Stress Scale (PSS), as well as hormonal and metabolic assessment. The presence of OSAS was assessed by a full standard polysomnography. The FSFI total score was 24.2±11.1 with 10 women scoring <20 (Italian lower limit of normality), while FSDS was 15.5±13.4 with 16 women scoring > 15. Mean GHQ score was 4.3±3.7 and PSS median score 21.3±8.4, suggesting psychological distress. Mean LH, FSH and Estradiol values were in the normal range for the age. 22 women meet the criteria for OSAS diagnosis and 15 showed excessive daytime sleepiness. A statistically significant difference between women with abnormal or normal FSDS score was found for AHI (39.4±38 vs 18.8±15, p=0.03), GHQ (5.9±3.5 vs 2.9±3.3, $p<0.01$) and PSS (25.1±8.4 vs 18.1±7, $p<0.01$), respectively. A statistically significant correlations was found between AHI and FSDS (r=0.48, p=0.003), GHQ (r=0.42, p=0.01), or PSS score (0.39, p=0.02) but not with FSFI score that was only correlated to BMI (r=0.4, p=0.01). We conclude that obese women with OSAS showed an high prevalence of SD. Sexual function seems to be related to obesity itself while the sexual distress to the severity of OSA.