362. Obstructive sleep apnoea in children and adults

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Late-breaking abstract: Cardiac function in a revascularized coronary artery disease cohort with obstructive sleep apnoea with and without daytime sleepiness in the RICCADSA trial

Yuksel Peker1,2, Helena Glantz2, Erik Thunstrom2, Bjorn Cederin1, Johan Herlitz3, Jan Ejdeback1. 1Sleep Medicine Unit, Skaraborg Hospital, Skovde & Lidkoping, Sweden; 2Emergency and Cardiovascular Medicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden; 3Cardiology, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

Objectives: The RICCADSA study is a randomized, controlled trial started in 2005 addressing the impact of CPAP in revascularized coronary artery disease (CAD) patients and concomitant OSA (Apnoea-Hypopnoea-Index [AHI]≥15/h) without daytime sleepiness (Epworth Sleepiness Scale <10). The primary outcome is the combined rate of new revascularization, myocardial infarction, stroke and cardiovascular mortality over a mean period of 3 years. Among secondary outcomes, cardiac function is also evaluated.

Participants and methods: Among 660 screened CAD patients, 511 (399 OSA, 112 non-OSA) have been assessed by echocardiography and p-NT proBNP at baseline.

Results: Compared to non-OSA subjects, patients with OSA had thicker interventricular septum and left ventricular posterior wall, enlarged left atrium and more diastolic dysfunction. Left ventricular ejection fraction was similar (56.9 vs 58.3%; ns). P-NTproBNP values were higher in the OSA patients (484.4 vs 332.5 ng/L; p=0.040). Within the OSA group, none of the echocardiographic measures differed significantly between sleepy and non-sleepy OSA subjects. However, p-NT proBNP values were higher (578.9 vs 336.7 ng/L; p=0.002) in the non-sleepy OSA subjects.

Conclusions: In this RICCADSA cohort, adverse alterations in cardiac structure as well as diastolic dysfunction were more common and p-NT-proBNP values increased in OSA patients compared to non-OSA patients. Whether the more elevated p-NT-proBNP values in the non sleepy subjects reflect a poorer prognosis and if CPAP is effective in OSA patients remain to be demonstrated when the trial is completed.

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Feasibility of implanted upper airway nerve stimulation therapy to treat obstructive sleep apnea

Wilfried De Backer1, Johan Verbraecken1, Joachim Maurer2, Lennart Knaack3, Arie Oliven4. 1Respiratory Medicine, University Hospital Antwerp, Edegem, Antwerp, Belgium; 2Hals-Nasen-Ohrenklinik, Universitaetsmedizin, Mannheim, Germany; 3SOMNOLAB Dortmund, Zentrum fur Schlafmedizin, Dortmund, Germany; 4Department of Medicine, Bnai Zion Medical Center, Haifa, Israel

We studied a second generation Upper Airway Stimulation system (Inspire Medical...
We conclude that site of obstruction, baseline AHI and BMI may be important therapy predictors.

Methods: Twelve months follow-up in children with obstructive sleep apnea syndrome (OSAS) was performed using intervention therapy (RME or maxillary expander) and the untreated group (control). We used polysomnography at baseline and at the 12 months follow-up. Results: In the study group children with RME (n=14) vs. maxillary expander (n=14) at baseline AHI was 21.3 (± 9.5) vs. 21.3 (± 10.2) (p=0.05). The percentage of responders at follow-up was higher in the RME group (n=14) vs. maxillary expander (n=14) (78.6% vs. 57.1% (p=0.03)).

Conclusion: We report the results of a randomized controlled trial on children with OSAS treated with RME or maxillary expander. The main outcome of our study was that children treated with maxillary expander showed a higher percentage of responders at 12 months follow-up when compared to children treated with RME.

3240 Oxidative stress in children with OSAS: Role of urinary 8-isoprostane
Susanna Bonafon2, Susanna Fedeli1, Valentina Negro1, Maria Chiara Spinelli1, Maria Chiara Paolino1, Rosa Castaldo1, Manuela Cecili1, Maria Paola Villa.

NEMOS Department, Pediatric Unit, S. Andrea Hospital, Faculty of Medicine and Psychology, University la Sapienza, Rome, Italy.

Background: In Obstructive Sleep Apnea Syndrome (OSAS), the key role of airway inflammation is confirmed. Studies show that noninvasive methods and new markers of inflammation in diagnosis and management of pediatric OSAS are increasing. 8-Isop is an oxidative stress marker.

Aim: To evaluate urinary 8-Isop values in children with OSAS

Methods: Twenty children (mean age 6.3±3.2 ±6.0, M/F:12/8), with referred OSAS, underwent urinary collection at the morning after the polysomnography, sleep questionnaire, medical examination. 8-Isop was assessed in urinary sample.

Results: According to the AHI (Apoor/Hypoxia index) obtained from the polysomnography, we found 13 subjects (group1) with primary snoring/minimum OSAS (mean AHI 1.8±1.80; mean SaO2 97.59±0.59) and 7 subjects (group2) with moderate/severe OSAS (mean AHI 14.6±1.09; mean SaO2 96.0±4.2). The urinary 8-Isop values is higher in Group 2 (respectively Group1:0.72±0.57 ng/ml vs Group2: 2.1±1.29 ng/ml, p=0.01). Moreover we found a positive correlation between AHI and urinary 8-isop (r=0.5; p=0.02). The linear regression analysis, performed using as dependent variable urinary 8-Isop and as independent variables severity of OSAS, age, sex, AHI, SaO2, PR interval, BMI percentile, asthmatic iatrogeny, showed that the severity of OSAS was the only predictor for levels of urinary 8-Isop (R Square: 0.415).

Conclusion: Our data show that values of urinary 8-Isop are related to OSAS severity. Further studies are needed to assess the utility of urinary 8-Isop as marker of inflammation likely due to oxidative stress.

3242 Morbidity prior and after a diagnosis of sleep disorders, a controlled national study
Poul Jennum, Jakob Kjellberg.

Danish Center for Sleep Medicine, Department of Clinical Neurophysiology, Center for Healthy Aging, Faculty of Health Sciences, University of Copenhagen, Glostrup Hospital, Copenhagen, Denmark.

Background: Sleep disorders cause significant morbidity. Most studies have focused on cardiovascular diseases (CVD) after a diagnosis of sleep apnea (SA) or obesity hypventilation syndrome (OHS) but the overall morbidity prior to a SDB diagnosis is incompletely evaluated.

Methods: Using data from the Danish National Patient Registry (1998-2006), we identified all national patients with a diagnosis of SA (19438), or OHS (755). For every patient, we randomly selected 4 age-, sex- and socioeconomic-matched citizens from the Danish Civil Registration System Statistics. We further extracted information from the Danish Ministry of Health, Danish Medicines Agency, and National Health Security.

Results: Pts with SA and OHS presented increased morbidity (p<0.01) up to more than twice the eight years prior to a SDB diagnosis compared to the same contacts. These were diseases of the endocrine, nutritional and metabolic diseases (Odds Ratio (OR) SA/OHS 4.5/4.8), nervous system: OR 4.4/5.5), respiratory system (OR 2.9/4.0), skin and subcutaneous tissue (OR 2.5/3.1), infections (OR 1.8/3.0), CVD (OR 1.7/1.3), genito-urinary system (OR 1.3), ear-nose and throat (OR 1.3), psychiatric diseases (OR 1.1/1.4). After a SDB diagnosis, patients also presented significant morbidities and mortality. CVP treatment reduced mortality (6.8% versus 5.5% in SA patients). 4.0% in control subging. Conclusion: Patients with SDB shows significant morbidities several years prior to
a diagnosis of SA or OHS. As early detection of SA/OHS is important for improving prognosis, SDB should be considered in patient’s with endocrine, nutritional, metabolic, neurological, pulmonary and CVD disorders.

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Longterm follow-up of severe obstructive sleep apnea-hypopnea syndrome and prediction of systemic arterial hypertension
Stefan Marian Frent1, Daniel Lighiezan1, Voicu Tudorache1, Carmen Ardelean2, Diana Dimitriu2, Stefan Mihaicuta1
1Pneumology, Victor Babes University of Medicine and Pharmacy, Timisoara, Timis, Romania; 2Pneumology, Victor Babes Pneumology and Infectious Diseases Clinical Hospital, Timisoara, Timis, Romania

Obstructive sleep apnea (OSA) is an important risk factor for systemic arterial hypertension (SH).

Aim: Identify the best predictors for SH in patients with OSA.

Methods: We prospectively followed 589 consecutive patients (pts) with clinically suspected OSA. The pts were included and followed-up for a mean period of 7 years by sleep questionnaires, anthropometric measurements, polysomnography for apnea-hypopnea index (AHI) (values: normal 0-4, mild 5-14, moderate 15-29, severe over 30) and history of SH. We evaluated the Odds Ratio (OR) and 95% confidence interval (CI) in a univariate analysis and the independent variables.

Results: 436 males (71%) 153 females (29%), age 50±12 years (range 18-84 years) were included. The Body Mass Index (BMI) was 34±6 kg/m² (range 17.56 kg/m²) and the mean AHI 36±28. SH was found in 59% patients. The time from diagnostic to abnormal changes in blood pressure values was 7±5 years. The structure of the study population according to European Society of Hypertension 2007 Guidelines: from the 59% of pts with SH: 11% with high normal values, 15% stage I, 29% stage II, 8% stage III. AHI in all 3 levels, with reference normal, is extremely significant (p<0.001) in hypertensive patients. Only severe OSA is the strongest predictor for hypertension, OR 3.2 (p<0.001, CI 1.67–5.59). Mild and moderate OSA did not significantly influence the appearance of SH (p<0.14, OR 0.58, CI 0.29–1.20, p<0.24, OR 1.52, CI 0.76–2.86). SH is a weak predictor for OSA in univariate analysis, p = 0.045, OR 1.76, CI 1.01–3.08.

Conclusion: Patients with OSA are exposed to a higher risk of developing SH. A strong predictor for SH is only severe OSA.

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cPAP compliance and survival in elderly and sleep apnoea patients
Rodrigo Alonso Moralejo, Salvador de la Torre Carazo, Trinidad Diaz Cambriles, Jesus Muñoz Mendez, Maria Josefa Diaz de Atauri, Angel Lopez Encuentra.
Pneumology Service, Hospital Universitario 12 de Octubre, Madrid, Spain

Introduction: Sleep apnea-hypopnea syndrome (SAHS) prevalence increases with age, but very few data are available on this population.

Aim: To describe the clinical features, survival and tolerance to cPAP treatment of aged patients.

Methods: Observational, concurrently study performed during ten years including patients with SAHS evaluated in our Sleep Disorders Unit (SDU) at the age of 80 or older. Failure of treatment was defined when cPAP use was below 3.5 hours per day. Kaplan Meier and Log rank tests were performed for the survival analysis.

Results: 1.8% (144/7989) of patients were at least 80 years old when were studied in our SDU. There were 72 women (50%). The patients characteristics expressed by mean and standard deviation were, age: 82 (1.7), body mass index: 33 (4.3), Epworth test: 12.5 (5.3), neck circumference 41.2 (9). The 93% (135/144) of the patients were diagnosed of SAHS. 57% (83/144) of the patients started treatment with cPAP. 28/83 (34%) of them used it less than 3.5 hours. The survival analysis results are listed in the table beneath:

<table>
<thead>
<tr>
<th>Use of cPAP</th>
<th>Mean age (SD)</th>
<th>Median survival Probability of survival p (months) in 10 years (Log rank)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3.5 hours (n=28)</td>
<td>81.8 (1.9)</td>
<td>43 (95% CI : 35–50)</td>
</tr>
<tr>
<td>&gt;3.5 hours (n=55)</td>
<td>81.2 (1.5) median not reached</td>
<td>69%</td>
</tr>
</tbody>
</table>

Conclusion: Although the percentage of aged patients is low compared with the whole population, those who fulfill correct treatment with cPAP seem to have a longer survival in 10 years.