P3805
Evaluation of renal function in a cohort of patients affected by obstructive sleep apnea
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Introduction: Obstructive sleep apnea (OSA) has been linked to chronic kidney disease (CKD). We investigated the renal function (GFR) of a cohort of non-CKD patients admitted to our Sleep Medicine Unit for suspected OSA.

Materials and methods: 374 subjects underwent a cardiopulmonary polysomnography (PSG) and a blood collection for GFR. Oronasal airflow, respiratory efforts and oxyhaemoglobin saturation were recorded. PSG was scored according to AASM rules. GFR was calculated through the MDRD equation. Descriptive statistics, analysis of variance (ANOVA), linear regressions were performed. A p value < 0.05 was considered significant.

Results: Patients were 53.1 ± 12 years old, with a mean BMI >3.0. Estimated GFR was 95.1 ± 19 mL/min/1.73 m². The population was suffering from severe OSA (AHI=45.8±19.7; min spO2=72.±10.9%; T<90% <28±26.6%). No differences were seen in baseline GFR according to AHI and ODI. A significant difference in GFR according to T<90% (p=0.005) and min spO2 (p=0.017) was observed. These results were attributable to higher levels of GFR in more hypoxemic patients. GFR showed no correlation with AHI, ODI or T<90%, but it was related to min spO2. These results were confirmed in univariate linear regressions, but not in multivariate regression analyses. However, when mild to moderate OSA cases were excluded, spO2 turned out to be the first independent predictor of GFR.

Conclusion: In severe OSA cases, GFR seems to be inversely related to the severity of oxygen desaturation, but not to the common OSA's indexes. These findings may be due to nephropulmonary compensatory mechanisms against chronic hypoxia that need to be studied in a longitudinal way.

P3806
Treatment of central sleep apnea in patients with heart failure: A retrospective observational study
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Introduction: In patients with heart failure (HF) and central sleep apnea syndrome (CSAS) different therapeutic options, such as continuous positive airway pressure (CPAP), bi-level PAP (BiPAP) and adaptive servoventilation (ASV) are available. All are potentially effective in improving heart function and in reducing apnea-hypopnea index (AHI), while ASV is generally considered to be most effective.

Aim: To assess how HF-patients with CSAS (AHI ≥ 15) respond to the different treatments in terms of AHI.

Methods: CPAP was given first, and when ineffective or when patients still experienced SAS related complaints, followed by BiPAP and/or ASV. Efficacy was assessed by a sleep study under treatment. Treatment was considered effective when AHI reduced <15/hour or reduced at least 50% from the baseline AHI to a value <20/hour.

Results: 14 males (70 y) were assessed.

Figure 1. Overview of the efficacy of the treatments.
Obstructive sleep apnea in patients with typical atrial flutter: Clinical, prognostic and therapeutic implications

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Background: The clinical yield of successful caro-tricuspid isthmus (CTI) radiofrequency ablation for the treatment of atrial flutter (AF) is limited by a high incidence of atrial fibrillation (Afib) in the long term. The association of obstructive sleep apnea (OSA) could favor an incomplete arrhythmia control in this setting. We assessed the impact of continuous positive airway pressure (CPAP) therapy in reducing the occurrence of Afib after CTI ablation.

Methods: A cohort of consecutive patients undergoing successful CTI ablation for typical AF was screened for OSA and followed-up during 12 months. Upon diagnosis of severe OSA, CPAP therapy was initiated. Relationship of the following variables with the occurrence of Afib during follow-up was investigated: CPAP therapy initiation, hypertension, body mass index, underlying structural heart disease, left atrial diameter and previous AF documentation prior to CTI ablation.

Results: We included 56 patients (age 66±11 years, 12 female), 27 of whom (48%) were diagnosed from severe OSA. Twenty-one patients (38%) had Afib during follow-up. Freedom from Afib prior to ablation was associated with a lower incidence of Afib after this procedure (from 67% to 34% of cases; p = 0.019). Additionally, CPAP therapy initiation in those patients never being diagnosed from Afib resulted in a reduction of Afib episodes during follow-up (from 46% to 6% of cases; p = 0.025).

Conclusions: Severe OSA is a prevalent condition in patients with typical AF, and its treatment by means of CPAP therapy results in a lower incidence of new-onset Afib after CTI ablation.

Obstructive sleep apnea syndrome (OSAS) is a frequent disease associated with increased risk of cardiovascular disorders. The aim of this study was the evaluation of changes in osteoprotegerin serum levels and in body composition parameters in patients with sleep apnea syndrome (SAS) before and after CPAP treatment.

We examined 47 patients with OSAS (mean age 55,42±7,91, mean AHI 32,76±19.98) and 29 persons from control group (mean age 49,48±13,68). All subjects underwent bioclinical and isotopic identification with a single-frequency biopsyndex analyzer (Model BIA 101 Akem) and polysomnography. We observed that the osteoprotegerin serum level was measured using a ELISA kit: Human Osteoprotegerin (R&D Systems).

We didn’t showed either differences in osteoprotegerin serum levels between OSAS patients and control group (4,096 vs 4,631 pmol/l, p=0,680) nor correlations between osteoprotegerin and AHI (p=0,484, R=0,08). Moreover we didn’t find changes in osteoprotegerin levels in OSAS patients with diabetes (p=0,251), with hypertension (0,911) or ischemic heart disease (0,876).

We observed higher BMI in OSAS patients (p=0,009), but all body composition parameters we found only tendency, than osteoprotegerin level correlated negative with muscle mass percentage (MM%) (p=0,069, R=-0,209) and positive with fat mass percentage (FM%). CRP was significant higher in OSAS than in control group (6,59 vs 3,85 pmol/l=0,006)R=0,198, p=0,08), but we didn’t find correlations between osteoprotegerin and CRP (p=0,029, R=0,100).

Our study didn’t show changes in osteoprotegerin in OSAS patients.

The role of different clinical parameters regarding inflammation and oxidative stress has largely been debated in the etiology of impaired glucose tolerance in OSAS patients. To determine the plasma levels of free fatty acids (FFA) and resistin in patients with OSAS and impaired glucose tolerance (IGT) and compare them to those with normal blood glucose (NGB).

30 patients with newly diagnosed OSA have participated in the study. OSA was diagnosed with increased cardiorespiratory risk, via activation of inflammatory pathways. Hypoxia modifies Vascular Endothelial Growth Factor (VEGF) and Insulin-like Growth Factor Binding Protein-3 (IGFBP-3) levels, which could contribute to atherogenesis and predict future cardiovascular events. Aim of the study was to compare serum levels of VEGF and IGFBP-3 in OSAS patients vs. controls, to explore associations with anthropometric and sleep parameters and to study the effect of CPAP treatment on these levels.

Materials and Methods: In 65 patients with OSA (AHI 59±9.2≥26.8/h) and in 31 and BMI matched controls (AHI<15/h) (AHI 6.5±4.4/h), serum levels of VEGF and IGFBP-3 were measured. The measurement was repeated after 6 months to OSA patients under CPAP therapy. All participants were non-smokers, without any cardiovascular comorbidities.

Results: At baseline, serum VEGF levels in OSAS patients were significantly higher compared to controls (398.4±229 vs. 229.9±149.8 ng/mL, p<0.001), while IGFBP-3 levels were lower (1.41±0.56 vs. 1.61±0.38 µg/mL, p=0.039). VEGF levels were correlated with AHI (p=0.336, p=0.001) and ODI (p=0.256, p=0.007). At the 6-month follow-up, VEGF levels decreased in patients under CPAP treatment (341±206, p=0.001), while IGFBP-3 levels increased (1.94±0.6, p=0.001).

Conclusion: In OSA patients, serum levels of VEGF are elevated, while IGFBP-3 levels are low. Six months of CPAP treatment modify these levels, indicating an augmented cardiovascular risk in untreated OSA patients, which is ameliorated after CPAP therapy.

Osteoprotegerin, body composition and cardiovascular risk in sleep apnea syndrome

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Obstructive sleep apnea syndrome (OSAS) is a frequent disease associated with increased risk of cardiovascular disorders. The aim of this study was the evaluation of changes in osteoprotegerin serum levels and in body composition parameters in patients with sleep apnea syndrome (SAS) before and after CPAP treatment.

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The role of different clinical parameters regarding inflammation and oxidative stress has largely been debated in the etiology of impaired glucose tolerance in OSAS patients. To determine the plasma levels of free fatty acids (FFA) and resistin in patients with OSAS and impaired glucose tolerance (IGT) and compare them to those with normal blood glucose (NGB).
defined using a full polysomnography study. The glucose metabolism was investigated by oral glucose tolerance test. Blood glucose and IRI were determined on the 0, 60th, 120th, 180th min. 18 patients were with newly diagnosed IGT. 12 patients had NGB. Resistin (RayBio) and FFA (Wako) were determined in both groups. IRI was 25.29 ng/ml in IGT patients. In patients with NGB, IRI was 21.3 ml/U. BMI did not differ significantly between patients with IGT and NGB. BMI was 40.42 in patients with IGT and 41.2 in those with NGB. AHI (60.8) was higher in patients with NGB compared to those with IGT – 50.6. Patients with NGB had also higher plasma levels of FFA – 0.360 mmol/l/compared to patients with IGT – 0.570 mmol/l. Resistin was higher – AHI 15.4 in patients with NGB – 3.98 ng/ml. IRI in NGB patients was 27.52 ml/U and correlated best to the levels of resistin (r=0.05).

The commonly used clinical parameters – BMI, AHI, FFA were higher in patients with NGB and NGB. They are not reliable clinical markers for the early detection of impaired blood glucose metabolism in OSAP patients. Only resistin correlated to the levels of IRI and could be applied as a predictor and early detection marker of impaired blood glucose metabolism in OSAP patients.

**P3812**

The need of higher CPAP pressure in a population with obstructive sleep apnea (OSA) and refractory hypertension (RHT) versus controlled hypertension-a retrospective study

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**Background:** Obstructive sleep apnea (OSA) and refractory hypertension (RHT) versus controlled hypertension may result in left ventricular diastolic dysfunction. Doppler tissue imaging is a better echocardiographic tool for assessment of left ventricular diastolic dysfunction. Severity of left ventricular diastolic dysfunction is correlated with AHI and lowest O2 saturation during sleep.

**Purpose**

To assess the left ventricular functions in patients with severe OSA and findings could provide information leading to reduce CVD in OSA.

**Materials and methods:** A total of 98 subjects, 31 (31.6%) normal, 33 mild-moderate OSAS (33.7%) and 34 (34.7%) severe OSAS, with mean age 48.5±12.3 were included in the study. All the cases underwent PSG and TDI examinations. BNP, CRP and blood uric acid levels were measured in all the cases.

**Results:** Upon evaluating the relationship between BNP and TDE-related parameters, BNP level is found to be positively correlated with such TDE-related parameters as pulmonary artery pressure (PAP) and left atrium dimension. Moreover, uric acid was found to be statistically correlated positively with the left ventricle end diastolic volume, right atrium dimension (RA), interventricular septum (IVS) thickness, but a negative correlation with mitral decalcification time (DT) and ratio of early and lately mitral flow velocity (E/A). Upon adjustment of all the findings for age and body mass index (BMI), three parameters were detected to have statistically significant relationship with PAP, RA and IVS thickness.

**Conclusion:** In conclusion BNP, CRP and blood uric acid levels can be used as adjunctive parameters in the diagnosis and follow-up of right heart pathologies in patients with severe OSAS.

**P3815**

The correlation of echocardiographic findings with BNP, blood uric acid and CRP in OSAP patients with manifest right cardiac pathologies

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**Purpose**

BNP can increase in various disease states including left cardiac disorders and many others out of the former. We aimed in the present study to evaluate, possible relationship between B-type Brain Natriuretic Peptide (BNP) and some other non-invasive indicators of hypoxia, such as blood uric acid and C-reactive protein CRP, and the right cardiac pathologies.

**Method:** A total of 98 subjects, 31 (31.6%) normal, 33 mild-moderate OSAS (33.7%) and 34 (34.7%) severe OSAS, with mean age 48.5±12.3 were included in the present study. All the cases underwent PSG and TDI examinations. BNP, CRP and blood uric acid levels were measured in all the cases.

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**Conclusion:** In conclusion BNP, CRP and blood uric acid levels can be used as adjunctive parameters in the diagnosis and follow-up of right heart pathologies in patients with severe OSAS.

**P3816**

Visceral fat in non-to moderate and severe obstructive sleep apnea

*Yuko Harada* 1, Toru Oga* 2, Kimihiko Murase 1, Yoshio Toyama 3, Kenzaki Aihara 1, Yuichi Chihara 4, Chikara Yoshimura 5, Takefumi Hikomori 1, Tomohiro Handa 1, Tomoyuki Takahashi 1, Michiaki Mushima 1, Kazuo Chien 1, Respiratory Medicine, Graduate School of Medicine, Kyoto University, Kyoto, Japan; 2Respiratory Care and Sleep Control Medicine, Graduate School of Medicine, Kyoto University, Kyoto, Japan; 3Respiratory Medicine, National Hospital Organization Minami Kyoto Hospital, Kyoto, Japan

**Introduction**

Visceral obesity and obstructive sleep apnea (OSA), especially apnea-hypopnoea index (AHI)>30, are said to induce cardiovascular diseases (CVD) and mortality.

**Aims and objectives**

We hypothesized that there were significant differences in visceral fat area (VFA) and other factors between severe and non-to moderate OSA and findings could provide information leading to reduce CVD in OSA.
Methods: We compared age and body mass index (BMI) matched non-to-moderate and severe OSA in the 239 male subjects hospitalized for examination of OSA. We analyzed the relationships between fat areas by computed tomography, comorbidity, polysomnographic data, arterial and venous blood data. Results: Of the 239, 52, 67 and 94 had mild, moderate and severe OSA. We compared all the 94 severe OSA with 85 of the 145 non-to-moderate OSA matched with age and BMI. While waist circumference was the same, severe OSA had a significantly larger VFA. Between the 2 groups, arterial oxygen partial pressure (PaO₂), HbA1c and fibrinogen differed significantly. Multivariate model of those determinants revealed that both VFA and AH1 independently determined PaO₂ (contribution rate (R²)=6.5% and 6.7%) and fibrinogen (R²=7.5% and 4.4%), while HbA1c associated independently with AH1 (R²=3.7%), not VFA.

Conclusions: Severe OSA had a significantly larger VFA, lower PaO₂, higher HbA1c and fibrinogen compared to non-to-moderate OSA. Larger VFA in severe OSA suspect that VFA increase would be a key factor related to body composition in OSA becoming severe. PaO₂, HbA1c and fibrinogen were independently predicted by VFA and AH1. Thus, control of OSA would decrease VFA, and in turn, a decrease in VFA and OSA might improve HbA1c and fibrinogen.

P3817 The inflammation and insulin resistance in obstructive sleep apnea Emel Butkıcı, 1 Mehmet Ekici, 1 Ucver Kisa, 1 Aydanan Ekici, 1 1Department of Pulmonary Medicine, University of Kirkkale, Faculty of Medicine, Kirkkale, Turkey; 2Department of Biochemistry and Clinical Biochemistry, University of Kirkkale, Faculty of Medicine, Kirkkale, Turkey

Objectives: The association between obstructive sleep apnea (OSA) and insulin resistance (IR) remains controversial. Sleep apnea and obesity may increase IR and inflammation by different mechanisms. This study investigated the relationship between sleep apnea and obesity with IR, and pro-inflammatory state.

Method: A total of 133 consecutive subjects who were referred for polysomnography. 112 were documented to have OSA defined as apnea-hypopnea index (AHI) > 5 and 21 control subjects. While we performed control subjects with AHI <5 were selected upon polysomnography. Control group has been accepted as A group. In addition, patients with OSA were divided into the following two groups based on the body mass index (BMI) as non-obese (B group) (BMI <30) and obese (C group) (BMI >30).

Result: IR was higher in the obese patients with OSA compared to the non-obese patients with OSA and control group. However, AHI and BMI were the determinants of IR as independent of each other in all subjects according to multivariable linear regression analyses.

Table 1. The predictors of insulin resistance in all subjects

<table>
<thead>
<tr>
<th>IR</th>
<th>p values</th>
<th>p values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>0.12</td>
<td>0.1</td>
</tr>
<tr>
<td>Age</td>
<td>0.007</td>
<td>0.9</td>
</tr>
<tr>
<td>AHI</td>
<td>0.17</td>
<td>0.05</td>
</tr>
<tr>
<td>BMI</td>
<td>0.27</td>
<td>0.002</td>
</tr>
<tr>
<td>CRP</td>
<td>0.10</td>
<td>0.2</td>
</tr>
<tr>
<td>hsCRP</td>
<td>0.002</td>
<td>0.9</td>
</tr>
<tr>
<td>IL-6</td>
<td>0.04</td>
<td>0.6</td>
</tr>
<tr>
<td>TNP-α</td>
<td>0.04</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Statistical significance p<0.05. AHI: Apnea hypopnea index, BMI: Body mass index, IR: Insulin resistance.

All of inflammatory cytokines (CRP, hsCRP, TNP-α, IL-6) were significantly higher in the obese patients with sleep apnea than in the control group. In all of inflammatory cytokines showed significant associations with BMI while did not affect AHI, AL, ESS.

Conclusion: It may be considered that the impairment in glucose homeostasis is associated with both sleep disorders and obesity. Obesity in patients with OSA cases aggravate of IR and inflammation.

P3818 Glucose metabolism abnormalities in obstructive sleep apnoea (OSA) patients Monika Targowska, Robert Płysnawski, Luiza Jonczak1, Przemysław Bielen1, Dorota Gorecka2, Pawel Sliwinski1, Anna Czyzak-Gradkowska1

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Obstructive sleep apnoea may be associated with disturbances in glucose metabolism and increased risk of type 2 diabetes. The aim of this study was to assess relations between OSA and diabetes. We studied 1164 OSA pts (876 males and 298 females), mean age = 56.6±10.4 years, AHI = 39.6±21.7, BMI = 34.2±6.4, mean SaO2=90.8±5.8. Diabetes was found in 24 pts (21.4%). Comparison of OSA groups with- and without diabetes is shown in the table.

Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>OSA (n=915)</th>
<th>OSA &amp; Diabetes (n=249)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>55.7±10.8</td>
<td>58.7±6.4</td>
<td>p=0.001</td>
</tr>
<tr>
<td>AHI (n/h)</td>
<td>38.6±21.4</td>
<td>43.6±22.4</td>
<td>p=0.009</td>
</tr>
<tr>
<td>Mean SaO2 (%)</td>
<td>91.3±4.6</td>
<td>89.3±5.8</td>
<td>p=0.0002</td>
</tr>
<tr>
<td>BMI (kg/m2)</td>
<td>33.4±6.2</td>
<td>37.2±6.3</td>
<td>p=0.0001</td>
</tr>
<tr>
<td>Epworth score (points)</td>
<td>11.2±5.7</td>
<td>11.7±6.6</td>
<td>NS</td>
</tr>
<tr>
<td>Coronary artery disease (n% of pts)</td>
<td>174 (19%)</td>
<td>88 (35.5%)</td>
<td>p=0.001</td>
</tr>
<tr>
<td>Heart failure (n% of pts)</td>
<td>77 (8.4%)</td>
<td>54 (21.7%)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Arterial hypertension (n% of pts)</td>
<td>633 (69.2%)</td>
<td>224 (90%)</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Arterial fibrillation (n% of pts)</td>
<td>75 (8.2%)</td>
<td>21 (8.4%)</td>
<td>NS</td>
</tr>
<tr>
<td>Stroke (n% of pts)</td>
<td>26 (2.8%)</td>
<td>18 (7.2%)</td>
<td>p=0.001</td>
</tr>
</tbody>
</table>

Logistic regression analysis showed significant correlations between diabetes and cardiovascular diseases and obesity (BMI >30 vs ≤30 kg/m2).

Conclusions: Diabetes was frequent (>20% of subjects) in moderate and severe OSA patients. Cardiovascular diseases and obesity were the independent predictors of diabetes in this group.

P3820 Left and right ventricular function in obstructive sleep apnea patients: Echocardiographic speckle tracking strain analysis of CPAP therapy effects Bouchra Lamia, Stéphanie Gelinotte, Florence Portier, Luis-Carlos Molano, Catherine Tardif, Antoine Cuvelier, Jean-François Muir.

Echocardiographic speckle tracking strain analysis of CPAP therapy effects

Introduction: Obstructive sleep apnea is associated with right ventricular dysfunction including preloading and afterload abnormalities. Right ventricular contractility remains difficult to assess due to the complex RV geometry. Echocardiographic speckle tracking strain provides a better understanding of regional contractility. We tested the hypothesis that RV dysynchrony exists in OSA patients and can be reversed by CPAP therapy.

Methods: Prospective study including patients with a confirmed OSA diagnosis.

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OGTT allowed to diagnose diabetes (glucose ≥ 200 mg%). Comparison of OSA patients with- and without IGT is shown in the table.
Echocardiographic (TTE) measurements were obtained at baseline and after one month of CPAP therapy. We measured usual TTE parameters: left ventricular ejection fraction (LVEF), transmitral pulse Doppler including E and A waves velocities, mitral Doppler issue imaging. The speckle tracking analysis was used to generate 6 segmental RV strain curves. Time to peak strain was determined with dysynchrony defined as the difference between earliest and latest segments. Global radial strain was calculated.

Results: 36 patients (M: 69%, mean (SD) age 56(11) yrs, body mass index 35.17(3.8) kg/m², respiratory disturbance index 46(18) were included. At baseline, 46% had high blood pressure, 22% had a chronic heart disease, with a normal LVEF: 61(8) %. Speckle tracking strain analysis showed RV dysynchrony with a decreased RV global strain: 13.8(5.8) % and RV dysynchrony: 174 (89) ms. After one month of CPAP, RV function was significantly improved and dysynchrony was reversed: 125 (82) ms, p=0.03.

Conclusion: We observed RV dysynchrony at baseline in OSA patients. RV dysynchrony was improved after one month of CPAP therapy.

P3821
Neutrophil ROS production in obese and non-obese men with different severity of obstructive sleep apnoea
Guoada Pilkauskaitė, Skaidrius Miliauskas, Simona Lavinskaite, Raimundas Sakalauskas, Skanda Sudha, Nanda, Lithuania

Obstructive sleep apnoea (OSA) is characterized by pauses of breathing during sleep followed by hypoxia/re-oxygenation cycles that increase production of reactive oxygen species (ROS). Literature data are controversial regarding obesity impact on generation of ROS in OSA. The aim was to evaluate neutrophil ROS production in obese and non-obese men with different severity of OSA.

Methods: 40 newly diagnosed men with OSA having no actively treated comorbidities were included. OSA was confirmed by whole-night polysomnography (PSG), when apnoea/hypopnoea index (AHI) was >5h. Body mass index (BMI) was calculated. Blood samples were taken in the morning after PSG. Neutrophils were isolated by high density centrifugation. DHR-123 was used for detection of generated ROS. ROS production was measured by mean fluorescence intensity (MFI) using flow cytometer. All subjects were divided into 4 groups: AHI<30 and BMI<30; AHI≥30 and BMI<30; AHI<30 and BMI≥30; AHI≥30 and BMI≥30.

Differences were evaluated using nonparametric tests.

Results: All groups were age matched. There was no difference in BMI among AHI<30 and AHI≥30 groups. Neutrophil ROS production was higher in AHI≥30 and BMI≥30 group than AHI<30 and BMI<30 group (MFI 143.3±39.9 vs 31.8±8.37, p=0.05) and in AHI<30 and BMI<30 group than AHI<30 and BMI≥30 (MFI 88.7±8.19 vs 21.3±6.0, p=0.05), but did not differ in the groups with different BMI and the same severity of OSA.

Conclusion: Neutrophil ROS production was higher in severe OSA groups compared to mild-to-moderate OSA, but did not differ in obese and non-obese patient groups with the same severity of OSA. Increased neutrophil ROS production probably is related to intermittent hypoxia.

P3822
Relationship between sleep apnea syndrome, plasma myeloperoxidase levels and cardiovascular risk
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1Pneumology, Pneumology Hospital, Targu-Mures, Romania; 2Department of Diagnosis & Treatment of Respiratory Failure, National TB & Lung Diseases Research Institute, Bucharest, Romania

Cystatin C (Cys C) is a protease inhibitor synthesized in all nucleated cells. Lately it has been proposed as an indicator of early dysfunction in glomerular filtration rate. NT-proBNP is a hormone secreted by ventricles in response to heart overload. The aim of this study was to assess Cys C plasma level in patients with OSA and its relationships with OSA-associated cardiovascular diseases. Cys C and NT-proBNP were also compared as predictors of cardiac abnormalities.

We studied 238 consecutive patients with OSA: mean age=56.87±9.97yrs, BMI=33.5±5.84kg/m², mean AHI=38.97±21.71, mean ODI=44.85±27.85. Elevated level of cysatin C (under 50yrs: Cys C<0.92mg/L, over 50yrs: Cys C<1.02mg/L) was found in 97 pts (40.7%). Comparison of pts with normal and elevated level of Cys C is shown in a table below.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Elevated Cys C</th>
<th>Normal Cys C</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterial Hypertension</td>
<td>77% (79%)</td>
<td>104(74%)</td>
<td>NS</td>
</tr>
<tr>
<td>Coronary Artery disease</td>
<td>34% (35%)</td>
<td>22(15.6%)</td>
<td>P=0.005</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>17(15.5%)</td>
<td>4 (2.8%)</td>
<td>P=0.0009</td>
</tr>
<tr>
<td>Microalbuminuria</td>
<td>9 (16.36%)</td>
<td>19 (22.5%)</td>
<td>NS</td>
</tr>
<tr>
<td>Elevated NT-proBNP</td>
<td>28 (35.9%)</td>
<td>21 (18.3%)</td>
<td>NS</td>
</tr>
<tr>
<td>AHI&gt;30 (n/%)</td>
<td>61 (62.9%)</td>
<td>79 (56.4%)</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Logistic regression analysis (LRA) revealed that CAD (OR=2.56; 95%CI=1.31-4.98, p=0.005) and HF (OR=6.2, 95%CI=1.9-19.9, p=0.001) were associated with increased Cys C level. Association of increased NT-proBNP level with cardiac disorders in OSA pts was also confirmed (for CAD OR=2.5, 95%CI=1.1-5.3, p=0.01, for HF OR=4.9, 95%CI=1.6-14.9, p=0.004).

Conclusions: Increased Cys C level is strongly associated with cardiac diseases in pts with OSA. Cys C seems to be a better indicator of HF than NT-proBNP in OSA pts.

700s

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