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## Evaluation of the Effects of Nocturnal Hypoxia on Systemic Inflammation in Patients with Chronic Obstructive Pulmonary Disease

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**Objectives:** This study has aimed to investigate the factors involved in the relationship between nocturnal hypoxia and systemic inflammation in patients with moderate or severe chronic obstructive pulmonary disease (COPD) and to evaluate the exacerbation of inflammation in a subgroup of patients with obstructive sleep apnea syndrome (OSAS), which has been determined to be a cause of nocturnal hypoxia.

**Methods:** The study included 29 COPD patients who consulted Uludağ University Medical School Pulmonary Diseases polyclinics between December 2011 and July 2012. Patient data comprised demographic characteristics including age, gender, cigarette use and anthropometric measurements of height, weight, and the body mass index (BMI). Blood gases were assessed to eliminate daytime hypoxia. Measurements for pulmonary function tests (PFT), the 6-minute walk test (6MWT), the Borg Dyspnea Scale, test for diffusing capacity of the lungs for carbon monoxide (DLCO) were carried out. Quality of patient life was evaluated using the St. George's Respiratory Questionnaire, the Modified Medical Research Council (mMRC) Dyspnea Test and the Berlin Questionnaire. Measurements of body plethysmography, FEV<sub>1</sub>, FVC, P<sub>l</sub>max, P<sub>E</sub>max, TLC, and RV, cardiopulmonary exercise tests (CPET) on the bicycle ergometer and polysomnography in the sleep laboratory (PSG) were carried out.

**Results:** Comparisons were made between 2 groups consisting of 19 COPD and 10 Overlap Syndrome (OS) patients. Highsensitive CRP (hsCRP), used as the inflammation indicant, was 0,72 mg/l, in the OS group and 0,39 mg/dl in the COPD group, the difference being statistically significant. It was determined that hsCRP positively correlated with cigarette use (pack/year) and the duration of the period below 90% saturation in the PSG; and negatively correlated with the mean saturation level in the PSG.

**Conclusion:** Inflammation was found to be enhanced in the OS patients as evinced by the significantly increased level of hsCRP when compared to the level determined in the COPD patients.

**Keywords:** COPD, hypoxia, inflammation, overlap syndrome, highsensitif CRP