Systemic markers of inflammation were increased in the moderate and severe OSA category

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INTRODUCTION:

Obstructive sleep apnea (OSA) is a disorder that is characterized by recurrent episodes of interrupted breathing lasting more than 10 seconds (apnea) or by a reduction in airflow (hypopnea) during sleep associated with sleep fragmentation, awakenings and decreased oxygen saturation. OSA is a major health problem due to its high prevalence, and association with obesity.

This paper aims to show whether obstructive sleep apnea (OSA) severity increases the level of systemic inflammation markers regardless of body mass index and body composition.

METHODS:

The study included 128 patients with OSA. In line with the results of the sleep study based on AHI, examinees were divided into two groups: with mild OSA (AHI = 5-15) and moderate and severe OSA (AHI > 15). Body compositions were determined by dual X-ray absorptiometry – (DXA) whole-body scan (Hologic QDR-4000). The absolute value of body fat mass (FM) in kg, body fat percentage (FM%), fat mass index (FMI= FFM/ body height2 (kg/m2)), lean body mass (FFM) in kg, lean body mass index [FFMI = FFM/body height2 (kg/m2)] and Central FM (kg) were examined.

Systemic inflammation was assessed based on plasma concentrations of TNF-α - AviBion Human Leptin ELISA kit (Orgenium, Helsinki, Finland); plasma concentrations of IL-6 - AviBion Human Leptin ELISA kit (Orgenium, Helsinki, Finland); serum CRP concentrations - (Olympus AU 400, immunoturbidimetric method for the quantitative determination of C-reactive protein).

RESULTS:

There were 56 (43.8%) patients (44 males) in the group with AHI ≤ 15 and 72 (52.2%) patients (48 males) in the group with AHI>15. We found elevated mean values of the evaluated systemic inflammation markers (CRP, TNF-α, IL-6), although there was no statistical significance in a group with AHI>15 in comparison to the group with AHI≤15.

We found a significant positive correlation between BMI, as well as body fat percentage (FM%) and serum CRP values. We found a significant positive association between serum IL-6 concentration and SatO2 of less than 90% as well as the association of IL-6 and FM%.

CONCLUSION:

Neither the severity of OSA, nutritional status and body composition were identified as independent prognostic factors for the severity of systemic inflammation in patients with OSA.

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