Sleep-related breathing disorders

Increased sclerostin levels in women with obstructive sleep apnea syndrome

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Introduction: Sclerostin is a glycoprotein produced by osteocytes that mainly inhibitis osteoblastic bone formation, but is also involved in vascular calcification process, possibly leading to cardiovascular disorders. Obstructive sleep apnea (OSA) syndrome is a common chronic pulmonary syndrome, frequently associated with cardiovascular complications. The relationship between serum concentration of sclerostin and the incidence of cardiovascular diseases in the course of OSA syndrome has not been yet evaluated. We thus wanted to assess the levels of sclerostin in patients with OSA syndrome with and without cardiovascular complications - as compared with individuals without sleep breathing disorders. Taking into account known sex-related differences in serum scerostin levels the analysis was performed separately in women and men.

Material and methods: In 106 patients (43 women) with OSA syndrome (age 55.3±9.7 years, BMI 33.1±7.9 kg/m^2, apnoe/hypopnoe index - AHI - 29.7± 18.9/ hr), including 76 (72%) patients with cardiovascular complications (hypertension, ischemic heart disease, stroke), and in 49 controls serum levels of sclerostin were evaluated by ELISA method.

Results:. In women, serum sclerostin levels were higher in OSA patients than in healthy controls (80.06±36.50 pg/ml vs 61.39±24.06 pg/ml; $p<0,05$) and correlated with AHI ($r_s=0.315$, $p< 0,01$) and desaturation index ($r_s=0.337$, $p<0,01$). In OSA women with cardiovascular complications sclerostin levels were higher than in women without such complication (86.95±37.42 pg/ml vs 57.33±22.12 pg/ml; $p<0,05$). In men, there were no differences in serum sclerostin levels in OSA patients and control group and there was no relationship with cardiovascular diseases .

Conclusion: In women with OSA syndrome increased serum levels of sclerostin are associated with higher apnea/hypopnea index, higher oxygen desaturation index and coincidence of cardiovascular diseases and thus may be regarded as a marker of severity of OSA syndrome.