

Introduction: Sleep apnea syndrome affects many in general population. The restriction of airflow through the airways during sleep results in episodes of apnea or hypopnea, leading to transient systemic hypoxia that has a detrimental impact on the cardiovascular system. These effects collectively damage the arterial endothelium, acting as a potential promoter of atherosclerosis and increasing the risk cardiovascular diseases. Notably, there is a correlation between the severity of SAS and carotid artery intima-media thickness, as well as between snoring and carotid atherosclerosis.

Material and Methods: An initial sleep polygraphy test using NOX-T3 was conducted. A total of 80 patients with carotid stenosis were divided into two groups based on an Apnea-Hypopnea Index threshold value of 15. Surgical treatment was performed in accordance with current clinical guidelines. In 39 cases of endarterectomy, atherosclerotic plaque samples were collected and analyzed for markers of plaque instability.

Results: Histopathological examination with immunostaining for markers of plaque stability, structure, and capillary density (CD31, CD68, MMP-9, and HIF-1 α) revealed significant variation in the intensity of pathological changes in carotid arteries in the studied groups.

Conclusion: Sleep apnea syndrome is associated with significant pathological changes in the microscopic examination of immunohistochemically stained atherosclerotic plaques from carotid arteries.