The role of obstructive sleep apnea syndrome in the development of ventricular arrhythmias in patients with ischemic heart disease

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Objective: To analyze the structure, prevalence, and risk factors of ventricular arrhythmias in patients with obstructive sleep apnea syndrome.

Materials and Methods:A total of 45 overweight male patients (body mass index (BMI) over 25 kg/m², mean BMI 32.7±9.3 kg/m²) aged 20–79 years (mean age 49.7±20.1 years) with confirmed severe obstructive sleep apnea syndrome (mean apnea-hypopnea index (AHI) 52.4±7.2 per hour) were selected.The patients were divided into two groups:Main group – 16 patients with confirmed ischemic heart disease (IHD).Comparison group – 29 patients without confirmed IHD.

Results:Isolated and grouped ventricular extrasystoles, as well as paroxysms of non-sustained ventricular tachycardia, were detected in 22 (49.2%) of the examined patients. These rhythm disturbances were significantly more frequently recorded in patients with ischemic heart disease (IHD): in 13 (84.6%) and 7 (25.6%) patients, respectively (p<0.05). In patients with both IHD and obstructive sleep apnea syndrome (OSAS) (Group 1), the number of ventricular extrasystoles per hour during nighttime monitoring was significantly higher (44 vs. 8, respectively, p<0.05). Additionally, in Group 1 patients, grouped and paroxysmal rhythm disturbances were significantly more frequently recorded. Furthermore, in one (3.8%) patient with IHD, a paroxysm of non-sustained ventricular tachycardia was registered.When analyzing the prevalence and nature of ventricular rhythm disturbances in the newly formed Groups 1 and 3, patients with IHD again demonstrated a significantly higher prevalence and severity of ventricular arrhythmias.

Conclusion

Thus, the formation of a comparable age group of patients without ischemic heart disease (IHD) allowed for a more confident assumption that the combination of IHD and obstructive sleep apnea syndrome (OSAS), rather than the severity of OSAS itself, determines the prevalence of ventricular rhythm disturbances in these patients.

Variant of Ventricular Arrhythmias (VA)	**Group 1 (Patients with OSA and IHD, n=16)**	**Group 2 – Patiens with OSAS without IHD (n=29).**	**Group 3 – Patients older than 49 years with OSAS without IHD (n=29).**	**p-value**
Mean number of ventricular extrasystoles per hour, n	44	8	**8**	p<0,05
Paired ventricular extrasystoles, n (%)	7 (26,9)	1 (2,6)	1 (3,5)	p<0,05
Ventricular triplets, n (%)	2 (7,7)	0	0	p<0,05
Non-sustained ventricular tachycardia, n (%)	1 (3,8)	0	0	p<0,05