REDUCED NOCTURNAL PARASYMPATHETIC MODULATION OF THE HEART RATE IN THE OBESITY-HYPOVENTILATION PATIENTS

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BACKGROUND. The heart rate variation (HRV) reflects activity of the autonomic nervous system. The aim of the study was to analyze HRV in the patients with obstructive sleep apnea (OSA) and obesity-hypoventilation (OH) patients in order to answer the question whether chronic alveolar hypoventilation influences autonomic heart rate regulation.

MATERIAL AND METHODS. In 41 patients, diagnosed either with “pure” OSA syndrome (n=23, apnea/hypopnea index – AHI: 43.8±18, $PaCO_2 \leq 45$ mmHg) or OH syndrome (n=18, AHI 58.7±38, $PaCO_2 > 46$ mmHg), the HRV analysis based on 8-hour ECG during sleep was performed.

RESULTS. In the OH patients, as compared with the “pure” OSA patients there was globally decreased HRV (SDNN: 140.9±77.2 *vs* 166±56.5 ms, $p<0.05$), and decreased HRV in the range of long-term component (SDANN: 170.8±176 ms *vs* 579.9±986 ms, $p<0.05$) and short-term component (RMSSD: 130.1±133.6 ms *vs* 187±101.9 ms, $p<0.05$), and there was indirect sign of increased sympathetic heart modulation (LF/HF ratio 4.2±2.6 *vs* 2.79±1.93, $p<0.05$).

CONCLUSION. The spectral and non-spectral analysis of HRV suggests reduced parasympathetic heart modulation in the patients with sleep-breathing disorders and chronic alveolar hypoventilation.