

THE IMPACT OF GLUCOSE TOLERANCE ON SUPEROXIDE DISMUTASE-1 ACTIVITY IN ERYTHROCYTES OF OBSTRUCTIVE SLEEP APNEA MALES.

E. Wysocka¹, S. Cofta², T. Piorunek², M. Zowczak-Drabarczyk¹, A. Brożek¹, M. Pioruńska-Stolzmann¹

¹ Chair of Chemistry and Clinical Biochemistry: Department of Clinical Biochemistry and Laboratory Medicine, Poznan University of Medical Sciences. 6 Grunwaldzka Str, 60-780 Poznań, Poland. ewysocka@ump.edu.pl

² Department of Respiratory Medicine, Alergology and Pulmonary Oncology, Poznan University of Medical Sciences.

Obstructive sleep apnea with its respiratory pathology and coexistence of cardiovascular risk factors is predisposed to oxidative stress especially. The aim of the study was to analyze superoxide dismutase-1 activity in erythrocytes of mild and moderate obstructive sleep apnea (OSA) males according to their glucose tolerance results. Methods: Elevated body mass index (BMI) non-smoking Caucasians aged 30-64 with no acute disease or severe chronic disorder were qualified for the study. OSA-suspected males underwent full-night polysomnography and apnea/hypopnea index (AHI) was used to diagnose mild (AHI 5-15) and moderate (AHI 16-30) OSA. The results of oral glucose tolerance test (G0', G120') allowed to select three groups of OSA males: normal glucose tolerance, NGT (n=28), pre-diabetes PreDM (n=28) and type 2 diabetes, T2DM (n=28). Fasting plasma lipid profile (bioMerieux), serum insulin (ELISA BioSource) and erythrocyte Cu Zn- superoxide dismutase activity SOD-1 (Randox, StatfaxTM Plus) were measured. Results: OSA males did not differ in their age and BMI. In mild OSA population some changes of SOD-1 was observed, like increasing values in PreDM group, while decreasing SOD-1 from NGT to T2DM group was observed in moderate OSA. In T2DM group different correlations, i.e. negative SOD-1&AHI, SOD-1&G120' and positive SOD-1&satO₂, SOD-1&HDL-C were observed. Conclusion: Superoxide dismutase-1 activity can fluctuate in OSA males in a context of their glucose intolerance we diagnosed. Decreased SOD-1 in diabetic OSA males might be related to different metabolic factors.