

THE VARIABILITY OF BLOOD ANTIOXIDANT STATUS DURING ORAL GLUCOSE TOLERANCE TEST IN OBSTRUCTIVE SLEEP APNEA PERSONS

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Background: Obstructive sleep apnoea (OSA) patients are affected by obesity, hypertension, dyslipidaemia and dysglycaemia. They are recognized with an increased rate of cardiovascular morbidity and mortality. The oxidative stress is proposed to join the metabolic abnormalities in type 2 diabetes mellitus and cardiovascular disease. The antioxidant defense is currently discussed in a context of either pathobiochemistry of pre-diabetic states or prevention for atherosclerosis. **Aim:** To assess some markers of oxidative stress in the blood of obstructive sleep apnea persons during oral glucose tolerance test. **Methods:** Increased body mass index ($BMI \geq 25$ kg/m²) OSA-suspected Caucasians aged 35-64, with no acute disease or chronic disorder submitted polysomnographic EMBLA procedure to select OSA-positive ($AHI \geq 5$) and OSA-negative ($AHI < 5$) individuals. Basing on a complete physical examination they were qualified for oral glucose tolerance test (OGTT) and newly diagnosed type 2 diabetics were excluded. The results of OGTT allowed to select normal glucose tolerance (NGT) and pre-diabetic (PreDM) subjects as well. The blood was collected twice: fasting sample at 0 minute of OGTT (0') and sample at 120 minute of the test (120'). The concentrations of plasma glucose, G (bioMérieux), Total Antioxidant Status, TAS (Randox), thiobarbituric acid reacting substances, TBARS (Sigma) and activity of erythrocyte Cu,Zn superoxide dysmutase, SOD (Randox) were determine twice (0' and 120'). Serum insulin (BioSource) and plasma lipid concentrations (bioMérieux) were assayed in the fasting sample only. For all parameters determined during OGTT, a difference $D = [120' \text{ minus } 0']$ value was calculated. Statistical analysis (STATISTICA 6.0 for Windows) concerned four groups of subjects: NGT-OSA- negative $n=22$, NGT-OSA-positive $n=22$, PreDM-OSA-negative $n=22$ and PreDM-OSA-positive $n=22$. **Results:** 1. The OSA positive subjects, both NGT and preDM, demonstrated decreased SOD 0' as compared with OSA negative individuals. 2. In the NGT group the positive DSOD and DTAS were observed, while preDM subjects presented negative differences, concerning DTAS in PreDM-OSA-positive subjects especially. 3. Different correlations between oxidative stress markers determined during OGTT and metabolic parameters were found in analyzed subgroups. **Conclusions:** These preliminary results suggest that pre-diabetic OSA patients may consume some blood antioxidant factors more than normal glucose tolerance individuals to avoid oxidative stress. The metabolic contributions of obstructive sleep apnea should be considered.