FUNCTIONAL AND BIOCHEMICAL PARAMETERS OF ENDOTHELIAL DYSFUNCTION IN POSTMENOPAUSAL WOMEN WITH A DIFFERENT STATE OF CARBOHYDRATE METABOLISM

I. Iskhakova¹, L. Ruyatkina², K. Nikolaev³, D. Ruyatkin²

¹Endocrinology Department, Municipal Budget Healthcare Institution of Novosibirsk Region "City Clinical Hospital №1", Russia
²Training and Professional Retraining of Doctors Faculty, Department of Emergency Medicine with Endocrinology and Occupational Diseases, State Budget Educational Institution High Professional Education "Novosibirsk State Medical University" of the Ministry of Russian Federation, Russia
³Laboratory of Emergency Treatment, Federal State Scientific Institution "Research Institute of Therapy and Preventive Medicine", Russia

The study aim was to analyze the associations of biochemical and microcirculatory endothelial indicators in postmenopausal women with different carbohydrate metabolism. Methods. 94 postmenopausal women were divided into three groups: 52 with type 2 diabetes mellitus (T2DM) - group 1; 16 with prediabetes - group 2; 26 with normoglycaemia - group 3. We determined: anthropometric, fasting plasma glucose, glycated hemoglobin, lipid profile; vascular endothelial growth factor (VEGF) and endothelin-1. Microcirculation evaluated by Laser Doppler Flowmetry (LDF). Statistical analysis was performed using SPSS (version 17.0). Results. LDF parameters in group 3 were significantly different from group 1 during occlusion and reperfusion; and from group 2 in basal blood flow. In group 1 during occlusion PMfEi (microcirculation oscillation frequency) was higher, while SO2aEi (saturation oscillation amplitude) was lower than in group 3. Indicators VraEr and Vra/mEr during reperfusion in group 1 and VrfEf in basal blood flow in group 2 were higher than those in group 3 (Vr parameters reflects the contribution of erythrocytes fraction fluctuations in the probed area of skin to endothelial vasomotions). In group 1, occlusal indicators LDF correlated with waist circumference, VEGF, lipid profile parameters; reperfusion parameters VraEr - with systolic blood pressure, lipid profile. In group 2 option VrfEf inversely correlated with VEGF; in group 3 figure PMIEI - with endothelin-1. Conclusion. Identified associations of biochemical parameters with endothelial vasomotion indicators in postmenopausal women with various CM reflect endothelial vasodilation mechanisms disorders in hypoxia and compensatory mechanisms of the microvasculature in early stages of type 2 diabetes.