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## PECULIARITIES OF LIPID EXCHANGE IN PATIENTS WITH DIABETIC RETINOPATHY

## ОСОБЛИВОСТІ ЛІПІДНОГО ОБІМІНУ У ХВОРИХ НА ДІАБЕТИЧНУ РЕТИНОПАТІЮ

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**Introduction.** One of the most prognostic complications of diabetes is diabetic retinopathy (DR), which leads to blindness and disability in the working population. There are currently data on the role of dyslipidemia in the pathogenesis of DR. However, the pathogenetic mechanisms that may explain the relationship between the main indicators of lipid metabolism and the development of DR remain to be fully understood.

**The purpose of the study:** To investigate the features of lipid metabolism in patients with diabetic retinopathy.

**Materials and methods.** A clinical and laboratory examination of 130 patients with DR (70 patients who are insulin-dependent in group 1 and 60 non-insulin-dependent patients - in group 2). The average age of patients ranged from 20 to 55 years. The obtained laboratory parameters were compared with the control group, which included 30 healthy individuals. All patients underwent fasting venous blood collection in BD Vacutainer double coagulation activator tubes and K2-EDTA anticoagulant tubes. In all subjects, serum lipid metabolism was determined - total cholesterol, triglycerides, low-density lipoprotein (LDL), high-density lipoprotein (HDL) and atherogenicity index. Parametric data are presented as  $M \pm m$ , because the distribution of data in the groups was normal, pairwise a posteriori comparison of groups was performed using the Newman-Keuls test using the software package STATISTICA 6.0 (StatSoft, USA).

**Results.** It is established that in patients with DR there is an imbalance in lipid metabolism. Patients in group 1 had significantly higher levels of triglycerides ( $3.23 \pm 0.2$  mmol / l), total cholesterol ( $6.47 \pm 0.43$  mmol / l), LDL ( $3.16 \pm 0.15$  mmol / l) and atherogenic index ( $3.13 \pm 0.1$  um.od) compared with the control group. The same vector of changes in the second group of examined patients, but the content of triglycerides ( $1.61 \pm 0.1$  mmol / l) is at the level of the control group. In both groups, the HDL content did not differ from the control value and was  $1.61 \pm 0.1$  mmol / l and  $1.46 \pm 0.08$  mmol / l, respectively.

**Conclusion.** Insulin-dependent patients with diabetic retinopathy have a more pronounced increase in triglyceride levels compared with non-insulin-dependent patients, indicating dyslipidemia.

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## THE PROGNOSTIC VALUE OF MYOCARDIAL PERFORMANCE INDEX IN PATIENTS WITH HYPERTHYROIDISM

## ПРОГНОСТИЧНА ЦІННІСТЬ ІНДЕКСУ ФУНКЦІОНАЛЬНОЇ ЗДАТНОСТІ МІОКАРДА У ПАЦІЄНТІВ З ГІПЕРТИРЕОЗОМ

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**Introduction.** Hyperthyroidism has been identified as an important cardiovascular risk factor (1). Excess thyroid hormones reduce myocardial reserve capacity and lead to left ventricular systolic dysfunction (2). Also, there is diastolic dysfunction as a result of impaired myocardial relaxation (3).

Early echocardiography (EchoCG) may be of great value in diagnosing subclinical heart failure in patients with hyperthyroidism (4). The Tei index, also known as the myocardial performance index (MPI), which is capable of globally assessing systolic and diastolic heart function, can provide important prognostic information in such patients (5).

**The aim** of this study is to evaluate the prognostic value of the MPI in predicting subclinical heart failure in hyperthyroid patients.

**Materials and methods.** 78 participants were enrolled in the study: 40 patients with newly diagnosed hyperthyroidism - the 1<sup>st</sup> group (30 female, 10 males; mean age  $42,4 \pm 13,7$  years) and 38 healthy persons without known medical conditions as a control - the 2<sup>nd</sup> group (27 female, 11 males;  $46,6 \pm 15,6$  years).

Exclusion criteria were: any evidence of cardiovascular diseases, high blood pressure, and use of chronic prescription medications. Thyroid hormone profile (T3free, T4free, and TSH) assessment was made for all participants of the study.

Standard EchoCG was performed using SonoScape S6Pro ultrasound. Basal measurements were performed with M-mode in the parasternal long-axis view. The function of the left ventricle was determined using tissue Doppler examination by measurement of ejection time (ET), isovolumetric contraction time (IVCT), and isovolumetric relaxation time (IVRT). The MPI was calculated by dividing the sum of IVCT and IVRT by ET.

Data were analyzed using one-factor analysis ANOVA.

**Results.** Analysis of the profile of thyroid hormones shows a significantly lower average level of TSH and an increased average level of T3free, and T4free in the 1<sup>st</sup> group compared to the 2<sup>nd</sup> group ( $p=0.018$ ,  $p<0,001$  and  $p=0,02$ ; respectively).