# TRIGLYCERIDE / HIGH-DENSITY LIPOPROTEIN CHOLESTEROL RATIO AS A CRITERION OF INSULIN RESISTANCE IN HYPERTENSIVE WOMEN

**Vizir M.A.**

*Kharkiv National Medical University, Kharkiv, Ukraine*

Insulin resistance (IR) often accompanies and aggravates such pathological conditions as essential hypertension (EH), obesity and others. According to recent studies the ratio of triglyceride (TG) to high-density lipoprotein cholesterol level HDL-C (the TG/HDL-C index) may be used as an indirect criterion of metabolic syndrome and impaired insulin sensitivity. It is regarded as a simple method to identify patients with IR and higher cardiometabolic risk. The aim of present analysis was to study this index in population of women with EH and such carbohydrate disorders as prediabetes (PD) or type 2 diabetes mellitus (T2DM).

METHODS: a total of 49 women aged 42-76 years underwent in-patient examination. All patients were divided into groups in the following way: Group 1 - 27 (55%) patients with EH and normoglycemia, Group 2 - 10 (20%) patients with EH and PD, Group 3 - 12 (25%) patients with EH and T2DM. EH has been verified on the basis of 2018 ESC/ESH guidelines for the management of arterial hypertension. T2DM verification was based on recommendations of the American Diabetes Association (ADA, 2014). Lipid and carbohydrate metabolism was assessed using biochemistry blood tests. Insulin levels (mkIE/ml) were determined by ELISA method. IR was assessed with Homeostasis Model Assessment Insulin Resistance (HOMA-IR) = concentration of insulin (mkIE/ml) × fasting glucose (mmol/L) / 22.5.

#### RESULTS: Patients with EH and normoglycemia or PD had significantly lower (p ˂ 0.01) values of TG/HDL-C than patients with EH and T2DM [G1: 1.34(0.97–1.82); G2: 1.37(1.22–1.99); G3: 1.82(1.48–2.55)].

#### The TG/HDL-C index positively correlated with HOMA-IR (rho: 0.189; p < 0.05) in all hypertensive patients. Following distribution of HOMA-IR into quartiles showed that the effect of TG/HDL-C on IR was the most significant in the lowest HOMA-IR values (rho: 0.573; p < 0.001). The TG/HDL-C index was significantly associated with insulin level in HOMA-IR Q1 (rho: 0.364; p < 0.05). Results of HOMA-IR Q2 showed that the TG/HDL-C index had positive correlation with postprandial glucose level (rho: 0.886; p < 0.001).

#### CONCLUSION: The results of the study demonstrate that the TG/HDL-C index is associated with insulin sensitivity in hypertensive women. TG/HDL-C was associated with insulin and postpradial glucose levels. Thus, the plasma TG/HDL-C ratio may serve as a simple and clinically useful approach to identify patients with insulin resistance and higher cardiometabolic risk.