# PROGNOSTIC ROLE OF INTERLEUKIN-10 AND GLYCOSYLATED HEMOGLOBIN IN THE DEVELOPMENT OF CARBOHYDRATE DISORDERS IN PATIENTS WITH ARTERIAL HYPERTENSION

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**Objective:** Arterial hypertension (AH) is one of the most pressing problems in medicine due to its prevalence and central role in the development of vascular accidents such as stroke and myocardial infarction. Among the causes that increase the risk of developing the disease and its complications, consider hyperglycemia, insulin resistance, hyperinsulinemia. Therefore, it is very important to diagnose carbohydrate disorders in patients with AH at an early stage.

**The aim of our study** is to develop a diagnostic algorithm for predicting type 2 diabetes mellitus (DM) based on a comprehensive study of carbohydrate metabolism and serum interleukin-10 (IL-10) activity in patients with AH.

**Design and method:** The study involved 54 patients with AH. The levels of glucose, insulin, HbA1c were determined by biochemical method, HOMA index was calculated. In order to determine the level of anti-inflammatory IL -10 the reagent kit "Vector Best" (Russia) was used. A discriminant analysis was used to identify the dependencies that explain the mechanisms of type 2 DM development in patients with AH.

**Results:** As the result of evaluation of carbohydrate metabolism, 24 patients were diagnosed with type 2 DM (fasting glucose$> 7.0$ mmol / L; 2-hour oral glucose tolerance test (OGGT) $\geq 11.1$ mmol / L, HbA1c $\geq 6.5\%$)), 30 - prediabetes (fasting glucose from 5.6 to 6.9 mmol / L or 2-hour OGGT - from 7.8 to 11.0 mmol / L, HbA1c from 5.7 to 6.4%). The level of IL-10 was increased in patients with AH and prediabetes (90.8 (90.6-91.1) pg / ml, p <0.05). At the same time, patients with AH combined with type 2 DM were characterized by the decrease of IL-10 level (77.4 (75.5-79.3) pg / ml, p <0.05). According to the results of discriminant analysis, directed to search of signs that allow to differentiate prediabetes and type 2 DM, it was found that IL-10 and HbA1c are exactly the required signs:

Type 2 DM$=5,216^x$IL-10$+2,643^x$ HbA1c$-211,174$;

Prediabetes$=6,114^x$IL-10$+3,059^x$ HbA1c$-290,53$.

**Conclusions:** These studies demonstrate that an increase in the level of anti-inflammatory IL-10 in patients with AH and prediabetes can serve as a protective reaction and an early marker of carbohydrate metabolism disorders. Changes in the levels of IL-10 and HbA1c are the most important prognostic factors that affect the development of carbohydrate metabolism disorders in hypertensive patients.