

**RELATIONSHIP BETWEEN CARBOHYDRATE EXCHANGE  
PARAMETERS AND CALPROTECTIN LEVEL IN PATIENTS  
WITH ACUTE MYOCARDIAL INFARCTION WITH REGARD  
TO CONCOMITANT TYPE 2 DIABETES MELLITUS**

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**Aim** is to assess the state of immune inflammation based on the study of serum calprotectin level, as well as to analyze the presence and character of links with carbohydrate metabolism parameters based on the study of blood glucose, insulin and insulin resistance in patients with acute MI and DM type 2.

**Materials and methods:** the study involved examination of 112 patients (mean age  $65.25 \pm 0.09$  years) who underwent treatment at myocardial infarction department of Kharkiv City Clinical Hospital No.27 and Kharkiv Railway Clinical Hospital No.1. The main group included 64 patients (average age  $65.31 \pm 1.62$  years) with acute MI and concomitant DM type 2. The comparison group consisted of 46 patients with acute MI without DM type 2 (mean age  $65.19 \pm 1.22$  years). Groups were matched according to age and gender.

Blood glucose concentration was determined by glucose oxidase method. Insulin level was determined by immunoassay using test system EIA-2935, Insulin ELISA. Serum calprotectin level was established by immunoassay using the MRP8 / 14 ELISA KIT test system.

The level of carbohydrate metabolism disruption was assessed by calculating homeostasis model assessment (HOMA), QUICKI, Caro indices of insulin resistance by the following mathematical formulas.

**Results:** patients with acute MI in combination with DM type 2 were found to have a significant increasing of calprotectin by 25.9% ( $p < 0.001$ ) compared to patients with acute MI without DM type 2.

Assessment of carbohydrate metabolism revealed changes in the form of statistically significant increase in the concentration of fasting glucose in patients with acute MI in combination with DM type 2 by 41.8% when compared to patients with isolated acute MI.

The level of HOMA index in patients with acute MI and concomitant DM type 2 when compared to patients with isolated acute MI was also higher (differences are statistically significant,  $p < 0.01$ ). Caro index, reflecting the sensitivity of tissues to insulin, showed changes in the form of reduction of this parameter in comorbidity of acute MI and DM type 2 compared to patients with isolated acute MI without DM type 2. Similar changes were obtained in QUICKI index, which was significantly lower in patients of the main group with comorbidity of acute MI and DM type 2.

**Conclusions:** the presence of DM type 2 in patients with acute MI is accompanied by hyperglycemia and hyperinsulinemia, which is associated with an increase in the activity of immune inflammation due to calprotectinemia.