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## **EFFECT OF LYRAGLUTIDE ON THE LIPID PROFILE IN PATIENTS WITH TYPE 2 DIABETES**

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Type 2 diabetes mellitus (DM-2) is a complex metabolic disorder, which characterized by carbohydrate, protein and lipid metabolism disorder due to target tissue resistance to insulin and its cellular metabolic effect. Obesity-dependent diabetes can significantly decrease life expectancy. DM-2 accounts for about 90% to 95% of cases and the recent explosion of diabetes has aggravated insulin resistance and contributed greatly to the diabetes epidemic. Excess fat causes cells to be less responsive to insulin. In obese individuals, adipose tissue secretes excess of non-esterified fatty acids (NEFA) and other substances that affect metabolism such as glycerol, hormones, proinflammatory cytokines, leptin and others. NEFA being the critical factor linking obesity to DM-2. NEFA are mediators in insulin resistance and disrupts insulin signaling pathways and thereby worsening prognosis and survival chances for patients.

The aim of the study was to identify the effect of liraglutide on lipid metabolism in patients with type 2 diabetes mellitus (DM-2) and obesity.

Materials and methods. We examined 39 patients with diabetes mellitus and obesity of the 1st degree (body mass index (BMI) 32.4-35.0 kg / m<sup>2</sup>) without severe diabetic complications, the duration of diabetes was 5-8 years. The patients' age was 53.5 ± 4.3 years. All patients were randomly divided into 2 groups: group 1 (n = 18) received metformin at a dose of 1000 mg as basic therapy, group 2 (n = 21) received liraglutide therapy at a dose of 1.8 in addition to metformin 1000 mg / day.

The study of the levels of low-density lipoprotein cholesterol (LDL cholesterol), fasting glucose, glycosylated hemoglobin (HbA1c), BMI was carried out before treatment and 3 months after its start.

Results: The value of LDL cholesterol in group 1 decreased from 3.97 ± 0.28 to 3.55 ± 0.33 mmol / L (p > 0.1); fasting glucose level changed from 7.49 ± 1.32 to 6.34

$\pm 0.73$  mmol / L ( $p > 0.1$ ); the HbA1c indicator decreased from  $7.82 \pm 1.17$  to  $7.11 \pm 1.23\%$  ( $p > 0.1$ ). The BMI value changed from  $33.68 \pm 2.8$  up to  $33.11 \pm 1.8$  kg / m<sup>2</sup> ( $p > 0.1$ ).

While group 2 showed even a greater decrease than that of group 1 in all 4 indicators. The value of LDL cholesterol in group 2 decreased from  $3.89 \pm 0.31$  to  $3.00 \pm 0.24$  mmol / L ( $p < 0.05$ ); fasting glucose level was changed from  $7.84 \pm 1.25$  to  $5.85 \pm 0.83$  ( $p < 0.05$ ) mmol / L; the HbA1c indicator decreased from  $7.88 \pm 1.15$  to  $6.35 \pm 1.12\%$  ( $p < 0.05$ ). The BMI value down from  $34.37 \pm 2.73$  to  $30.71 \pm 1.7$  kg / m<sup>2</sup> ( $p < 0.05$ ).

Conclusions. Considering that in the treatment of patients with diabetes mellitus against the background of obesity, the use of liraglutide significantly reduced not only the indicators of carbohydrate metabolism (HbA1c and fasting glucose levels) but also the lipid profile, we believe that treatment with liraglutide improves the cardiometabolic prognosis in patients with diabetes mellitus-2 and obesity.