

## METABOLIC SYNDROME IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: CLINICAL FEATURES, METABOLIC DISORDERS AND APPROACHES TO CORRECTION

<sup>1</sup>Amonova N., <sup>2</sup>Umurova N.

<sup>1</sup>Bukhara State Medical Institute, Bukhara, Republic of Uzbekistan

<sup>2</sup>Zarmed university, Bukhara, Republic of Uzbekistan

Metabolic syndrome (MS) combined with type 2 diabetes mellitus (T2DM) is one of the most urgent global health problems. It represents a cluster of metabolic and cardiovascular disorders such as abdominal obesity, hypertension, hyperglycemia, dyslipidemia, and insulin resistance [1–3]. The coexistence of MS and T2DM markedly increases the risk of cardiovascular events, nephropathy, and non-alcoholic fatty liver disease. According to IDF and WHO data, the prevalence of MS among diabetic patients reaches 60–80%, emphasizing the need for comprehensive therapeutic strategies to improve metabolic control and prevent complications.

### **Objective.**

To evaluate the clinical and metabolic features of metabolic syndrome in patients with type 2 diabetes and to assess the effectiveness of combined therapy aimed at correcting carbohydrate and lipid metabolism disorders.

**Materials and Methods.** A total of 120 patients with T2DM and metabolic syndrome (mean age  $54.6 \pm 7.3$  years) were examined. Anthropometric parameters (BMI, waist circumference), blood pressure, fasting glucose, HbA1c, lipid profile, insulin levels, and HOMA-IR index were analyzed. Correlation and regression analyses were used to identify the relationships between metabolic parameters.

**Results.** Most patients (82%) had abdominal obesity and hyperinsulinemia, 65% had hypertension, and 59% had hypertriglyceridemia. The mean HOMA-IR index was  $6.3 \pm 1.8$ , confirming pronounced insulin resistance. Strong correlations were found between waist circumference and HOMA-IR ( $r=0.72$ ;  $p<0.001$ ), and between triglycerides and HbA1c ( $r=0.61$ ;  $p<0.01$ ). After six months of combined therapy (metformin 1500 mg/day + empagliflozin 25 mg/day), patients demonstrated improved metabolic parameters: body weight reduction by 8.7%, HbA1c decrease by 1.3%, normalization of triglycerides, and increase of HDL cholesterol levels.

**Conclusion.** Metabolic syndrome in patients with type 2 diabetes is characterized by a high prevalence of insulin resistance, hypertension, and dyslipidemia. Comprehensive treatment including SGLT2 inhibitors and metformin significantly improves metabolic status, reduces cardiovascular risks, and enhances overall therapeutic outcomes. Early diagnosis and personalized management are crucial for preventing long-term complications.