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FEATURES OF THE IMPACT OF NOVEL GLUCOSE-LOWERING DRUG CLASSES ON CARDIOVASCULAR OUTCOMES IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Abstract. Type 2 diabetes mellitus (T2DM) is associated with high cardiovascular risk. This study evaluated the effects of novel glucose-lowering agents on cardiovascular outcomes. A total of 100 patients were divided into standard therapy and treatment including SGLT2 inhibitors and GLP-1 receptor agonists. Patients receiving novel therapies showed improved glycemic control, reduced inflammation, enhanced endothelial function, and a lower incidence of major adverse cardiovascular events (MACE). SGLT2 inhibitors were more effective in reducing heart failure risk, while GLP-1 receptor agonists better prevented atherosclerotic events. These findings support their use in cardiovascular risk reduction in T2DM.

Keywords: type 2 diabetes mellitus, cardiovascular risk, SGLT2 inhibitors, GLP-1 receptor agonists, cardioprotection, endothelial dysfunction.

Background. Type 2 diabetes mellitus (T2DM) is a major risk factor for cardiovascular diseases, including coronary artery disease, stroke, and heart failure. Despite advances in glycemic control, cardiovascular morbidity and mortality remain high in this population. Recently, novel glucose-lowering agents have demonstrated significant cardioprotective effects beyond glycemic control, highlighting their potential role in improving cardiovascular outcomes.

Objective. To evaluate the impact of novel glucose-lowering drug classes on cardiovascular outcomes in patients with type 2 diabetes mellitus.

Materials and Methods. A clinical-analytical study included 100 patients with T2DM divided into two groups. Group I (n=50) received standard glucose-lowering therapy, while Group II (n=50) was treated with regimens including SGLT2 inhibitors and GLP-1 receptor agonists. Glycemic control (HbA1c), lipid profile, blood pressure, and body mass index were assessed. Additionally, the incidence of major adverse cardiovascular events (MACE), inflammatory markers (C-reactive protein), and endothelial function parameters were evaluated.

Results and Discussion. The use of novel glucose-lowering agents was associated with a significant reduction in cardiovascular risk compared to standard therapy. Patients in Group II showed improved glycemic control, better lipid profiles, and lower blood pressure levels. A reduction in systemic inflammation and improvement in endothelial function were also observed. The incidence of MACE was lower in the group receiving innovative therapy. SGLT2 inhibitors demonstrated a

pronounced effect in reducing the risk of heart failure, whereas GLP-1 receptor agonists were more effective in reducing atherosclerotic events.

Conclusion. Novel glucose-lowering drug classes represent an effective strategy for reducing cardiovascular risk in patients with T2DM. Their use provides not only glycemic control but also multifactorial cardioprotective effects, supporting their broader implementation in clinical practice.

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