



19. TIRZEPATIDE – NEW TREATMENT OPTION FOR PATIENT WITH TYPE 2 DIABETES

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Introduction. Type II diabetes is a global problem of the 21st century. The incidence of diabetes is increasing significantly and alarmingly over the years, thus according to WHO data the rate of diabetes has increased 8 times during the last 20 years. In the Republic of Moldova, over 131 thousand people suffer from diabetes, of which 9% - type I diabetes and 91% with type II diabetes (in 80% of cases they are overweight people, who through excessive consumption of animal fats have developed a resistance of cells to the action of insulin). According to scientific data, this number will increase in geometric progression and will reach up to 690 million people in the next 20 years. A new **first-in-class** drug for the treatment of type 2 diabetes is tirzepatide. Approved by the FDA in the USA, Europe, Canada and Australia in 2022.

Aim of study. To analyze the studies of tirzepatide's clinical efficacy in individuals with type II diabetes (T2DM).

Methods and materials. Were used scientific publications and articles from the PubMed, NCBI, Medscape databases published during 2015-2023.

Results. Data collected through a literature review, analysis of clinical trials SURPASS and SURMOUNT demonstrated the effectiveness of tirzepatide. Increased affinity for GIP receptors and less for GLP-1, tirzepatide produces a considerable reduction in hyperglycemia compared to a selective GLP-1 receptor agonist. Tirzepatide increases the levels of adiponectin, which constantly regulates glucose and lipid metabolism. Recent studies in 2021 demonstrated significant glycemic efficacy and obesity reduction with tirzepatide, and superiority over dulaglutide, semaglutide, degludec, and insulin glargine. It works as a dual GLP-1 agonist and GIP agonist, and leads to significantly improved glycemic control in type 2 diabetics and significant weight reduction. Tirzepatide's bioavailability is approximately 80%, plasma protein binding 99%, a half-life 5 days, after once-weekly dosing 2.5 mg subcutaneously. It is not available in oral form. Based on scientific data from side effects can be decreased appetite, acid reflux, sinus tachycardia, also may cause thyroid C-cell tumors.

Conclusion. In patients with type 2 diabetes mellitus, tirzepatide with its dual action on both GLP-1 and GIP receptors shows significant therapeutic promise. It is given between 2.5 to 15mg with 6 dose options. Although it has some side effects and contraindications for some patients (like a family history of medullary thyroid carcinoma) is outweighed by its outstanding effect on both decreasing blood glucose levels and losing weight. Additionally, it shows improvements in lipid profile, and cardiac and renal risks despite the limited data. Many studies suggest that tirzepatide, as part of individualized patient-centered care, may be a useful therapy for many people with type 2 diabetes.