



Research Insight

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The Impact of GLP-1 Receptor Agonists on Weight Control in Patients with Diabetes and Comorbid Obesity

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Abstract This study explored the application significance of GLP-1 receptor agonists (GLP-1 RAs) in the population with diabetes mellitus complicated with obesity. This type of drug achieves the dual effects of lowering blood sugar and losing weight through multiple mechanisms such as inhibiting central appetite, delaying gastric emptying, and improving metabolic status. Clinical studies have shown that GLP-1 RAs can lead to significant weight loss related to dosage and medication duration, and is superior to traditional hypoglycemic drugs that are prone to cause weight gain in terms of waist circumference and BMI. However, after discontinuing the medication, some patients may experience varying degrees of weight gain, suggesting that long-term management and lifestyle intervention are still necessary. In practical applications, individualized medication selection should be made based on BMI, comorbidities and cardiovascular risks, and a low-dose starting and gradually increasing dosage approach should be adopted to reduce gastrointestinal adverse reactions. When used in combination with insulin or sulfonylurea drugs, attention should also be paid to dose adjustment and hypoglycemic monitoring. Under the premise of reasonable patient screening, standardized titration and follow-up monitoring, GLP-1 RAs has a relatively ideal risk-benefit ratio and is expected to continue to be an important treatment method in the comprehensive management of diabetes mellitus complicated with obesity.

Keywords GLP-1 receptor agonists (GLP-1 RAs); Diabetes mellitus complicated with obesity; Weight management / Weight loss; Glycemic control; Individualized treatment

1 Introduction

Diabetes, especially type 2 diabetes, along with obesity, is a global health problem. The increasing number of such patients has also led to the situation of "diabetes combined with obesity", exerting considerable pressure on individual health, the medical system and social resources (Yao et al., 2024). When diabetes and obesity coexist, metabolic problems in the body become more severe, the risk of cardiovascular diseases increases, and it also affects the quality of life. Therefore, weight control has become an important part of treatment. It can not only help control blood sugar, but also reduce metabolic and cardiovascular-related risks (Popoviciu et al., 2023; Liu and Shu, 2025).

Controlling blood sugar remains the core goal of diabetes treatment, but merely lowering blood sugar is difficult to solve a host of metabolic problems caused by diabetes combined with obesity. Appropriate weight loss not only helps improve blood sugar but also benefits blood pressure and blood lipid levels. However, due to factors such as physiology, habits and environment, most patients have difficulty maintaining an ideal weight all the time by merely controlling their diet and doing more exercise, and the overall effect is not very good (Popoviciu et al., 2023; Yao et al., 2024; Liu and Shu, 2025). Therefore, drugs that can both lower blood sugar and help lose weight have gradually become the focus of research and clinical attention.

This study will analyze the use of glucagon-like peptide-1 receptor agonists (GLP-1 RAs) in the treatment of diabetes mellitus complicated with obesity. This type of medicine can not only lower blood sugar but also assist in weight loss. Compared with traditional hypoglycemic drugs, it has a lower possibility of causing weight gain, and some drugs can even help patients maintain a low weight for a long time. GLP-1 RAs can help patients lose weight by 5% to 15%, significantly reduce glycated hemoglobin levels (HbA1c), and also has a protective effect on organs such as the heart and kidneys. In the future, such drugs are expected to play a more important role in the comprehensive treatment of diabetes complicated with obesity, helping patients maintain a healthy state for a long time and reducing the burden brought by the disease.