Assessing GLP-1 RAs in Diabetic Gastroparesis: A Literature Review

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Introduction: Diabetic gastroparesis (DG) is a complication of diabetes mellitus (DM) characterized by impaired motility of the upper gastrointestinal tract and delayed gastric emptying (DGE) without mechanical obstruction. DG may cause nausea, vomiting, abdominal pain, and early satiety. Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) are widely used in type 2 DM management to improve glycemic control by stimulating insulin release and slowing gastric emptying. However, their use in patients with DG has been controversial due to concerns about exacerbating pre-existing gastric motility issues.

Objectives: This paper evaluates the impact of GLP-1 RAs on gastric motility in DG and assesses their safety and efficacy in this population. Methods A comprehensive search was conducted in Embase, MEDLINE (OVID), Cochrane Central, Web of Science Core Collection, Korean Citation Index, SciELO, and Global Index Medicus. Data from randomized controlled trials, observational studies, and case reports were analyzed to assess the effects of GLP-1 RAs on gastric emptying in non-gastroparetic and gastroparetic populations. Additional ad hoc searches were conducted in PubMed and Embase.

Results: The review revealed that while GLP-1 RAs are associated with DGE, this effect is dose- and formulation-dependent (long vs. short-acting) and diminishes over time due to significant tachyphylaxis. Importantly, in DG patients, vagus nerve dysfunction appears to attenuate the gastrointestinal effects of GLP-1 RAs, reducing the risk of further motility impairment, especially with long-acting formulations. With GLP-1 RA use, no significant exacerbation of DG symptoms occurred, suggesting these medications may be safer in this population than previously thought.

Conclusion: The findings suggest that DG should not be considered an absolute contraindication for GLP-1 RA therapy. Emerging data support revising clinical guidelines to direct GLP-1 RA use in DG. Given their

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efficacy and potential to reduce cardiovascular and renal complications, GLP-1 RAs should be considered in DG patients with personalized therapeutic strategies.

Keywords: GLP-1RAs, Diabetes, Gastroparesis

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