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Adjunctive Use of GLP-1 Receptor Agonists in Type 1 Diabetes Mellitus: Balancing Benefit and Risk

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Background: While GLP-1 receptor agonists (GLP-1 RAs) are approved for type 2 diabetes mellitus, their off-label use in type 1 diabetes mellitus (T1DM) has drawn increasing interest due to potential metabolic benefits. However, concerns persist regarding an elevated risk of diabetic ketoacidosis (DKA), especially euglycemic DKA.

Objective: This study reviews the current evidence on the safety and efficacy of GLP-1 RAs in T1DM and assesses whether the associated risks justify limiting their use.

Methods: A comprehensive literature review was conducted across PubMed, ClinicalTrials.gov, and major diabetes conference proceedings to identify randomized controlled trials (RCTs), observational studies, and safety reports evaluating GLP-1 RAs in T1DM populations.

Results: Clinical trials have shown that GLP-1 RAs, including liraglutide and semaglutide, lead to modest reductions in HbA1c (up to 0.4%), significant decreases in body weight, and lower insulin requirements. However, a small but notable increase in DKA incidence—often associated with excessive insulin reduction or poor ketone monitoring—has been observed. Most cases were preventable with appropriate

education and clinical oversight.

Conclusion: Although the risk of DKA cannot be overlooked, it should not preclude the use of GLP-1 RAs in carefully selected T1DM patients. In individuals with obesity, insulin resistance, or significant weight management needs, GLP-1 therapy may offer clinically meaningful benefits. With appropriate risk mitigation strategies, these agents represent a promising adjunct in the evolving management of T1DM. The DKA risk should not be a blanket reason to deny GLP-1 use in all T1DM patients. Instead, it supports cautious, informed, and selective prescribing—especially in high-risk or poorly monitored individuals.

Biography

Ms. Mai Yaghi has obtained her bachelor's degree in science of nursing from Fatima College of Health Sciences affiliated with Griffith University. She is a certified registered nurse since 2009, and certified health educator from DOH since 2021. She has completed Imperial College London Diabetes educator course in 2018. She is certified pump trainer for Omnipod DASH, Medtronic minimed 780, Accucheck Solo pumps. She is also a member of Emirates Diabetes Educators Society. Currently working as certified diabetes educator nurse in Health Plus Diabetes & Endocrinology Center.