Presented at Annual Scientific Meeting (ASM) 2026 - Boston, MA
Published in J Med Toxicol 2026;22:62.

109. Adverse Effects and Clinical Outcomes Associated With Individual Glucagon-Like Peptide-1 Receptor Agonists

Irene Li[1], Jeffrey Lair[1,2], Stephane Carriero[1,2], On Behalf of the Toxicology Investigators Consortium (ToxIC)

[1]UMass Memorial Medical Center, Worcester, MA, USA. [2]UMass Chan Medical School, Worcester, MA, USA.

Background: Although the number of GLP-1 receptor agonist (GLP-1 RA) prescriptions are rapidly increasing, the data on overdoses of these agents are limited. This is important given the high incidence of online procurement of these drugs, which raises questions of quality control and risk of dosing errors.

Hypothesis or Research Question: Describe adverse effects and clinical outcomes associated with GLP-1 RA exposures.

Methods: This is an analysis of prospectively collected data from the Toxicology Investigators Consortium (ToxIC) Core Registry of adult and pediatric patients who had a GLP-1 RA exposure between January 2010 and August 2025. Descriptive statistics were calculated for baseline characteristics, presenting symptoms and outcomes (treatment and disposition). Additionally, outcomes were compared across GLP-1 RA subtypes and between single and multi-drug ingestions.

Results: Between eight met inclusion criteria. Ages ranged from two to 80 years (mean=39 years) and four (24%) patients were male. Three (18%) patients had a history of diabetes mellitus. The most common reason for exposure was attempt at self-harm (n=5, 59%). Semaglutide was the most common agent (n=9, 53%). Patients who took semaglutide had no concurrent and presented with nausea/vomiting (n=3, 33%) and diarrhea (n=1, 11%). Six (75%) patients who took a non-semaglutide GLP-1 RA presented with hypoglycemia. Six (75%) patients reported taking other hypoglycemic medications, either therapeutic or supratherapeutic. Six patients (67%) in the semaglutide group received a therapeutic intervention, with the most common being intravenous (IV) fluids (n=5, 57%). All patients who took a non-semaglutide GLP-1 RA received treatment, with the most common being dextrose-containing IV fluids (n=7, 88%). Four patients in the semaglutide group were discharged to the ED (44%), and five were admitted to the floor (56%). Patients who took other GLP-1 RAs were all admitted to hospital either to the floors (n=4, 50%), to the intensive care unit (n=3, 38%), or unknown (n=1, 13%). Compared to patients who only took a GLP-1 RA, those who had multiple medications had higher incidence of hypoglycemia (n=1, 10% vs. n=5, 71%), were more likely to require treatment (n=7, 70% vs. n=7, 100%), and had higher rates of hospital admission (n=6, 60% vs. n=6, 86%).

Conclusion: Intentional self-harm comprised nearly one third of GLP-1 RA exposures. Patients who took a GLP-1 RA with other hypoglycemic medications were more likely to be hypoglycemic, receive therapeutic interventions, and require escalation of care. The low incidence of GLP-1 RA exposures in light of their increasing prevalence suggests that exposures are likely underreported.

ToxIC: This research was performed by the ACMT Toxicology Investigators Consortium