Commentary: Leading the way to better surgical outcomes

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Central Message

New antihyperglycemic medications reduce major adverse cardiovascular events in patients with cardiorenal disease. Whether they improve perioperative surgical outcomes will be enlightening.

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The burgeoning evidence that patients with type 2 diabetes and poor long-term glycemic control have worse cardiorenal outcomes has led to the development of new antihyperglycemic agents to improve prognosis.¹ In particular, glucagon-like peptide-1 receptor agonist and sodium glucose cotransporter-2 inhibitors have been shown to reduce the risk of major adverse cardiovascular events (MACE) in patients with diabetes and preexisting cardiovascular disease compared with placebo.²⁻⁵ With a high prevalence of patients with diabetes requiring cardiac surgery, it will be imperative to understand their efficacy in this vulnerable population.⁶

In this issue of the *Journal*, Verma and colleagues⁷ summarize the state of evidence in relation to modern antihyperglycemic agents. The authors focus on the Liraglutide Effect and Action in Diabetes: Evaluation of Cardiovascular Outcome Results trial.⁴ The study included 940 patients aged 50 years or older with preexisting cardiovascular and renal disease and poor glycemic control (hemoglobin A_{1c} at least 7.0%) who were randomized to placebo or liraglutide treatment. The risk of MACE over a median 3.8-year follow-up was reduced by 13% (hazard ratio, 0.87; 95% confidence interval, 0.78-0.97) in the treatment versus placebo group. In turn, Verma and colleagues⁷ summarize what cardiac surgeons need to know in relation to liraglutide and the sodium glucose cotransporter-2 inhibitor empagliflozin, which showed a similar MACE reduction risk (hazard ratio, 0.86; 95% confidence interval, 0.74-0.99). Their main tenet is for surgeons to prescribe or to collaborate with other diabetic specialists and primary care providers to consider liraglutide or empagliflozin in type 2 diabetic surgical patients at hospital discharge. This aligns with the American College of Cardiology recommendations for guiding treatment in patients with established atherosclerotic cardiovascular disease and type 2 diabetes.⁸

It will be enlightening to determine if the prescription of contemporary antihyperglycemic medications after a patient's surgical intervention will affect his/her long-term prognosis. Patients with a history of coronary artery bypass who were randomized to empagliflozin reap similar risk reductions of cardiovascular events versus placebo in patients without previous surgery.⁹ However, more than 90% of patients were randomized to treatment more than 1 year (~60% 5+ years) after their surgical event, suggesting that studies are needed to determine if a sodium glucose cotransporter-2 inhibitor or glucagon-like peptide-1 receptor agonist as a part of discharge planning will affect long-term prognosis. Likewise, it would be useful to understand if these medications can be prescribed in the preoperative period to facilitate an uneventful surgical procedure. However, care should be taken if liraglutide or empagliflozin are used preoperatively to avoid hypoglycemia when other oral medications are used by patients (importantly, the authors also suggest withholding empagliflozin 3 days before surgery to avoid diabetic ketoacidosis).⁷ Still, if the surgical team takes heed of these precautions, the study of implementing these medications to optimize preoperative glycemic control and manage cardiorenal risk factors is worthwhile for elective surgical patients, particularly those who are on a waitlist, given the benefits of presurgical glycemic control.¹⁰

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