COMMENT ON RUBINO ET AL.

Metabolic Surgery in the Treatment Algorithm for Type 2 Diabetes: A Joint Statement by International Diabetes Organizations. Diabetes Care 2016;39:861–877

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We read with interest the article by Rubino et al. (1). The authors suggest treatment with metabolic surgery after conservative therapy does not reach individual diabetes targets in patients with BMI >30 kg/m^2. They recommend sodium–glucose cotransporter 2 (SGLT2) inhibitors as suitable drugs, among others, for early postoperative diabetes management due to their low risk of inducing hypoglycemia.

The use of SGLT2 inhibitors has been associated with an increased risk for euglycemic diabetic ketoacidosis (DKA) in type 1 and type 2 diabetes. More than 300 cases of acidosis associated with SGLT2 inhibitors have been reported to the U.S. Food and Drug Administration Adverse Event Reporting System and the EudraVigilance database. In clinical trials with SGLT2 inhibitors, DKA rates ranged between 0.2 and 0.8 cases per 1,000 patient-years among patients with type 2 diabetes.

DKA results from a combination of glucagon elevation and low insulin, leading to a metabolic shift characterized by enhanced lipolysis and ketone body synthesis. Changes in diet, especially decreased carbohydrate intake, switches metabolism likewise, and under starvation, ketone bodies rise physiologically. In rodents, ketone bodies increased approximately threefold after an overnight fast. An additional increase was observed when the SGLT2 inhibitor empagliflozin was added (2).

Energy intake decreases dramatically after bariatric surgery. Measurement of ketone bodies after bariatric surgery showed a steep increase in the first postoperative weeks, followed by a gradual decline after 4–6 months (3). This is likely explained by a decreased energy and carbohydrate intake, promoting ketone body production that may contribute to postoperative occurrence of DKA. In fact, several case reports have illustrated patients treated with SGLT2 inhibitor medication developing euglycemic DKA after bariatric surgery (4). Prescribing information of all SGLT2 inhibitors contains advice to take special precautions in situations of low food intake or surgery. In addition, a recently published position statement recommends considering stopping SGLT2 inhibitors at least 24 h prior to elective surgery and in situations with low energy intake (5).

Considering the current data, we regard the early postbariatric phase as DKA prone. Antidiabetes medication should be selected carefully. SGLT2 inhibition seems to increase the risk of severe side effects in the phase of rapid weight loss more than other drugs. We therefore do not encourage the use SGLT2 inhibitors for early postoperative diabetes management.

Duality of Interest. No potential conflicts of interest relevant to this article were reported.

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