# Sodium-glucose co-transporter 2 inhibitors and Ramadan: Another string to the bow

It is estimated that around 40-50 million people with diabetes worldwide fast during Ramadan. During fasting, Muslims abstain from food and drinks (including oral medication) from dawn to dusk. The population-based epidemiology of diabetes and Ramadan, study[1] conducted in 13 Islamic countries showed that 43% of patients with type 1 diabetes and 79% of patients with type 2 diabetes fast during Ramadan.

This religious fast poses a challenge to the glycemic control in patients with type 2 diabetes. Even though an exception is made for people with diabetes,[2] a keen appreciation of their religious duties prompts a lot of people with type 2 diabetes to fast during Ramadan. This may compromise glycemic control in such a way that patients with tight glycemic control might risk hypoglycemia and those with uncontrolled blood glucose may present with unfettered hyperglycemia, diabetic ketoacidosis or hyperosmolar osmotic state.[1]

Among these, the main concern is hypoglycemia, especially in patients who are on treatment with insulin, sulphonylureas or nonsulphonylurea insulin secretagogues. Patients who are on metformin with or without glitazones, dipeptidyl peptidase 4 inhibitor, glucagon-like peptide I analogues, alpha-glucosidase inhibitors, are generally advised to continue the same due to a much lesser risk of hypoglycemia[3-5] and those on secretagogues or insulin are advised to decrease the dose of medication or adjust the timings, so as not to precipitate hypoglycemia.

A new addition to this safe armamentarium are the sodium-glucose co-transporter 2 inhibitors, which by their unique mode of action do not cause hypoglycemia and improve glycemic control by decreasing renal re-absorption of glucose.[6,7] SGLT2 is a low-affinity, high capacity glucose transporter located in the proximal tubule in the kidneys. It is responsible for 90% of glucose reabsorption. Inhibition of SGLT2 leads to the decrease in blood glucose due to the increase in renal glucose excretion. SGLT2 inhibitor have an insulin-independent action, are efficacious with glycosylated hemoglobin reduction ranging from 0.5% to 1.5%, promote weight loss, have a low incidence of hypoglycemia and complement the action of other antidiabetic agents.[6-8] They can provided substantial and sustained glycemic improvements as monotherapy and in add-on combinations in adults with type 2 diabetes These drugs can be adjuvant to metformin and other oral agents. They offer the patient, a safe option of continuing their fast without compromising glycemic control.

However, a caveat may be sounded, since these molecules cause diuresis and fluid loss, initiation should be done at least 2 weeks to 1 month prior to the fast, so that the patients can get acclimatized to the unique mechanistic profile and side effects of these molecules. They should also be reassured that the polyuria and glycosuria that occur with this drug are only a consequence of its mechanism of action and are not indicative of poor glycemic control. Subjects should also be warned to watch out for dehydration, especially in the setting of absence of fluid intake during fasting and should also be acquainted with the risk of genital tract infections. Even though our experience with SGLT-2 inhibitors is limited, we sincerely believe that this group of drugs have the potential to help a greater number of believers fast successfully and that this advantage can also be extended to other groups of believers with diabetes and long periods of fasting, to fulfill our commitment to patient centred care.[8]

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