Management of Type 2 Diabetes mellitus during Ramadan Fasting
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Muslims who fast during Ramadan must abstain from eating, drinking, use of oral medications, and smoking from pre-dawn to after sunset; however, there are no restrictions on food or fluid intake between sunset and dawn. Fasting during Ramadan, a holy month of Islam, is a duty for all healthy adult Muslims.

Islam has more than 1.6 billion adherents which is 23% of the world population. So chances are that in most countries you would find patients with T2DM who would need your help on fasting during Ramadan. This can create a medical challenge for the health care provider. So it is important that medical professionals be aware of the potential risks associated with fasting during Ramadan and with approaches to mitigate those risks.

Traditionally the risks associated with fasting in patients with diabetes have been hypoglycemia, hyperglycemia, diabetic ketoacidosis, dehydration and thrombosis. Here we are discussing only T2DM. So practically the only serious problems are hypoglycemia and hypoglycemia. These can be easily avoided by proper adjustment and a few tips to the patients. The bulk of literature indicates that fasting in Ramadan is safe for the majority of T2DM patients with proper education and diabetic management.

The old references mainly came from Saudi Arabia and as we know the place is a desert area with very high temperatures. So complications like dehydration and thrombosis were reported commonly1.

Major risks associated with fasting in patients with diabetes
The risk associated with fasting in patients with diabetes during Ramadan can be minimized by risk stratification in the last three visits or three months before fasting. The patients who are very high risk and high risk should not fast. The others, with proper advice may fast safely2. See Fig 1 and 2.
Fig. 1 and 2 showing Very high risk and High risk patients with T2DM planning to fast during Ramadan (Courtesy Reference number 2)

Post Ramadan, the scenario changes dramatically as patients overeat during the 2-3 days of Eid festival. This is the time when patients have to switch back to their pre-Ramadan regime. However care has to be individualized as many T2DM may have lost weight and would not feast. They have a chance of developing hypoglycemia if their pre-Ramadan regime is restored. The dosage during Ramadan may need to be continued in such cases and their blood sugars monitored meticulously for at least a month after Eid.

The EPIDIAR study showed that fasting during Ramadan increased the risk of severe hypoglycemia (4.7-fold in patients with type 1 diabetes and 7.5-fold in patients with type 2 diabetes). There is a 5 fold increase in the incidence of severe hyperglycemia (requiring hospitalization) in patients with type 2 diabetes. The risk may further increase due to excessive reduction of insulin dosage based on the assumption that food intake is reduced during the month3.

In addition, hyperglycemia produces an osmotic diuresis, further contributing to volume and electrolyte depletion. Limitation of fluid intake during the fast, especially if prolonged, is a cause of dehydration. However, hospitalizations due to coronary events or stroke were not increased during Ramadan. Reports have suggested an increased incidence of retinal vein occlusion4.

Physical activity and Ramadan fasting: It has been shown that fasting does not interfere with tolerance to exercise. It is necessary to continue the usual physical activity especially during non-fasting periods.

Education is to be imparted to patients about the need to break fast as soon as any complication or new harmful condition occurs. Immediate medical help is to be provided to diabetics who need medical help quickly, rather than waiting for medical assistance the next day5.
Common problems during Ramadan:
Clinical Tips for successful Fasting during Ramadan:
Encourage the practice of having Sahoor, the pre-dawn food. That is the way to prevent hypoglycemia in patients with T2DM fasting during Ramadan. Skipping Sahoor or having a less amount may be dangerous especially if patient has taken insulin or oral anti-diabetic drugs that time.
Many people who are fasting during the daytime unfortunately indulge in excessive eating at the time of breakfast (Iftaar). That is one important reason for weight gain during Ramadan. That is paradoxical because Ramadan fasting is basically to control one's hunger and curb the tendency to overeat. Some patients may have no change or may lose a few kilograms.

The fasting diabetic patient should be encouraged to lead a life as close to daily normal one as possible. He should continue his work and regularly pray. This may help in better control of diabetes.

The timing of taking OAD or insulin at the time of Iftaar has to be explained to the patient with diabetes. He may take the tablet or inject insulin after breaking his fast with a small amount of food, usually a few dates or a cup of milk and go for Maghrib, the evening prayer. And if by chance he becomes busy and a bit late, he may develop hypoglycemia. The safe advice would be to take the OAD or inject insulin at the time of taking full dinner.

Testing for blood sugar levels with a glucometer does not invalidate fasting and should be encouraged. If the level at any time is less than 70 mg/dL or more than 300 mg/dL the fast should be broken 2.

Recommendations regarding treatment of T2DM during Ramadan

Insulin:
 Prefer long acting insulin like insulin NPH, glargine or degludeg.
 Prefer analog insulin like aspart and lispro 6,7.
 Inject no insulin or less insulin at Sahoor and major dose at Iftaar.
 Inject insulin before proper dinner, not while taking the snack at the time of breaking the fast.

GLP1 Analogs:
 Can be used safely without risk of hypoglycemia 8.
 Dosage of insulin, if used along with it, should be decreased to prevent hypoglycemia.

Oral Anti-diabetic Drugs:
Metformin is preferred. Longer acting ones even more.
A single evening dose of an Sulphonylurea is as effective as a morning dose during non fasting times 9. However better to avoid SUs due to their high chance of hypoglycemia.
Out of the sulphonyureas, Gliclazide is the best one followed by Glimepiride and the worst one is Glibenclamide (Glyburide) 10.

DPP4 inhibitors like Sitagliptin are considered safe as they do not produce hypoglycemia in most patients 11.

SGLT2 inhibitors may produce diuresis and lead to dehydration and chances of thrombosis. These may better be avoided 2.
It is hoped that if the treating doctor can explain a few things to the patients and modify his treatment, most T2DM patients can fast safely during Ramadan.

References:


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