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Type II DM management during Ramdan fasting, a exercise in problem solving

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ABSTRACT

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INTRODUCTION

Background:

Management of diabetes during Ramadan fasting presents a significant challenge to healthcare providers. Considerable number of Muslims follow Ramadan fast [1]. Fasting during Ramadan for patients with diabetes carries a risk of an assortment of complication, hypoglycemia being one of the major. The current treatment of type II diabetes (T2DM) includes a wide variety of therapeutic options, some with a potential to cause hypoglycemia and mandate proper medical management during Ramadan.

Case presentation:

A 51 Year old male cab driver with underlying T2DM for last 6 years was presented at the saveetha hospital diabetic opd. His current anti – diabetic medications, apart from the routine lifestyle changes, include metformin 500mg BID and glimepiride 2 mg. Since he also had systemic arterial hypertension and dyslipidemia, was being treated for the same. He had a history of coronary insufficiency (he underwent an angioplasty 2 years ago) and his 24 h urine collection revealed a urinary albumin excretion rate of 250 mg/day. During follow up, he reported to have multiple episodes of dizziness and feeling restless on and off while driving. He seems to be compliant with his medications & diet. He expressed his wish to fast in Ramadan. His current HBA1c is 8.3%; fasting plasma glucose, 155 mg/dL; and post prandial glucose, 248 mg/dL with a body mass index (BMI) of 28.8 kg/m2. During the pre-Ramadan assessment, glimepirde 2 mg was changed to extended release gliclazide 60 mg. There was an improvement in his microalbuminuria status without any hypoglycemic episodes including his glycemic control as reported by the patient on post-Ramadan visit.

Discussion:

The management of T2DM in this patient should include pre-Ramadan medical assessment with individual **risk stratification, medication changes and Ramadan-focused diabetic education.**

The 2016 IDF Ramadan guidelines risk stratify patients based on various patient-related factors [2]. The patient here has **a very high risk** and exhibits poor glycemic control. The guidelines recommend that the patient should not follow Ramadan fasting. However, as he was willing to fast, pre-Ramadan diabetes counseling becomes essential.

The Ramadan-focused **diabetic education** should include [2]:

- Must ensure that he has adequate intake during suhoor.

- Continue metformin 500 mg at suhoor and Iftar
- Adequate fluid intake at suhoor.
- Monitor for daytime hypoglycemia and hyperglycemia with self monitoring of blood glucose.
  - Pre suhoor.
  - Post suhoor.
  - Pre Iftar.
  - Post Iftar or bedtime.
- Break the fast promptly with any noticeable complaints of hypoglycemia.

Medication Changes

Assessing the risk of hypoglycemia

There is no randomized date available for metformin use in patients with Ramadan fasting; it is safe to use during fasting due to low risk of hypoglycemia albeit with dose adjustments according to guidelines [2].

Hypoglycemia risk associated with gliclazide has been evaluated in several studies. In the ADVANCE study, intensive treatment with extended release gliclazide showed only 0,7 episode of severe hypoglycemia per 100 patients treated per year indication low risk in non-fasting patients [3]. In a randomized trial by AL Sifri et al, the risk for hypoglycemia with extended release gliclazide was low when compared with other SUs including glimepiride, as well as being equivalent to sitagliptin during Ramadan [4]. In another study, gliclazide (1/55) was found to be associated with a low incidence of hypoglycemia than glimepiride (25/276) or glibenclamide (5/96) [5]. A meta-analysis also confirms the absence of difference between gliclazide and dipeptidyl peptidase 4 (DPP-4) inhibitors among 1696 patients in terms of hypoglycemia risk during Ramadan [6]. In an European GUIDE study, there were approximately 50% fewer confirmed hypoglycemic episodes in comparison with glimepiride at comparable efficacy [7].

These studies demonstrate that patients with T2DM may continue to use modern SU like extended release gliclazide which carry a much lower risk of hypoglycemia and fast safely during Ramadan.

Cardiovascular safety and weight neutrality and renal protection

Apart from hypoglycemia, cardiovascular safety, weight neutrality and renal protection are also some of the important aspects to be considered in presence of positive medical history in this patient. Intensive glycemic control with extended release gliclazide in the ADVANCE study showed cardiovascular safety, which was maintained over a post-trial period of 10 years (ADVANCE - -ON) [8]. Further, it was also associated with a reduction of ESRD by 65%, of microalbuminuria by 9% and of macroalbuminuria by 30%. They also observed a – 10% reduction in the progression of albuminuria and a +15% regression from macroalbuminuria to microalbuminuria. Recently, ADVANCE-ON confirmed sustained benefits of ESRD ("legacy effect") demonstrating the importance of this therapeutic strategy for the reduction of the growing number of patients with ESRD as a consequence of diabetic nephropathy all over the world [9]. The post Ramadan assessment in this patient showed improved microalbuminuria, which might be attributed to gliclazide. In a view of safety date of both anti-diabetic medications, guidelines recommend metformin: 500 mg at Iftar, 500 mg at Suhoor and extended release gliclazide 60 mg to be taken at Iftar [2].

Conclusion:

Appropriate risk stratification of patients, with guideline-recommended medication adjustment and Ramadan-specific diabetes education are the important part of T2DM management during Ramadan. Extended release Gliclazide 60 mg exerts low risk of hypoglycemia and is a safe alternative to other sulfonylureas during Ramadan.

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