

Is Scientific Production Problem-Oriented? Diabetes and Ramadan as an Example

Received: 6 Apr 2014 / Accepted: 12 Apr 2014
© OMSB, 2014

Something in the region of 1.6 billion Muslims are living throughout the world.¹ Approximately 1.2 billion of them are over 14 years of age, and approximately 77 million of them are diabetic.² Adult Muslims have to fast during the holy month of Ramadan, starting after dawn until dusk. Depending upon the geographic area, the Muslim may fast up to 18 hours per day for 1 month. Fasting owing to either deprivation of water and food. Diabetic patient's misguided use of medications during Ramadan can cause some acute and chronic complications. On the other hand, treatment by different diabetic agents among diabetic patients who want to fast should be changed. Nevertheless, it seems that there is a knowledge gap and the quantity and quality of evidences are insufficient to give satisfactory answers to the questions around this challenging issue.

The American Diabetes Association (ADA) 2005 and 2010 guidelines,^{3,4} which systematically reviewed relevant evidences were used in this study. Wherein, the content and the references of these guidelines were compared to determine how relevant and sufficient they are as an approach to a diabetic patient who fasts during Ramadan, and also if the 2010 guidelines contains any new and qualified study to give Muslims the opportunity to answer their last important questions that have not been answered by the 2005 guidelines.

In the 2005 guidelines, a tabulation of the risk category (very high risk, high risk, moderate risk and low risk) of patients with type 1 and type 2 diabetes who fast during Ramadan was included, and the same table was also inserted in the 2010 guideline. The second table that was again displayed in both of the guidelines has focused on possible changes that can be applied as treatment regimen in patients with type 2 diabetes who fast during Ramadan.⁵ It has been mentioned in both guidelines that recommendations given in these tables were largely based on expert and clinical opinion, and not on scientific data derived from clinical studies.^{3,4}

All essays which had been referred to in the 2005 and 2010 guidelines that are relevant to the complication of fasting in diabetic patients or appropriate treatment strategies were 22 in total, 16 (72.7%) of these being identically present in both guidelines, whereas 6 (27.3%) of these were conducted after 2005 and were used only in the 2010 guidelines.⁶⁻¹¹ Five of these 6 studies were before-after studies [first one had focused on the effect of patient education on hypoglycemic events during Ramadan; the second one had discussed insulin pump therapy in type 1 diabetic patients; the third one had evaluated whether type 1 diabetic patients can tolerate prolonged fasting (over 25 hours) or not; the fourth one had compared different treatment models among type 2 diabetic patients; and the last one had compared Humalog Mix 50 insulin with human insulin Mix 30 in type 2 diabetic patients during Ramadan month] and one of them was a review essay about education and awareness in type 2 diabetic patients. There was a

knowledge gap seen and most of them were not exactly relevant to the guideline issue. They have also investigated some critical advantages or disadvantages of fasting in diabetic patients such as hypo or hyperglycemia, BMI changes and reduction or elevation of HBA1c during the month of Ramadan; while the absence of studies that evaluate the risk of some micro or macro vascular complication of diabetes such as retinopathy, nephropathy, neuropathy, deep vein thrombosis (DVT), stroke or CAD (coronary artery disease) in fasting patients are obvious.

As an essential and feasible solution, Muslims should create a comprehensive registry system for their patients to give them an opportunity to track and be able to access their information, and commence prospective or retrospective studies whenever and however they want. Without a registry system, they need at least a 4000-participant cohort study during the month Ramadan and a month after that, to gauge the risks of fasting complications on diabetic Muslim patients. Without this system and without making reliable evidences, the questions will not be answered.

References

1. Federation ID. Diabetes Prevalence - Country Rankings 2010.
2. Project PRRPL. The Future of the Global Muslim Population. 2011.
3. Al-Arouj M, Bouguerra R, Buse J, Hafez S, Hassanein M, Ibrahim MA, et al. Recommendations for management of diabetes during Ramadan. *Diabetes Care* 2005 Sep;28(9):2305-2311.
4. Al-Arouj M, Assaad-Khalil S, Buse J, Fahdil I, Fahmy M, Hafez S, et al. Recommendations for management of diabetes during Ramadan: update 2010. *Diabetes Care* 2010 Aug;33(8):1895-1902.
5. Akbani M, Saleem M, Gadit W, Ahmed M, Basit A, Malik R. Fasting and feasting safely during Ramadan in the patient with diabetes. *Pract Diabetes Int* 2005;22(3):100-104 .
6. Sari R, Balci MK, Akbas SH, Avci B. The effects of diet, sulfonylurea, and Repaglinide therapy on clinical and metabolic parameters in type 2 diabetic patients during Ramadan. *Endocr Res* 2004 May;30(2):169-177.
7. Bravis V, Hui E, Salih S, Mehar S, Hassanein M, Devendra D. Ramadan Education and Awareness in Diabetes (READ) programme for Muslims with Type 2 diabetes who fast during Ramadan. *Diabet Med* 2010 Mar;27(3):327-331.
8. Benbarka MM, Khalil AB, Beshyah SA, Marjei S, Awad SA. Insulin pump therapy in Moslem patients with type 1 diabetes during Ramadan fasting: an observational report. *Diabetes Technol Ther* 2010 Apr;12(4):287-290.
9. Reiter J, Wexler ID, Shehadeh N, Tzur A, Zangen D. Type 1 diabetes and prolonged fasting. *Diabet Med* 2007 Apr;24(4):436-439.
10. Hassanein M, Bravis V, Hui E, Devendra D. Ramadan-focused education and awareness in type 2 diabetes. *Diabetologia* 2009 Feb;52(2):367-368.
11. Hui E, Bravis V, Salih S, Hassanein M, Devendra D. Comparison of Humalog Mix 50 with human insulin Mix 30 in type 2 diabetes patients during Ramadan. *Int J Clin Pract* 2010 Jul;64(8):1095-1099.

Sincerely,

Farzane Saeidifard, Akbar Soltani ✉

Endocrinology & Metabolism Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran
E-mail: ebm_ct@yahoo.com