

SHORT ARTICLE

The Practices and Outcomes of Diabetic Patients during Ramadan Fast: A Survey in a Specialist Clinic

SA Beshyah*, MM Benbarka, AB Khalil

Center for Diabetes and Endocrinology, Sheikh Khalifa Medical City, Abu Dhabi, United Arab Emirates

*Corresponding author: SA Beshyah Email: Beshyah@yahoo.com

Published: 24 August 2009

Ibnosina Journal of Medicine and Biomedical Sciences 2009, 1(1):16-19

Received: 11 July 2009

Accepted: 11 August 2009

This article is available from: <http://www.ijmbs.org>

This is an Open Access article distributed under the terms of the Creative Commons Attribution 3.0 License which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Assessment was made by semi-structured interview of the practices and outcomes of diabetic patients during Ramadan fasting. Data collected included demographic data, diabetes details, medications and HbA1c levels. Patients were questioned about fasting, changes in medications, and outcomes in terms of hypoglycemia, hyperglycemia, and emergency hospital visits. Three hundred and thirteen non-pregnant adult patients were surveyed during the six weeks after Ramadan. Median age was 53 (range 11 to 87) years. One hundred and sixty nine patients (54%) were women and the majority were UAE nationals. The median duration of known diabetes was 10 years (range 1-35). The majority had type 2 diabetes (n= 276 or 88%) and 37 patients had type 1 diabetes. The majority of patients with type 1 diabetes (n=30/38) received intensive insulin regimens. Patients with type 2 diabetes were treated with intensive insulin regimen (n=28 or 10%), twice daily insulin regimen (n=40 or 14%) and basal insulin (n=52 or 19%) with or without oral agents.

Oral anti-diabetic therapy was used in 156 (57%). The mean HbA1c was 8.7% with a median of 8.1(5.5-17.6%) measured at a median of two months (range 1-12) before Ramadan. Fifteen patients did not fast (4.8%) of whom four did not fast for other medical reasons, and of the total five had type 1 diabetes. Fasting was observed by 258 patients (82%), for > 20 days by 31 patients (10%), between 10-20 days by 7 patients (2.2%) and for <10 days by two patients (0.6%). The total daily dose was unchanged in 209/298 (70%), was reduced by 83 (28%) and stopped completely by 5 patients (2%). Patients took their medication as three doses (6.4%), two doses (81%) or a single dose (12%). No hypoglycemia was reported in 253 patients. However, in 26, 6, and 11 patients hypoglycemia lead to breaking the fast in 1-3, 4-6 and >7 days respectively. Unusually high hyperglycemia was reported by 33 patients with values around 200-400 mg/dL. Admission to hospital was needed by three patients. In conclusion, most patients with diabetes do fast during Ramadan with changes in their medications' total dose and

frequency. Hypoglycemia is the most common complication in insulin-dependent diabetic patients.

Key Words: Diabetes, Ramadan Fasting, Ethnic, Islam, Metabolic control, Hypoglycemia.

Introduction

The rising prevalence of diabetes mellitus in many Arab and Moslem countries coupled with the widening culturally-sensitive diabetes care practices made "Diabetes during Ramadan" a very topical subject in recent years. Many reviews, consensus statements and expert opinions have been published detailing the principles of diabetes care during Ramadan (1-5). However, at the individual level, making informed decisions regarding fasting during Ramadan remains a challenge to both patients and caring clinicians (5). Answers need to be found, adopted, and implemented to two major clinical questions. Firstly, whether the patient is able to fast safely, and secondly what adjustments are needed in medication if fasting is deemed to be a safe choice.

In 2007, we have invested increased time and effort in achieving optimal management of diabetes during Ramadan. The diabetes team spent plenty of time developing a common understanding and clear management strategy. We spear-headed debate about practical management issues at three meetings (internal, local, and national). Additionally, a review article was published from the center on practical management of diabetes during Ramadan fast (5). We sought our patients' interest proactively by displaying posters prominently in the Center. Patients were encouraged to discuss these issues with practitioners and educators. All adult patients attending the center were given an A4 leaflet starting six weeks before Ramadan as was suggested by a few workers (5-8). We have attempted to assess the impact of such an intensified educational program by a post hoc assessment of the practices and outcomes of our diabetic patients during the month of Ramadan.

Patients and Methods

Study Protocol

All adult diabetic patients attending the Center for follow

up visits in the six weeks immediately after Ramadan were included. Children, pregnant and nursing women, non-Moslem patients, patients who did fast for other than diabetes-related issues, and patients on insulin pump therapy were excluded. Patients were surveyed using semi-structured interview using a previously-agreed question format. Data collected included personal data, description of their diabetes (type, duration and complications) and their anti-diabetes medication and glycaemic status before Ramadan (measured as the most recent documented HbA1c). They were specifically questioned about their practices as to fasting or otherwise, changes in medication, and outcome in terms of needing to breakfast for hypoglycemia. Unusually elevated hyperglycemia and any diabetes-related admissions were also documented. Data collected by all practitioners and educators and were pooled and analyzed by descriptive methodology. The study protocol was approved by the SKMC Research Committee as an audit "Practice Review" exercise and patients consented to the anonymous inclusion of their data.

Study population

Three hundred and thirteen patients were surveyed. Their median age was 53 years (range 11 to 87 years). Three and 17 patients were below and above the age of 16 years and 70 years respectively. One hundred and sixty nine patients (54%) were women. Majority of the patients were UAE nationals (n=294 or 94%) and nineteen patients were expatriates (6%). The median duration of known diabetes was 10 years, ranging between 1 and 40 years.

The majority had type 2 diabetes (n= 276 or 88%) and the remaining 37 patients had type 1 diabetes. Majority of the patients with type 1 diabetes (n=30/38) received intensive insulin regimens, six were on twice daily premixed insulin and one patient only was on basal insulin alone. Patients with type 2 patients were treated with intensive insulin regimen (n=28 or 10%), twice daily insulin regimen (n=40 or 14%) and basal insulin (n=52 or 19%) or with oral anti-diabetic agents only (n=156 or 57%).

Results

Pre-Ramadan Metabolic Status

The median HbA1c reflecting the overall metabolic control was 8.1 (range 5.5-17.6%) measured mostly around a median of two months (range 1-12) before the start of Ramadan.

Practice during Ramadan

Fifteen patients did not the fast (4.8%) of whom four did not fast for other medical reasons than diabetes and in total five had type 1 diabetes. Two hundred and fifty eight patients (82%) could were able to fast for the whole month. Thirty one patients could fast for over 20 days but not the whole month, seven patients (2.2%) could fast between 10-20 days and two patients (0.6%) fasted just less than 10 days.

Changes in Therapeutic Regimens

The total daily dose was unchanged in 209 out of 298 (70%) who fasted. The dose was reduced by 83 patients (28%) and stopped completely in five patients (2%). The frequency of the medications was three times daily in 19 patients (6.4%), twice daily in 241 patients (81%), and once daily in 36 patients (12%).

Outcome

No symptoms of hypoglycemia were reported in 253 patients. Hypoglycaemia was recorded in 26, 6, and 11 patients leading to breaking the fast in 1-3, 4-6 and >7 days respectively. Unusually high hyperglycemia was reported by 33 patients with random blood glucose values around 200-400 mg/dL. Admission to the hospital was needed for three patients for hypoglycemia, vertigo, and acute pulmonary edema.

Discussion

The present study was a reflection exercise of the effects of educational and program awareness in which the currently recommended good practice guidelines (5) were implemented. Semi-structured interview method with pre-decided questions was used rather than an assessment of

case records. Limiting the study period to six days from the end of Ramadan allows patients to recall events from their “living memory.” The baseline and biochemical data were all readily available in our hospital records. Patient practices were assessed ranging from days fasted to medication adjustments. The outcomes were crude to allow reliable responses from the patients. In particular, hypoglycemia was defined “in context” and was related to breaking the fast. We may have detected only the more severe episodes and missed hypoglycemic episodes that occurred toward the end of the fasting period as patients wished to “gain” another fasting day against clear instructions (1-3, 5). Severe hyperglycemia was expressed in relationship to the patients own previous experience and ambient glycogenic control. It was defined as “unusually high” blood glucose as perceived by the patient. Admissions to the hospital or emergency departments were viewed as equally significant. The sample size and data availability was large enough to allow results to make the findings be representative of our population. The results were generalizable. However, they may not represent patients attending primary care clinics.

Most patients in the present study did observe the fast similar to other studies (9). The changes in the medications observed in the present group included both total dose and frequency. Hypoglycemia was the most common complication in insulin treated patients. We have previously demonstrated that most patients do not seek medical advice. We did not include this assessment again in this study. In principle, the changes made by patients followed the same previously published recommendations (1-5). A very small proportion of patients had what they perceive as unusually high blood glucose. The pre-Ramadan mean HbA1c above target range may have influenced the patients’ assessment. Reassuringly, only three got admitted to a hospital for a diabetes related complaint. We have avoided relating the practices and outcomes to pre-fasting glycaemic control.

In conclusion, we found that most patients with diabetes do fast during Ramadan with some reduction in their therapeutic regimen. Hypoglycemia is the most common complication

in insulin treated patients with no remarkable increase in hyperglycemic emergencies.

Aknowledgement

The authors would like to thank all the physicians, educators and nurses at the SKMC Center for Diabetes and Endocrinology for their help in conducting this study.

There are no conflicts of interest to be declared.

References

1. Diabetes and Ramadan Advisory Board. International Medical Recommendations for Muslim subjects with diabetes mellitus who fast during the month of Ramadan. *Clinical Diabetes (Middle East Edition)* 2004; 3:143-5.
2. Akbani MF, Saleem M, Gadit WU, Ahmed M, Basit A, and Malik RA Fasting and feasting safely during Ramadan in the diabetic patient. *Practical Diabetes Int* 2005; 22:100-4.
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; 28: 2305–11.
4. Benaji B, Mounib N, Roky R, Aadil N, Houti IE, Moussamih S et al Diabetes and Ramadan: Review of the literature. *Diabetes Research and Clinical Practice* 2006; 73:117–25.
5. Beshyah SA, Benbarka MM and Sherif IH. Practical management of diabetes during Ramadan fast. *Libyan Journal of Medicine* 2007; 2007; 2: 185-9.
6. Al-Amoudi AA, Al-Ulagi N, Bashir M, Bissar L, Al-Ghamdi SMG and Elhadd TA. Education for diabetic patients for fasting of Ramadan: a questionnaire study. *Endocrine Abstracts* 2006; 11: 277.
7. Barrow L. Ramadan and diabetes: helping to ensure safe fasting. *Journal of Diabetes Nursing* 2004; 8(6): 227-31.
8. Chowdhury TA, Hussain HA, Hayes H. An educational class on diabetes self-management during Ramadan. *Pract Diab Int* 2003; 20: 306–7.
9. Salti I, Benard E, Detournay B, Bianchi-Biscay M, Le Brigand C, Voinet C, et al., EPIDIAR study group, A population based study of diabetes and its characteristics during the fasting month of Ramadan in 13 countries: Results of the epidemiology of diabetes and Ramadan 1422/2001 (EPIDIAR) study. *Diabetes Care* 2004; 27: 2306–11.