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Ramadan Challenges: Fasting Against Medical Advice

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ABSTRACT

Introduction: Fasting against medical advice (FAMA) is a major challenge for many physicians who treat patients with diabetes during the month of Ramadan. The significance of this phenomenon has not been evaluated in Muslim populations. The goal of this study was to assess the rate and consequences of FAMA in our high-risk patients.

Methods: This is a retrospective case-control study. Patients were divided into two groups: (Group A) included high risk patients who decided to fast against the advice of their health care providers, and (Group B) included the low risk patients who were permitted to fast.

Results: A total of 401 patients were evaluated. Out of the whole group, 147 patients were categorized as high risk for fasting. (Group A) included 111/147 patients who decided to fast against medical advice and (Group B) included 254 patients permitted to fast. The average number of fasted days and the proportion of patients who were able to fast the whole month were smaller in Group A than Group B (26±3 SD and 51% versus 29±1 SD and 87%, respectively, P<0.001). Severe hypoglycemia was significantly higher in Group A than group B (63% and 50% respectively, P=0.039).

Conclusion: The majority of our high-risk patients elect to observe fasting in the month of Ramadan against the advice of their medical team. Patients who insisted on fasting against medical advice were more likely to break their fast due to hypoglycemia or other causes.

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Introduction

Ramadan fasting is one of the main pillars in Islam and it is regarded by Muslims as the time to prove self-restraint and willpower. Millions of Muslims around the globe are eager to observe the fasting month of Ramadan due to its unique spiritual and social experience.

Adults with medical conditions known to be compromised by fasting, as well as pregnant women and children are exempted from fasting. Indeed, many international authorities including the International Diabetes Federation and Diabetes and Ramadan (IDF-DAR) Alliance and the American Diabetes Association (ADA) (1, 2) recommend against fasting for high risk patients. However, and in spite of that, it has been estimated that millions of patients with diabetes elect to fast during the month of Ramadan (3).

There is no data on the proportion of patients who elect to fast against medical advice, or on the immediate and late consequences of this fasting. According to the multi-country studies of EPIDIAR "A population-based study of diabetes and its characteristics during the fasting month of Ramadan in 13 countries, almost 80% of patients with type 2 diabetes, and 43% of patients with type 1 diabetes fasted the

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month of Ramadan (3), while the CREED "Multi-country retrospective observational study of the management and outcomes of patients with Type 2 diabetes during Ramadan in 2010 Study" indicated that 13.7% of patients fasted < 15 days of the month and 86.3% fasted >15 days (4), however, they did not differentiate between patients who were advised not to fast and those who were permitted to do so based on their pre-Ramadan medical condition.

This study was done to assess the rate of fasting against medical advice in high-risk patients with diabetes and compare their ability to fast and the safety of fasting with low risk patients in the same diabetes center of our tertiary care institution with a diabetes patient population of # that represent the different ethnicities of our community. To the best of our knowledge, this is the first study to compare the outcome of Ramadan fasting between those two groups of patients.

Material and methods

This is an observational retrospective case-control study. The study randomly selected patients who visited the diabetes clinic within a three-month period after the month of Ramadan. Randomization was done by selecting the first 5 patients from the morning and afternoon clinics. Only those who were counselled in the pre-Ramadan clinic and maintained their follow up were enrolled. Patients' risk categorization was done in accordance with IDF-DAR guidelines (1). All patients were questioned by their physicians about their experiences and practices during fasting. All medical records were reviewed.

Patients were divided into two groups according to their pre-Ramadan risk. (Group A) included high risk patients who decided to fast against the advice of their health care providers, and (Group B) included the low risk patients who were permitted to fast.

We compared the average number of fasted days and the causes of breaking the fast between the two groups. Fasting was assumed to be tolerated if there were no episodes of severe hypoglycemia as defined by the ADA (5), Diabetic ketoacidosis (DKA), or emergency room (ER) visits.

The data was saved in MS Excel (2010), then uploaded to IBM SPSS (version 20). For data analysis, we used descriptive analysis, Mann-Whitney U and chi-square tests. Any p-value equal to/ less than 0.05 was considered to be statistically significant.

Results

Ramadan 2017 in Al Ain city, UAE, started on May 26th and ended in the evening of June 24th, and fasting hours started from around 04:00am, and ended around 07:00pm (6). The average day temperature was around 40 degrees' Celsius (104 degrees Fahrenheit) (7). A total of 401 Emirati patients were evaluated. Patients' demographics and medical characteristics are shown in table 1. Out of the whole cohort, 147 patients (37%) were categorized as high risk for fasting and were advised not fast, while 254 patients (63%) were considered to be at lower risk and were permitted to fast.

Only 36 patients in the high-risk group complied with the physicians' instructions and refrained from fasting, and therefore were excluded from the group analysis, the remaining 111 (76%) fasted against medical advice (Group A). In contrast, the entire group of low-moderate risk patients (254) did observe fasting (Group B).

Patients in Group A were younger, with higher proportion of type 1 DM or insulin use. Conversely, type 2 DM was more predominant in Group B (Table 1).

Table 1. Patients Characteristics

	All Subjects	Group A Patients fasted against medical advice	Group B Patients permitted to fast	A vs B P Value
Number of patients	401	111	254	
Age (yr) (Mean ± SD)	49 ± 16	46.1 ± 19.3	50.5 ± 16.3	0.007
Female (%)	61(15)	88 (79)	173 (68)	0.02
Type 2 DM (%)	289 (78)	71 (64)	209 (82)	0.0001
Type 1 DM (%)	81(20)	21 (19)	26 (10)	0.01
GDM on insulin (%)	54(13)	19 (17)	19 (8)	0.006
On insulin	158 (39)	96 (65)	61 (24)	0.0001
Age >70 years (%)	59 (15)	18 (16)	27 (11)	0.15
HbA1C >9%	31(8)	35 (32)	4 (2)	0.0001

Table 2. Patients Outcomes

	Group A (111)	Group B (254)	P value
Average number of fasting days (%)	26±3 (87%)	29±1 (97%)	<0.001
Patients breaking the fast for ≥ 1 day (%)	54 (49%)	33 (13%)	<0.001
Reasons for breaking the fast:			
1. Hypoglycemia	63%	50%	
2. Acute illness	33%	50%	0.039
3. DKA	4%	0%	

The average number of fasted days and the proportion of patients who were able to fast the whole month were smaller in Group A than Group B (26±3 SD and 51% versus 29±1 SD and 87%, respectively, P<0.001). Conversely, breaking the fast for one or more days due to hypoglycemia, general illness, or not feeling well was more common in Group A than Group B (49% versus 13%, respectively. P<0.001). Additionally, there were two reported episodes of DKA in Group A versus none in Group B. Causes for breaking the fast in both groups are listed in (Table 2).

Discussion

According to the IDF-DAR Practical Guidelines (1) and the ADA consensus statement (2), patients in the very high and high risk categories for fasting should be advised not to fast in Ramadan. These categories include: patients with poor diabetes control, frail elderly patients, patients with type 1 DM, patients on insulin therapy, patients with multiple comorbidities and diabetes complications, and pregnant women with hyperglycemia. These recommendations, however, are largely based on expert's opinion or on studies done on healthy individuals rather than randomized clinical trials on patients with diabetes. On the other side, there are conflicting data of several acute complications in link with Ramadan fasting for patients with diabetes (8-10), versus few short-term studies indicating that Ramadan fasting might be safe in patients treated with oral hypoglycemic agents (10), insulin (11) and patients with stable chronic kidney or heart diseases (12,13). If fact, we have reported that 40% of our elderly female patients observe regular fasting on Mondays and Thursdays throughout the year without consulting with their providers (14).

This is the first study to assess the rate of fasting against medical advice and to compare the outcomes of Ramadan fasting between "high risk" patients who fast against medical advice, and those who were considered at "low risk" and were permitted to fast. In this study, physicians approached all patients individually through pre-Ramadan visit and discussed the potential risks of fasting and advised 36% of them not to fast. However, the majority 76% (76%) of this high-risk group decided to challenge their physicians' decisions and to take the risks associated with fasting. Unsurprisingly, there were significant differences in patients' characteristics and the fasting outcomes between the two groups as stated in the results above.

Proper pre-Ramadan patient assessment, risk categorizing and medications' modifications are essential in the management of patients planning to observe Ramadan fasting. We have previously showed that optimal glycemic control before Ramadan is associated with lower incidence of hypoglycemia and hyperglycemia during fasting in adolescents with T1DM (15, 16).

A recent survey of nearly 200 physicians revealed that not all high-risk categories were identified by health care providers during Ramadan (17). The CREED study reported that 62.6% of physicians referred to guidelines for the management of fasting, but only about 40% of patients with diabetes had their DM treatment modified before Ramadan.

The CREED study showed that more than 90% of Muslims with diabetes fasted for at least half of the month during Ramadan 2010, and two-thirds fasted every day. While 83.5% of patients fasted every day in Algeria, only 22.9% of patients fasted every day in Morocco (4). In contrast, our study shows that 76% (51%, 87 % of patients in groups A and B, respectively) of the whole cohort was able to fast the whole month without reporting serious events. Investigators in CREED study, however, did not look at the rate of fasting against medical advice in their populations.

It is of great importance that many high-risk patients who fasted against medical advice, had been able to fast safely, while some patients with, relatively, lower risk broke their fast

because of adverse events. Of note, that younger patients with T1DM and pregnant women with hyperglycemia were more likely to challenge provider's advice than elderly with multiple comorbidities. Our data confirms that available guidelines should not replace detailed patient evaluation and tailored management plan.

Finally, while the effect of fasting on long term diabetes complications has not been evaluated, three mega trials, not related to Ramadan fasting, showed that acute and recurrent hypoglycemia can cause worsening cardiovascular outcomes (18-20).

Conclusion

The majority of our high-risk patients elect to observe fasting in the month of Ramadan against the advice of their medical team. Patients who insisted on fasting against medical advice were more likely to break their fast due to hypoglycemia or other causes.

While evidence is accumulating, current guidelines on stratifying patients risk during fasting seem reasonable. Physicians however, still have the responsibility to risk stratify their patients and should advise patients at high risk not to observe fasting. Patients in the high-risk groups should be made aware that fasting against medical advice might worsen their medical condition and might lead to acute complications.

Well controlled studies to evaluate the long-term effects of fasting on microvascular and macrovascular diabetes complications are desperately needed.

Authors' contributions

BA planned the study, recruited patients, collected data, wrote and edited manuscript

WK planned the study, wrote and edited manuscript

FK recruited patients, collected data

KhD recruited patients, contributed to discussion

NN data analysis, edited manuscript

All authors read and approved final manuscript

BA takes full responsibility for the work

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