

Ramadan Fasting related Awareness, Practices and Experiences of a representative group of Urban Pakistani Diabetics

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ABSTRACT

Objective: The main objective of this retrospective study was to observe Ramadan related awareness, practices & experiences of diabetic patients. It is expected that the outcome of this study would assist the healthcare professionals in providing effective fasting related guidance. **Methodology:** A total number of 1050 diabetic patients were interviewed post Ramadan. Closed ended questionnaires were administered and responses were recorded by the trained data collectors.

Results: Out of 1050 subjects, 33% (n=350) were males and 67% were females (n=700). About two third of the study participants monitored their blood glucose at home or at health care facilities. Frequency of monitoring blood glucose once a month was the most common pattern. During Ramadan blood glucose level was monitored by 70% of subjects. Majority of the subjects did their blood sugar 1-3 times in a month. Dosage of oral hypoglycemic/insulin was adjusted before Ramadan in 80.8% of the patients with diabetes who planned to fast. Overall 3.1% of subjects broke the fast due to hypoglycemia, while 75% of study population had never experienced symptoms of hypoglycemia during fasting.

Conclusion: The majority of diabetic patients were fasting without any adverse events however 15-20% of them were at risk as they continued fasting without checking their blood sugar even when they felt hypoglycemia. Diabetic patients should be counseled about the symptoms of hypoglycemia during fasting and the option for breaking the fast in case of low blood sugar.

KEY WORDS: Diabetes, Ramadan, Fasting, Hypoglycemia, Oral Hypoglycemic Drug, Insulin.

Pak J Med Sci April - June 2012 Vol. 28 No. 3 432-436

How to cite this article:

Masood SN, Masood Y, Hakim R, Alvi SFD, Shera AS. Ramadan Fasting related Awareness, Practices and Experiences of a representative group of Urban Pakistani Diabetics. Pak J Med Sci 2012;28(3):432-436

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* Received for Publication: December 20, 2011

* Revision Received: April 25, 2012

* Revision Accepted: April 26, 2012

INTRODUCTION

Fasting (abstinence from intake of any food, drink or medicine) from dawn to dusk during the month of Ramadan is obligatory on all Muslim adults, however, sick individuals whose health is likely to be worsened are exempted from fasting.¹ In case of illnesses like diabetes that apparently does not make fasting impossible, most Muslims prefer to observe fast.² With well managed diabetes and appropriate guidance for self care, fasting does not lead to higher occurrence of adverse events like severe hypoglycemia.^{3,4} However, few studies observed higher rates of hypoglycemia and worsening of lipid profiles during Ramadan. Variations in observations may be due to differences in management and lifestyle modifications of the

fasting subjects. Fasting is suggested to be safe in well controlled and carefully monitored cases being treated with either Oral Hypoglycemic Drugs^{5,6} or Insulin.^{7,9}

In Pakistan most of the patients with diabetes prefer to fast but assessment of safety during fasting among local population has not been done. This calls for understanding of prevalent beliefs and practices and identification of diabetic population at high risk of complications while fasting. Prospective studies that employ use of record keeping techniques that are unusual to most of the diabetic subjects in Pakistan could give more accurate and objective assessment of complications.

Hence an observational study was planned to assess fasting performance of patients with diabetes and its association with demographics and clinical characteristics. It is expected that the explorations made in this study would assist the healthcare professionals in providing effective fasting related guidance to diabetic subjects.

The main objective of this retrospective study was to observe awareness, practices, experiences and relative assessment of few specific risks related to fasting in Ramadan in diabetic patients.

METHODOLOGY

This study was conducted between October 2010 to January 2011. The study subjects were a representative group of one thousand and fifty urban Karachi diabetic patients. The data was collected from the outpatient department (OPD) of Diabetic Association of Pakistan (DAP) the WHO collaborating Center and National Institute of Diabetes and Endocrinology (NIDE) Dow University of Health Sciences. Consent was obtained from all study participants before introducing the questionnaire.

Knowledge and awareness about Ramadan fasting of the study population was assessed by a series of closed ended questionnaires. Responses were categorized as correct or incorrect on the basis of religious and medical guidelines obtained from literature search.

Inclusion Criteria: The diabetic patients who attended OPD and consented to participate in the study, irrespective of socioeconomic or demographic factors.

Exclusion Criteria: Patients who did not fast for more than two years, children below eight years of age and non-Muslims were excluded from the study.

Data Analysis: Data was entered on Microsoft Excel and then transferred to SPSS for analysis. As this study is descriptive the data is presented in the form of frequencies. Observations are presented for males and females and for the group as a whole. Responses to questions about knowledge and practices are presented in the form of percentages of correct and incorrect responses.

RESULTS

General Characteristics of the subjects: Data was collected from one thousand and fifty diabetic patients, out of which 33% (n=350) were males and 67% were females (n=700). Socio demographic characteristics of the subjects are shown in Table-I. Mean age of males and females was 51.32 ± 15.2 and 51.04 ± 13.8 years respectively. Around 19-20% of the study population was illiterate and about 79% had been to schools and colleges. Sixty one percent of the males and 5% of the females were employed.

Diabetes Related Characteristics of the subjects: Diabetes related characteristics of the study

Table-I: Socio demographic characteristics of the subjects.

		Gender		
		Male	Female	Total
		%	%	%
Age Group	<18 years	2.0%	2.0%	2.0%
	18-30 years	7.4%	7.7%	7.6%
	31-50 years	28.0%	36.1%	33.4%
	51-70 years	56.3%	49.7%	51.9%
	>71 years	6.3%	4.4%	5.0%
	Married	92.6%	93.9%	93.4%
Status	Single	7.4%	5.7%	6.3%
	Other	.0%	.3%	.3%
Education	Did not want to disclose	0.3%	0.0%	0.1%
	Illiterate	19.7%	53.2%	42.0%
	Below Matric	19.9%	18.9%	19.3%
	High School or Matric	28.0%	18.1%	21.4%
	Graduate or above	32.1%	9.9%	17.2%
	Profession/	Unemployed	38.29%	9.4 . 5 7 %
Occupation	Employed	61.71%	5 . 4 3 %	24.19%
	Mother Tongue	Urdu Speaking	9.4%	10.6%
		Pushto Speaking	11.4%	21.6%
		Punjabi Speaking	11.7%	4.0%
		Sindhi Speaking	56.9%	53.7%
		Other Balochis?	10.6%	10.2%

Data presented as n (%)

Table-II: Diabetes related characteristics of the subjects.

Clinical Characteristics	Gender		Total %
	Male %	Female %	
Diabetes Type			
• Type-I	10.9%	8.0%	9.0%
• Type-II	89.1%	90.7%	90.2%
• GDM	0.0%	1.3%	0.9%
Weight status			
• UW	9.0%	4.2%	5.8%
• NW	21.3%	13.1%	15.8%
• OW	53.3%	50.6%	51.5%
• Obese	16.5%	32.1%	27.0%
Diabetes management regimes			
• Diet	10.3%	8.2%	8.9%
• OHA	55.4%	45.7%	49.0%
• Insulin & OHA	7.4%	11.4%	10.1%
• Insulin	27.1%	34.7%	32.2%

UW= Underweight, NW= Normal weight,

OW= Over weight, OHA= Oral Hypoglycemic Agents

Data presented as n (%)

population are given in Table-II. Majority of patients who had type-2 diabetes were taking more than one type of medicine. Overall 78% of subjects were overweight or obese. About two third of the study participants were monitoring blood glucose at home by Self Monitoring of Blood Glucose (SMBG) or at health care facility. Frequency of monitoring blood glucose once a month was the most common pattern.

Table-III(a): Ramadan fasting related awareness.

	Correct %	Wrong %
1. Do you believe that needle prick for testing your Sugar levels in the blood is not allowed while fasting?	71.79	28.21
2. Can you still fast when you are taking Insulin Injection to control your blood sugar?	72.45	27.55
3. Fasting is compulsory even if a woman is pregnant and diabetic?	65.12	34.88
4. Females with diabetes should fast even when they breast feed their babies?	65.42	34.58
5. Should the Children with well controlled diabetes fast?	84.53	15.47
6. Should the Adolescents with type-I diabetes fast?	91.49	8.51
7. Insulin Injection shouldn't be taken at Sehri as it will cause low blood sugar during fasting?	45.54	54.46
8. No oral medicines for diabetes should be taken at Sehri?	74.83	25.17
9. Double Dose of Insulin Injection for Diabetes should be taken after Iftar?	54.43	45.57
10. Double Dose of medicines for Diabetes should be taken after Iftar?	63.09	36.91
11. If diabetics are fasting during Ramadan they can take as many sweets & fried items at Iftar as other (non diabetic) family members are taking?	97.85	2.15
12. Do you continue normal physical activity while you are fasting?	79.71	20.29
13. Normal physical activity, should be resumed only after Iftar?	46.23	53.77
14. After the month of Ramadan ends, should you go back to your Pre-Ramadan drug schedule?	82.53	17.47
15. Do you think that eating of extra food in Sehri would have better control of blood sugar levels throughout the day?	97.85	2.15
16. Should you take extra food in Iftar to compensate for the low blood sugar during fasting?	98.33	1.67
17. If in the morning your sugar level becomes 60-70 mg/dl, should you break the fast before time?	44.95	55.05

Ramadan fasting related awareness, practices and experiences of subjects: Frequencies of correct and incorrect answers related to each question are given in Table-III(a). The misconceptions were in relation to physical activity during fasting (74%), taking insulin at sehri (54%), breaking fast in case of low blood sugar (55%). Mean percentage of correct answers was 70.3 (P= 0.001).

Ramadan fasting related practices: Ramadan fasting related practices among patients with diabetes are shown in Table-III(b). Blood glucose monitoring was done by 70% of subjects. A notably higher proportion of females (34.6%) as compared to males (20.9%) were not checking their blood sugar at all. Dosage of medication was adjusted before Ramadan in (80.8%) of the patients with diabetes who planned to fast.

Ramadan fasting related experiences: Experience of feeling hypoglycemia was higher among females. Overall 3.1% of subjects broke the fast due to hypoglycemia. However, 62% never experienced symptoms of hypoglycemia during fasting and 16.9% of patients did not fast at all (Table-III(c)).

DISCUSSION

The current study has explored fasting related awareness, practices and experiences of a representative group of diabetics living in urban Karachi. The findings would be useful in planning culture specific diabetes education programs to

Table-III(b): Ramadan fasting related Practices.

Practices	Gender		Total
	Male	Female	
	%	%	%
Blood Glucose monitoring			
• Do not monitor blood sugar level	20.9%	34.6%	30.0%
• At health care facility	46.6%	34.1%	38.3%
• At home	32.6%	31.3%	31.7%
Frequency of Blood glucose monitoring			
• Not answered	4.6%	2.0%	2.9%
• Almost daily	2.9%	3.4%	3.2%
• 1-3 times in a week	19.1%	16.4%	17.3%
• 1-3 times in a month	56.6%	63.0%	60.9%
• < once a month	16.9%	15.1%	15.7%
Was the medication dose adjusted before Ramadan?*			
• Not answered	1.2%	0.6%	0.8%
• Yes	74.6%	83.6%	80.8%
• No	24.2%	15.8%	18.4%

Data presented as n (%)

*The responses relate to only those who observed fast and were on medication.

facilitate safer fasting practices. It has been observed that the group who received diabetes education fared better after Ramadan fasting in terms of bodyweight status and glycemic control.

Due to scarcity of data about Ramadan fasting related practices of Muslims at global and regional levels, there are limited opportunities to compare results of this studies. Hui et al¹² reviewed fifteen studies and concluded that while fasting is generally safer for type 2 diabetics without complications, there is hardly any evidence about the safety of fasting for high risk patients.¹³ Review of evidence based literature by experts provides important information about safety of fasting by diabetics having various kinds and severity

of complications.^{10,11} Our study shows that the majority of Diabetics visited their physician before Ramadan, for drug dose adjustment only. It would be pertinent to know the physicians' awareness about Ramadan fasting in diabetes and the way this knowledge is used for patients' guidance.

This study has identified areas where diabetes education may be most beneficial, for example use of medication at Sehri and Iftar, importance of blood glucose monitoring and readiness to break the fast in case of hypoglycemia.

The low rates of blood glucose monitoring is due to misconceptions about drawing blood during the fast and lack of awareness about need for breaking the fast if blood sugar is less than 70gm/dl; highlights

Table-III(c): Ramadan fasting related Experiences.

Experiences	Gender		Total
	Male	Female	
	%		
Experiences of Hypoglycemia while fasting			
• Did not fast at all	20.4%	15.1%	16.9%
• Fasted and never felt hypo	63.5%	61.3%	62.0%
• Fasted felt hypo but continued fasting	13.5%	20.3%	18.0%
• Fasted felt hypo and broke the fast	2.6%	3.3%	3.1%
Weight change after Ramadan.			
• Not Answered	4.3%	2.7%	3.2%
• Weight loss	12.8%	18.5%	16.6%
• Weight Gain	35.6%	38.1%	37.2%
• No Change	47.3%	40.8%	43.0%

Data presented as n (%)

the greater risks being faced by these subjects. To prevent the adverse effects of hypoglycemia in diabetes during fasting health providers need to emphasize on the readjustment of medication and for regular SBGM. It is recommended that availability and affordability of glucometers should be facilitated to the patients.

Though this study apparently had the limitation of not conducting objective assessment of hypo- and hyperglycemia, the observations however are more realistic and represent actual practices of diabetic patients. Hence, rates of adverse events observed in prospective studies employing regular SMBG during fasting may not represent the real situation among Pakistani diabetic population. Regular monitoring of blood glucose is not a norm among Pakistani diabetics and during fasting it is also considered prohibited by many diabetics.

Up till now almost all studies have concluded that Ramadan fasting is safe among compliant diabetics who have good glycemic control.¹⁰⁻¹² Regardless of relative risk of good or poor glycemic control, the fact that most of the diabetics irrespective of their level of control or compliance chose to fast, calls for immediate attention towards devising diabetes care regimes. Based on their concerns and religious beliefs, long term modified treatment and advice strategies will assist in designing culture sensitive diabetes education programs.

Limitations of the Study: The current study has not attempted to assess safety of fasting or make any recommendations about indications or contraindications for fasting. It has tried to observe and explore Ramadan related practices of diabetic patients and their fasting experiences so that relevant diabetes education program could be designed and implemented. Hence this study did not focus on absolute accuracy of assessment of risks.

CONCLUSION

The majority of diabetic patients in the study were capable of fasting without any adverse events however safety of at-least about 15-20% of them was at risk as they continued fasting without checking their blood sugar even when they felt hypoglycemia. All diabetics who chose to fast must at least be trained and convinced to monitor their blood sugar as soon as they felt hypoglycemia and should be counseled to opt for breaking the fast if blood sugar was critically low. It is hoped that the observations made in this study would assist

the healthcare professionals in providing effective fasting related guidance to diabetic subjects before the month of Ramadan begins.

ACKNOWLEDGMENT

The authors wish to thanks Dr. Asma Maqsood & Prof. Zaman Shaikh for their help and assistance in this study. We would also like to thanks Mr. Syed Imran Shah, Ms. Sobia Malik and Ms. Sana Rafiq. Financial assistance for the study was provided by Merck (Pvt.) Ltd. Pakistan.

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Dr. Shabeen Naz Masood: Planning and Paper Writing. Dr. Yasir Masood: Planning and Designing the Study. Dr. Rubina Hakim: Data Analysis & Design. Dr. S. Faraz Danish Alvi: Data Review. Prof. Abdul Samad Sheria: Planning of the Project & Overall Review.