



**Food and nutrient intake in patients with diabetes during
Ramadan**

Journal:	Journal of Fasting and Health
Manuscript Type:	Short Communication
Date Submitted by the Author:	2016-12-03
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Keywords:	Diabetes, Ramadan, Fasting, Diet, Pakistan

Food and nutrient intake in patients with diabetes during Ramadan

Abstract:

To observe food and nutrient intake trends among a group of middle income urban Pakistani people with diabetes during Ramadan. This prospective study is a sub analysis of Ramadan Prospective Diabetes Study was conducted at Baqai Institute of Diabetology and Endocrinology. Demographic characteristics and details about other complications were collected from each patient. Information regarding food intake and dietary practices of diabetic patients were collected at the time of recruitment. Patients were also counselled on how to make a complete record of their daily food intake during Ramadan for all the fasting days. Out of 93 patients all of them were taking sehri, 54.7% were taking roti or slice while 43.0% were consuming paratha, 77.9% meat or egg, 27.9% pheni or khajla , 39.5% milk or yogurt. All of them were taking iftar in which 94.2% were eating fried items, 76.7% channa chat 65.1% dahibara, 90.7% fruits or fruit chat and 5.8% were taking milk. Dinner were taking 40.7% and 37% were drinking milk at bedtime. Food choices of our patient with diabetes during Ramadan were not balanced. It also gives us insight towards need of multiple dietary counseling sessions for people with diabetes before Ramadan.

Key words: Diabetes, Ramadan, Fasting, Diet, Pakistan

Introduction

Ramadan is the 9th month of Islamic calendar, and fasting is an obligatory duty for all healthy adult Muslims (The Holy Quran. Sura 2, Verse 183-185). The population based Epidemiology of Diabetes and Ramadan 1422/2001 study (1), lead to the estimation that some 40 – 50 million people with diabetes worldwide fast during Ramadan.

As Ramadan is a lunar based month, depending upon the geographical location and season, the duration of the daily fast may range from a few to more than 20 hours per day. Muslims who fast during Ramadan must abstain from eating, drinking, use of oral medications and smoking from predawn to dusk; however, there is no restriction on food or fluid intake after sunset till dawn (2,3). Most people consume two meals per day, during this month, one after sunset, referred to in Arabic as Iftar (breaking of fast meal) and the other before dawn called Suhur or Sehri (3).

Very few studies have assessed the dietary practices of the people with diabetes during Ramadan, and have shown conflicting results, due to the difference in the eating practices across different regions (4). Number of studies have shown decrease in the total energy intake during Ramadan (7-12). Few studies have found an insignificant correlation between the decrease in number of meals and the amount of calories (13). At least one study reported no change in calorie intake during Ramadan (5)

Data regarding food choices, dietary intake and trends of people with diabetes during Ramadan is limited from this part of the world, hence, this study was planned in order to find out the dietary practices of people with diabetes during Ramadan.

Methodology:

This prospective study is a sub analysis of Ramadan Prospective Diabetes Study (6) was conducted at the out-patient department of Baqai Institute of Diabetology and Endocrinology (BIDE). Ethical approval for the study was taken from Institutional Review Board (IRB) of the institute. Recruitment of participants for the study commenced fifteen days prior to Ramadan of 2009 up till first ten days of Ramadan after taking signed informed consent.

Information regarding food intake and dietary practices of diabetic patients were collected at the time of recruitment. Patients were also counselled on how to make a complete record of their daily food intake during Ramadan for all the fasting days.

Demographic characteristics such as age, gender, weight, height, body mass index (BMI) duration of diabetes and details about other complications were collected from each patient.

Inclusion criteria

All subjects with Type 1 or Type 2 diabetes who gave a history of fasting in the previous year and showed intention to fast for at least 15 days in the Ramadan of 2009 were included in this study.

Exclusion criteria

Patients with type1 or type 2 diabetes with serious complications such as uncontrolled hypertension, severe liver or renal disease , patients with brittle type1 diabetes, elderly patients with alertness problems, pregnant women, newly diagnosed patients (<3months), hospitalized individuals and patients with diabetes with hypoglycemia unawareness.

Discussion:

This study about food choices, dietary intake and trends, found several irregularities among people with diabetes during fasting month of Ramadan. All the patients had taken food at iftar. In which majority of them ate fried items like samosas, pakoras and chicken rolls.

The main reason for higher consumption of fried items may be culture specific that has been coming from ages and easy availability of these foods at low price in the market. Besides, these foods are more appealing and tempting. In our study the consumption of fried items was 94.2% and in another study which was done in 2004 in Algeria - it was reported that increased intake of dietary fat is about 38.8% during Ramadan (10).

It is recommended for diabetics to eat simple carbohydrates and not recommended to eat food which contain large amount of fats (1). Therefore more focus should be given during counseling to adopt healthy eating habits including decrease consumption of fried foods at iftar. The food taken at iftar was also not balanced too with no intake of protein (meat) and vegetable. It mainly consists of fat and carbohydrates in the form of fruit chat, channa chat, dahibara, pakoras and samosas. This may result in post - iftar hyperglycemia.

The observation that the meat (protein) was nil at iftar necessitates the need of counseling and education regarding addition of protein to make diet balanced at iftar. This will also reduce the higher intake of carbohydrates at iftar and helps in proper distribution of carbohydrates over 3 or 4 meals during non-fasting hours. In our study protein intake was low at iftar but study from india showed increment of all three macronutrients during Ramadan (14)

The food intake at sehri included roti, paratha, slice, khajla pheni, meat, egg milk and yogurt. Although it is advisable to take slowly digestible food at sehri, intake of khajla and pheni may

worsen glycemc control. It is appropriate to take paratha prepared in small amount of oil, this may help in preventing hypoglycemia during fasting.

Conclusion

Our study demonstrated that food choices of our patients with diabetes during Ramadan were not balanced. It also gives us insight towards need of multiple dietary counseling sessions for people with diabetes before Ramadan.

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Table 1: Basic characteristics of patients

Variables	Male	Female	Overall
Age	51.63 ± 11.47	48.00 ± 12.09	49.96 ± 11.85
Duration of diabetes	11.56 ± 7.34	10.94 ± 6.76	9.91 ± 7.01
BMI (kg/m ²)	27.06 ± 4.53	29.42 ± 5.45	28.18 ± 5.1
HbA1c (%)	8.00 ± 5.00	8.00 ± 2.00	8.00 ± 3.00

Data presented as Mean ± S.D

Table 2: Frequency of food consumption at different times

Time of food consumption	Frequency
Sehri	99.4%
Aftar	99.8%
Dinner	64.4%
Bedtime	39.8%

Table 3: Distribution of consumption of specific food items at sehri, aftar and dinner

	Consumed		
	Yes	No	Not responded
Sehri			
Roti	47 (54.7%)	39 (45.3%)	0 (0%)
Paratha	37 (43.0%)	49 (57.0%)	0 (0%)
Meat	67 (77.9%)	19 (22.1%)	0 (0%)
Pehni	24 (27.9%)	62 (72.1%)	0 (0%)
Milk	34 (39.5%)	52 (60.5%)	0 (0%)
Aftar			
Fried items	81 (94.2%)	5 (5.8%)	0 (0%)
Channa	66 (76.7%)	20 (23.3%)	0 (0%)
Dahi	56 (65.1%)	30 (34.9%)	0 (0%)
Fruit	78 (90.7%)	8 (9.3%)	0 (0%)
Milk	5 (5.8%)	81 (94.2%)	0 (0%)
Drinks	57 (66.3%)	29 (33.7%)	0 (0%)
Meat	0 (0%)	30 (34.9%)	56 (65.1%)
Vegetables	0 (0%)	13 (15.1%)	73 (84.9%)
Dinner			
Roti	35 (40.7%)	51 (59.3%)	0 (0%)
Meat	31 (36.0%)	55 (64.0%)	0 (0%)
Vegetables	17 (19.8%)	69 (80.2%)	0 (0%)
Milk	32 (37.2%)	54 (62.8%)	0 (0%)