

Assessment of the Experience of Young Type 1 Diabetic during the Month of Ramadan

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Abstract: Diabetes can be considered by muslim type 1 diabetics as a real burden preventing them from fasting. The main objective of our study is to study the experience of the type 1 diabetic during Ramadan. This is a longitudinal study, conducted during June and July 2017 in department of endocrinology of Marrakech. The experience of the patients was evaluated 1 month before Ramadan and during Ramadan with the help of: Diabetes Distress Scale 17 (DDS 17), translated and adapted in dialectal arabic, to assess psychosocial distress and the Problem Areas in Diabetes (PAID) to assess the quality of life. Thirty-one patients were included in the study of which 64.5% were female, the mean age was 21 years. Nearly half of the patients had a worsening of the total DDS score. The average PAID score increased from 38 before Ramadan to 39.4 during Ramadan. Associations that were associated with this distress were: female gender, marital status and type of treatment received (aggravation of the DDS score in patients under premixed insulin compared to those under functional insulin therapy). Few studies have documented the experience of type 1 diabetics during the month of Ramadan; our study shows the aggravation of psychosocial distress during the fasting month in type 1 diabetic patients, mostly female, married and under fixed insulin regimen.

Keywords: Ramadan, type 1 diabetics, experience, distress, quality of life.

INTRODUCTION

The month of Ramadan has a religious and socio-cultural dimension for the Muslim community. About 100 million Muslims with diabetes in the world are fasting, thus depriving themselves of eating and drinking from sunrise to sunset during this month, even if they are exempt their religion [1].

According to an Epidemiology of Diabetes and Ramadan study conducted in 2000 in 13 Maghreb countries and the Middle East among 12,000 diabetic patients, 43% of patients with type 1 diabetic and 79% of those with type 2 diabetic were fasting during Ramadan [2].

Fasting Ramadan is critical for patients with diabetic because it is likely to influence their eating habits, their daily physical activities, their sleep, their glycemic control, their weight and their lipid profile [3]. Indeed, Ramadan is a source of significant changes in the rhythm of life, hormonal and biological cycles that can, in diabetic patients, whose mechanisms of adaptation and nervous and hormonal regulation

systems are disturbed, cause the appearance or worsening of the complications of diabetes.

Fasting in type 1 diabetic population has been uniformly discouraged by health professionals [4]. Studies have shown an increased risk of acute complications during Ramadan [2,4]. The EPIDIAR study reported that fasting increases the risk of severe hypoglycaemia by 4.7-fold in patients with type 1 diabetes and increases the incidence of hyperglycaemia by 3-fold [2].

In the published medical literature, we do not have any studies on the quality of life of the type 1 diabetic patient and his experience during this month.

For Muslims with type 1 diabetes, the disease is a real burden preventing them from fasting and patients can face with changes in daily habits (changes in sleep patterns, changes in eating habits, fasting attempts) during this month.

The main goal of our study was to study these changes and to assess the experience of type 1 diabetic patient during the month of Ramadan. The study of the experience of the fasting type 1 diabetic patient will then refine our therapeutic education programs to have a better care and a better quality of life during Ramadan.

PARTICIPANTS AND METHODS

We carried out a longitudinal descriptive observational study, conducted over 3 months from May to July 2017 which concurred with Ramadan according to the Hijri calendar to assess the effect of Ramadan on the lived experience of type 1 diabetic. Patient assessment was done over two parts: before Ramadan and during the second half of Ramadan.

We included in this study type 1 diabetic patients followed in the department of endocrinology diabetes and metabolic diseases of university hospital center in Marrakech. We excluded patients under 15 yearsold as well as patients with mental illnesses.

The sampling method was exhaustive of all volunteer patients who agreed to participate in the study in order to have better patient adherence and avoid the lost to follow-up bias. Sociodemographic and clinical data collection was done using a self-administered questionnaire.

The assessment of the lived experience of type 1 diabetic patients concerned two aspects:

- Daily habits: physical activity, number and schedule of meals.
- The experience of the diabetic patient: The feeling of psycho-social distress and the quality of life.
- The evaluation of the lived experience of the type 1 diabetic was made thanks to a questionnaire administered to the patients by trained investigators: the DDS 17 (diabetes distress scale 17) to evaluate the psychosocial distress in the diabetic translated into Moroccan dialectal Arabic [5].

The DDS17 gives a total diabetes distress score plus four subscale scores, each referring to a different type of distress. To calculate the score, it is enough to sum the patient's answers to the appropriate items and divide by the number of items on this scale,

- An average score of 2.0 to 2.9 should be considered a "moderate distress"

- An average score above 3.0 should be considered "high distress."

An improvement in psychosocial distress means a decrease in the DDS score during the holy month. The assessment of quality of life of type 1 diabetics during the month of Ramadan was made thanks to the Problem Areas in Diabetes Questionnaire (PAID), which is a specific questionnaire for diabetes, which has been translated into Arabic dialect [6]. The answer uses a visual analog scale, which gives a subjective individual estimation of health status using a scale of 0 to 4 [6-8]. The interpretation of this questionnaire allows determining 3 scores:

- An overall score between 0-10: refers to a denial of the disease
- A Score between 11 and 40: refers to good disease management
- A score that exceeds 40: refers to emotional exhaustion.

Each patient who participated in this study was informed about the goal and procedures of the study and gave informed consent. The collection of data was done respecting the anonymity and confidentiality of the participants. Administrative authorizations and the approval of the local ethics committee were obtained. Data were processed on Excel and statistical analysis was performed using SPSS 16.

RESULTS

Sociodemographic and clinical characteristics

Thirty-one patients were included in the study of which 64.5% were female; the mean age was 21 years. The percentage of patients who had high school graduation was 96% and 54% of the patients were unemployed. 19% of them were married, 6% had children and 70% of the patients had a low socio-economic status, as shown in Table 1.

The mean duration of diabetes was 9 years and the average HbA1c measured before Ramadan was 9.4% and 8.6% after Ramadan. Therapeutically: 58.1% of patients were on functional insulin therapy compared to 41.9% of patients under fixed routine.

The lifestyle and fasting during Ramadan

A total of 10 patients tried to fast during the month of Ramadan with an average of two days, the fast was interrupted because of the occurrence of severe hypoglycemia in 8 patients and ketoacidosis in 1 patient, a single patient had fasted every day of Ramadan without notable incidents.

The average number of meals was 3 before and after Ramadan with a regular intake of Ftour (Breaking fast meal) and Shour (Predawn meal) reported by 16% of patients. The schedule of meals was irregular before Ramadan among 29% against 22% of patients during the month of Ramadan.

Table-1: Sociodemographic characteristics of patients

Sociodemographic characteristics:		Effective	Percentage
Sex	Female	20	64,5
	Male	11	35,5
Instruction	Primary school	01	03,2
	Secondary school	17	54,8
	University	13	41,9
Professionat activity	Yes	14	45,2
	No	17	54,8
Marital Status	Married	06	19,4
	Single	25	80,6
Presence of children	Yes	2	06,5
	No	29	93,5
Socio-economic level	Low	22	71,0
	Middle	09	29,0
Residance	Urban	30	96,8
	Rural	01	03,2
Treatment type	Treatment with premixed insulin	13	41,9
	Functional Insulin Therapy	18	58,1

We noted the absence of physical activity in 61% of patients before Ramadan this percentage rose to 70% during the month of Ramadan.

The experience of patients

Regarding the assessment of psychosocial distress: 51.6% of patients had an increase of total score

of DDS. Associations with the different variables studied were statistically insignificant however we noted a worsening of the psycho-social distress during Ramadan in female gender, married patients and whom under premixed insulin therapy compared to those receiving functional insulin therapy, as shown in Table 2.

Table-2: Factors influencing the variation of the DDS score during Ramadan

Sociodemographic characteristics:		Improvement of DDS score		Aggravation of DDS score		P
		Effective	Percentage	Effective	Percentage	
Sex	Female	09	45,0	11	55,0	0,269
	Male	07	63,6	04	36,4	
Instruction	Primary school	00	00,0	01	100	
	Secondary school	09	52,9	08	47,1	
	University	07	53,8	06	46,2	
Profession at activity	Yes	07	22,6	07	22,6	0,578
	No	09	52,9	08	47,1	
Marital Status	Married	02	33,3	04	66,7	0,,295
	Single	14	56,0	11	44,0	
Socio-economic level	Low	12	54,5	10	45,5	0,454
	Middle	04	44,4	05	55,6	
Residence	Urban	15	50,0	15	50,0	0,516
	Rural	01	100	00	00,0	
Treatment type	Treatment with premixed insulin	05	38,5	08	61,5	0,189
	Functional Insulin Therapy	11	61,1	07	38,9	

Quality of life

When studying the quality of life through PAID we were able to objectify better diabetes

management during the month of Ramadan (see Table 3).

Table-3: Variation of the PAID score before and during Ramadan

	PAID before Ramadan		PAID during Ramadan	
	Number	Percentage	Number	Percentage
0 à 10 : Denial of the disease	02	06,5	00	00,0
11 à 40 : Good disease management	18	58,1	19	61,3
>40 : emotional exhaustion	11	35,5	12	38,7

DISCUSSION

Muslim patient is concerned to keep his health at best, but he is sometimes divided between his keen desire to fast and his nonparticipation in fasting Ramadan imposed by his pathology. This is particularly the case of Muslim patients with type 1 diabetes, part of which is fasting against the advice of their doctors. In our study, 32% of patients tried fasting, another significant number reached even 60% in a study published in 2014, which included 33 patients with type 1 diabetes aged above 11 years, 60.6% of them was able to fast all Ramadan (9). These patients who tried to fast despite their knowledge of the risks experienced during the fasting and did not stop their fasting until after the occurrence of complications, which affirms the importance of fasting for them and which must raise the question of helping these patients during their attempts at fasting which has been widely discussed [10,11].

The management of type 1 diabetics who choose to fast during Ramadan is a challenge for the practitioner as the majority of recommendations and data on the safety and metabolic impact of fasting are based on practice and studies of population of type 2 diabetics [12].

In published medical literature, we have few studies of the experiences of type 1 diabetics during the month of Ramadan, fasting or not. A single qualitative study of six patients was published in 2009 that examined the experience of type 1 diabetes in Muslim patients during the month of Ramadan and concluded that some patients had feelings of frustration, misery, and exclusion. Regarding the representation of diabetes of diabetes, it turned out that this disease is considered by all patients as incurable, daily stress and social disability. Certain specificities of representation are added to this generality. Indeed, the terms "war", "prison", "suffering" was used to express a feeling towards this disease. Suffering will be in the front. The hope of one day being able to fast again was a common feeling for all patients [13]. This data is supported by the results of the EPIDIAR [2] study involving 12,243 diabetic patients, including 1,070 type 1 diabetics. 42.8% of these patients fasted at least 15 days during RAMADAN; which reveals the importance of fasting during Ramadan in the eyes of Muslims and a misinformation of patients.

Our study also tried to reveal the influence of the fasting month on the lived experience of the type 1 diabetic by mainly focusing on the changes in the degree of psychosocial distress and quality of life. The limits of our studies are: the small number of patients and the homogeneous sample which prevented us from highlighting the difference of the results according to the educational level and the socio-economic level.

The Diabetes Distress Scale (DDS) is used in different cultures [14].and has been translated into several languages [15, 16].DDS is an instrument

developed in the United States of America (USA), whose initial version included 28 items organized in four areas [17].The authors adapted this version and they were able to present another composed of 17 items divided into four specific subscales for the assessment of psychosocial distress related to diabetes [18]. The advantage of DDS, compared to other tools available in the literature [19], is that it allows us specifically to identify subscales separately: emotional distress; distress related to the doctor; treatment-related distress and interpersonal distress related to diabetes, allowing direct interventions. This tool also helps to identify people at high risk of developing distress and to prevent negative effects on the demand for self-care [20, 21].

The psycho-social distress in half of our patients increased during the month of Ramadan with the following variables: female gender, marital status as married patients saw their psychosocial distress scores increased during the holy month. This can be explained by their feelings of ill-being and rejection especially during the moments of breaking the fast and suhur(pre-down meal), the type of insulin therapy used has also increased The psycho-social distress in our patients .Being under functional insulin therapy seems to be a determining factor to improve psychosocial distress and quality of life during the month of Ramadan given the possibility of food freedom that is allowed to patients. Indeed, patients on functional insulin may skip a meal if they wish and can share with their families the meal and diner when desired by injecting a fast dose of insulin adapted to the carbohydrate content of each meal, experience that cannot be allowed to patients under fixed therapy so patients under functional insulin had an improvement of DDS score during Ramadan.

CONCLUSION

Helping type 1 diabetes during the month of Ramadan must be done by becoming aware of the impact of this month on his eating habits and feelings. Each therapeutic decision taken concerning either the educational or the medicinal component must be individualized and take into consideration the psychological and social context of each patient.

Conflicts of Interest

The authors have no conflict of interests to declare. The research did not receive specific funding.

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