

Ramadan focused diabetes education; a much needed approach

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Abstract

Ramadan Fasting is passionately practiced by millions of Muslims with diabetes across the globe. Structured education is recommended by the various diabetes societies to empower the person with diabetes to better self manage their condition. Indeed, Ramadan focused diabetes education has been shown to be beneficial to Muslim persons with diabetes wishing to fast in the Holy month of Ramadan. Hence, many national and international guidelines stress the importance of Ramadan focused structured education. Such education is targeted at the general public including the religious authorities to raise their awareness about diabetes and Ramadan, healthcare professionals to improve their clinical skills on managing diabetes during Ramadan and most importantly for the person with diabetes to help them to sail through the month of Ramadan safely. Consequently, any educational programme needs to be simple, clear and in the person with diabetes own language. Studies have shown that such a practice whether in a group session or one to one can help to reduce risk of hypoglycaemia and indeed other possible complications. Self-monitoring of blood glucose is a crucial element of Ramadan focused diabetes education to empower the person with the information and help in behaviour change for safer fast during Ramadan.

Introduction

Diabetes structured education is a process that empowers people with diabetes and/or their caregivers to modify their behaviour through motivation, better knowledge and skills to successfully self-manage the disease and its related complications. Diabetes education must be structured, simple, stimulating and delivered by competent educators. Hence, NICE & ADA recommends structured diabetes education from time of diagnosis for the safe and effective management of diabetes.^{1,2} However, in many countries structured education is not widely available. Furthermore, the average time with a primary care provider was 16.1 minutes and of all primary care office consultations only 14.3% were for diet or nutrition counseling, 10% for exercise counseling, and 3.6% for weight-management.³⁻⁵

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What is Ramadan focused diabetes education?

Epidemiological data suggest that the vast majority of people with diabetes in many countries do fast during Ramadan and in some occasions this happens against medical advice. Hence, Ramadan-focused structured education can be an essential component to address and minimize the challenges facing some people with diabetes during Ramadan and it should include the following 3 components for a comprehensive approach (Table-1).

The above-mentioned approach should help to create the necessary harmony between the religious and the medical advice. This is essential in all countries as it will help to minimize any conflicts and will help the person with diabetes to accept the medical advice. It will equally strengthen the medical advice in Muslims as well as in non-Muslim countries.⁶ Such a programme is much more valuable when supported by all concerned medical and religious organizations to ensure effective and widespread implementation.

The programme designed for people with diabetes should be sensitive to the cultural habits of the community and delivered by competent healthcare

Table-1: 3 Step approach for Ramadan - Focused diabetes education.

Target	Intervention
1. General Public	Awareness campaign with special focus on the religious and community leaders as well as the decision makers and the media. This should help the religious and community leaders to better understand the medical risks that some people with diabetes can face and the importance of good diabetes care during Ramadan as well as the accurate religious regulations re diabetes and Ramadan fasting. Consequently, there could be true harmony between the medical and the religious advice regarding diabetes and Ramadan.
2. Healthcare professionals	A practical workshop to help with risk assessment as well as treatment option and the necessary adjustments to accurately advise the person with diabetes during Ramadan utilizing the best available evidence-based medicine. This should also include the essential information about the religious regulations regarding Ramadan fasting.
3. People with diabetes	This should focus on risk assessment of fasting, meal planning, physical activity, the importance of self-monitoring of blood glucose to empower the person to make the right decision regarding stopping the fast or dose adjustment.

Table-2: Four key areas in Ramadan focused education.^{7,8}

Intervention	Details
1. Meal planning and dietary advice	<ul style="list-style-type: none"> ◆ The diet during Ramadan should be a healthy balanced diet aiming at avoiding 2 large meals and replacing them with 3 smaller meals. ◆ Slow energy release foods (such as wheat, semolina, beans, rice) should be taken before and after fasting. ◆ Avoid saturated fat such as ghee. This could be replaced by small amount of monounsaturated oils (such as canola or olive oil) in cooking ◆ Before and after fasting include high fibre foods such as wholegrain cereals, granary bread, brown rice; beans and pulses; fruit, vegetables, and salads
2. Exercise	<ul style="list-style-type: none"> ◆ Regular light and moderate exercise is safe in type 2 diabetes patients ◆ Rigorous exercise is not recommended as the risk of hypoglycaemia may be increased, particularly in patients taking sulphonylureas or insulin ◆ Encourage patients to continue their usual physical activity, especially during non-fasting periods ◆ Tarawih prayers (a series of prayers after the sunset meal) should be considered as part of the daily exercise regimen as they involve standing, bowing, prostrating, and sitting
3. Blood glucose monitoring	<ul style="list-style-type: none"> ◆ All patients who fast should be provided with the means to monitor their blood glucose ◆ Capillary blood glucose testing should be done when: <ol style="list-style-type: none"> 1. The patient has symptoms of hypoglycaemia (subjective to the individual). Patients should be advised to break their fast if they have hypoglycaemia. 2. The patient is unwell (eg, has a fever) 3. To provide the information to adjust their diabetes treatment regimens, such as insulin dosage titration
4. Recognizing and managing complications	<ul style="list-style-type: none"> ◆ Patients should be aware of the warning symptoms of dehydration, hypoglycaemia, and hyperglycaemia and should stop the fast as soon as any complications or acute illness occur

professionals in the same language of the patients. The four main areas of Ramadan focused structured education are summarized below in Table-2.

Evidence of benefit of Ramadan focused diabetes education

Two recent studies have looked into such an intervention. READ study which took part in UK while the Ramadan diabetes prospective study took part in Pakistan.^{8,9}

READ study

In this study Ramadan-focused structured education was delivered to a group of people with type 2 diabetes living in London, UK. They were all with type 2 diabetes and none of them were treated with insulin. They were invited to attend a group educational session lasting about 2 hours. The session was delivered in either English, Arabic, Urdu or Somali language. The educational session aimed at covering some standard diabetes education as well as Ramadan related diabetes education. These included advise about meal planning during Ramadan and the choice of food and drinks during Ramadan with specific attention to avoid excessive amounts of food rich in carbohydrate and/or fat. It also included advice to ensure adequate fluid intake while minimizing sugar rich drinks. The timing and the intensity of exercise was also an important component as excessive exercise while fasting could increase the risk of hypoglycaemia and/or dehydration.¹¹ The educational session also focused on

the importance of self monitoring of blood glucose (SMBG) and the importance of stopping the fast if the person has symptoms of hypoglycaemia or indeed if their SMBG indicates so. Lastly, risk assessment for the suitability to safely fast during Ramadan and to avoid any acute complications was also addressed during the educational session.

It's worth to note that such a simple procedure has lead to a significant decrease in the total number of hypoglycaemic events from nine to five, episodes compared with an increase in the control group who opted not to attend the educational session where their average hypoglycaemic episodes increased from nine to 36 (p <0.001). Furthermore, the active group had a mean weight loss of 0.7kg after Ramadan, compared to weight gain of 0.6-kg in the control group (p <0.001). The educational programme also helped to sustain HbA1c 12 months after attending the programme.

Ramadan Diabetes Prospective Study

This study was started in Baqai Insitute in Pakistan in the year 2009 where 110 persons with diabetes completed the study. About 2/3 of the cohort were treated with insulin with or without oral hypoglycaemic agents. The programme consisted of 2 educational sessions, one conducted by a doctor and the other conducted by a dietician. The educational sessions were conducted on a one to one basis. All participants in the study were advised to check SMBG twice daily with at least one of the tests to be done during

fasting hours. The doctor sessions lasted 20-25 minutes and during that time the doctor made assessment of the overall metabolic and general health status of the person with diabetes. Necessary treatment adjustments were made and they were all advised about how to manage complications and the importance of stopping fasting if hypoglycaemia developed. The dietitian session lasted 10-15 minutes where the individual diet was reviewed and advised upon accordingly. Advice regarding physical activity was also provided. The results of the study indicates that the majority of participants of the study with diabetes did not have any serious acute complications of diabetes during Ramadan.

PAUSE

Role of Self-monitoring of blood glucose (SMBG) in Ramadan education

SMBG is an important tool during Ramadan for people with diabetes to provide the information about glucose variability, which can lead to detection and prevention of hypoglycaemia as well as hyperglycaemia. This can also certainly help in behaviour change of diet and physical activities during Ramadan. The importance of SMBG monitoring during Ramadan and stopping the fast when hypoglycaemia is stressed upon in both the ADA as well as in the BMJ recommendations.^{7,10} Indeed, SMBG was an essential tool in READ as well as the Ramadan Diabetes Prospective Study as mentioned above. The frequency of monitoring would depend on the type of treatment, the glycaemic control and the lifestyle of the individual. While SMBG is frequently recommended for people with diabetes treated with insulin and/or sulphonylurea due to the risk of hypoglycaemia, it is also recommended for all people with diabetes to help detect postprandial hyperglycaemia, which is not unusual in many people with diabetes during Ramadan. Indeed, SMBG results will help the well informed person with diabetes treated with insulin to decide on insulin dose required as well as

deciding when to stop the fast if hypoglycaemic or if the SMBG readings show a significant hyperglycaemia.¹⁰ A recently published consensus recommendations for people with diabetes treated with low dose pre-mixed insulin advised on the following (Table-3).¹¹

Conclusion

Ramadan focused diabetes education can be a useful tool to achieve a better outcome for people with diabetes during Ramadan. This is a much-needed plan in many countries and efforts to establish it which requires a multidisciplinary approach including the religious and community leaders, the media, diabetes societies and healthcare professionals with expertise in the field. Assessment of the value of such approach is also required.

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Table-3: Algorithm for self-titration of insulin during Ramadan.¹¹

Fastig/pre-iftar/pre-suhur BG	Insulin units*
<70 mg/dl (3.9 mmol/L) or symptoms	Break the fast and down titrate
<90 mg/dl (5.0 mmol/L)	-2 IU
90-126 mg/dl (5.0-7.0 mmol/L)	No change
>126 mg/dl (7.0 mmol/L)	+2 IU
>300 mg/dl (16.6 mmol/L)	Break the fast and increase dose by 4 units and check for ketones

*Pre-iftar dose to be adjusted based on pre-suhur BG and pre-suhur dose to be adjusted based on pre-iftar BG levels.