

DIABETES IN RAMADHAN – A COMPREHENSIVE PATIENT EDUCATION PROGRAM FOR FASTING SAFELY

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Abstract

Background. The incidence of Type2 Diabetes Mellitus (DM) in Malaysia is increasing, with 59% in Malays followed by other races. Fasting Ramadhan with DM is challenging, requiring sufficient and comprehensive medical advice. This novel diabetes in Ramadhan patient education program aims to facilitate knowledge attainment and improve dissemination of information to mitigate the risk of complications in Ramadhan and to pave the way to fasting safely. **Methods.** A compilation of important information on managing the challenges DM patients face in the fasting month was assembled, gathered from the Malaysian DM clinical practice guidelines and the International Diabetes Federation (IDF) Diabetes in Ramadan Guideline. This compendium was designed mainly in the Malay language to enable better understanding in the Malaysian population. **Result.** This program provided comprehensive education on fasting in Ramadhan for people with DM in an engaging manner. The program was organized into three main parts: (1) patient self-educating activity; (2) specialized medical advice; and (3) lifestyle guide. This program was conducted at the UiTM Medical clinic facilities by the Endocrine team consisting of physicians and diabetic educator, and was facilitated by a specially designed educational guide, detailing important information on the risk categories for fasting in Ramadhan, timing of blood sugar monitoring, when to break the fast in the event of complication with management steps, medication adjustment, dietary advice and tips on keeping active during the fasting month. **Conclusion.** This innovative program has been tailored for use in the local population, and provides an essential service that is hugely beneficial, but currently lacking in this country. With this comprehensive and engaging platform, important information on managing diabetes in Ramadhan can be accessible to a wider population, leading to better patient care, and hence a has huge potential for sustainability. A larger multi-centre program will be required for a greater impact.

INTRODUCTION

The incidence of Type 2 Diabetes Mellitus (DM) in Malaysia is increasing, with an estimation of 3.9 million adults diagnosed according to the recent Malaysian National Health and Morbidity Survey (NHMS) in 2019. This is contributed largely by the Malay race with a prevalence of 59%, followed by the other races (National Health and Morbidity Survey [NHMS] 2019), translating into a significant proportion of people with diabetes who will be fasting in the month of Ramadhan in Malaysia. Indeed, Malaysia lies in the geographical region with the highest Muslim population in the world (International Diabetes Federation [IDF] 2021), and in an international survey assessing people with Type 2 DM it was seen that more than 95% of these patients fast in Ramadhan regardless of their diabetic control, contributing to the largest number when compared to the other participating countries (Salti et al, 2004).

Ramadhan fasting may have an impact on metabolic profile as a reflection from lifestyle changes during continuous fasting, including caloric restrictions, alteration in physical activities and sleeping patterns. Numerous studies have shown contradicting results on both the advantages and deleterious effects of fasting on people with diabetes mellitus. A subsequent meta-analysis comprising of studies conducted in Asian, Middle Eastern and African countries attested to a relatively low incidence of hypoglycaemia among people with type 2 diabetes mellitus fasting in the month of Ramadhan with a slight improvement in anthropometry and metabolic profile in this population (Dicky et al, 2020).

Fasting in Ramadhan for those with DM is challenging and needs close monitoring with sufficient and comprehensive medical advice. Diabetic complications during fasting are mainly seen in patients with improper disease control or inadequate information. In a nationwide survey assessing the characteristics of Malaysians with diabetes fasting in the month of Ramadhan, it was found that more than a quarter of the population break their fast due to diabetic-related conditions, with low blood sugar (hypoglycaemia) occurring in 17.8%, whereas 10.6% had high blood sugar (hyperglycaemia), leading to increased need for hospital visits (Zanariah et al, 2021). This was further illustrated in a countrywide study looking at admissions to general hospitals across the different states in Malaysia during the month of Ramadhan, which revealed a high number of admissions due to diabetic emergencies, with more than half of the assessed population unable to recall receiving medical advice regarding managing diabetes in Ramadhan (Chin et al, 2021). Additionally, in another study assessing diabetes knowledge and management principles among Malaysian fasting in Ramadhan, which utilized self-administered questionnaires, it was revealed that only half of the population studied had average understanding on the condition, and factors such as education level, monthly income and working status were associated with better knowledge (Salimah Japar et al, 2022), further underlining the need to improve education and self-management practices among the population of people with diabetes during the fasting month.

To address this issue, a special program was fashioned for patients attending the endocrine clinics in Universiti Teknologi MARA (UiTM) medical centre. This program aimed to fulfil a few objectives, namely: 1) To facilitate knowledge attainment and improve dissemination of information, 2) To mitigate the risk of diabetic complications in Ramadhan and 3) To pave the way to fasting safely.

METHOD

This diabetes in Ramadhan patient education program was specifically designed and conducted for the Muslim population with diabetes attending the endocrine clinics in UiTM and was held for a whole month leading to the month of Ramadhan, targeting about 40 patients per week. Adult patients with Type 2 diabetes mellitus who were planning and eligible to fast were recruited and enrolled in this program. Ineligible patients, including those with advanced kidney disease, patients with dementia or reduced understanding of the risks of fasting, and patients with type 1 diabetes mellitus were excluded.

Referencing the Malaysian Type 2 DM clinical practice guidelines (Ministry of Health, 2020) and the International Diabetes Federation (IDF) Diabetes in Ramadan Guideline (IDF, 2021), important information on managing the challenges DM patients face in the fasting month was assembled and subsequently translated into an interactive and educational training program tailored for the local

population. Risk stratification for patients fasting in Ramadhan was taken from the IDF guideline, which has itemized the specific factors influencing diabetes control, with further categorization into mild, moderate and high risk for fasting in people with diabetes. Lifestyle modification tips and glucose monitoring recommendations were taken from both the IDF guideline and the Malaysian clinical practice guidelines (CPG). The Malaysian CPG had the added advantage of being tailored to local requirements and hence added a more personalized flavour to the program.

RESULT AND DISCUSSION

Themed ‘Journey Through Ramadhan’, this comprehensive patient education program was conducted in the diabetes and endocrine clinics at Hospital Al-Sultan Abdullah (HASA) UiTM Puncak Alam. Organized into three distinct parts, this program enabled effective multi-directional communication between patients, family members and healthcare professionals. This whole program was a practice in philanthropy, as all the education materials including the guidebook, glucose monitoring charts and record booklets, as well as the program completion acknowledgement and certificates were provided as a complimentary package.

Patient Self-Empowerment

Commencing with a self-educating activity, patients and caregivers familiarized themselves with handling diabetes during fasting from information posted on poster boards, prepared specifically for the program. This part of the program enabled patients to discover various information regarding diabetes in Ramadhan and some of the conceivable challenges in management.

Specialized Medical Advice

Next, each patient had an individualized consultation with an appointed specialist from the endocrine team, where they had a risk calculation of fasting in Ramadhan and further explanation on managing diabetes during the fasting month. The risk of fasting was calculated based on the International Diabetes Federation – Diabetes in Ramadan (IDF-DAR) practical guideline (IDF, 2021), where the personalized score was categorized into high, moderate and low risk of fasting in Ramadhan. The participants were taught the optimal timing for monitoring their blood sugar levels with contingency strategies. They even received guidance on recognizing the complications, especially symptoms of low blood sugar and the prescribed action plan. They were also acquainted with situations where they would have to break their fast and the reasons for doing so. The patients were then given detailed information on management of their medications during fasting, ranging from the timing to titration.

Lifestyle Recommendations

The subsequent part of this program was information sharing by diabetic educators. The participants received customized guidance on dietary recommendations and judicious physical activity endorsed during the month of Ramadhan. Further avenues of assistance were provided for the patients to communicate with the diabetic educators during the fasting month if required.

Comprehensive Guide

This whole education process was facilitated by a booklet, which was designed and produced specially for this program. This compendium was fashioned mainly in the Malay language to enable better understanding in the local population. This guide detailed essential knowledge on fasting in Ramadhan for people with diabetes, starting off with describing the challenges encountered by people with DM fasting in Ramadhan and the possible complications, and going on to detail approaches and approved steps in management. This guide was then divided into a few categories, comprising of the population at high risk for continuous fasting, adequate and timing of blood sugar monitoring (Figure 1), when to break the fast in the event of complication and steps to handle the situation, medication adjustment, dietary advice (Figure 2) and tips on keeping active during the fasting month

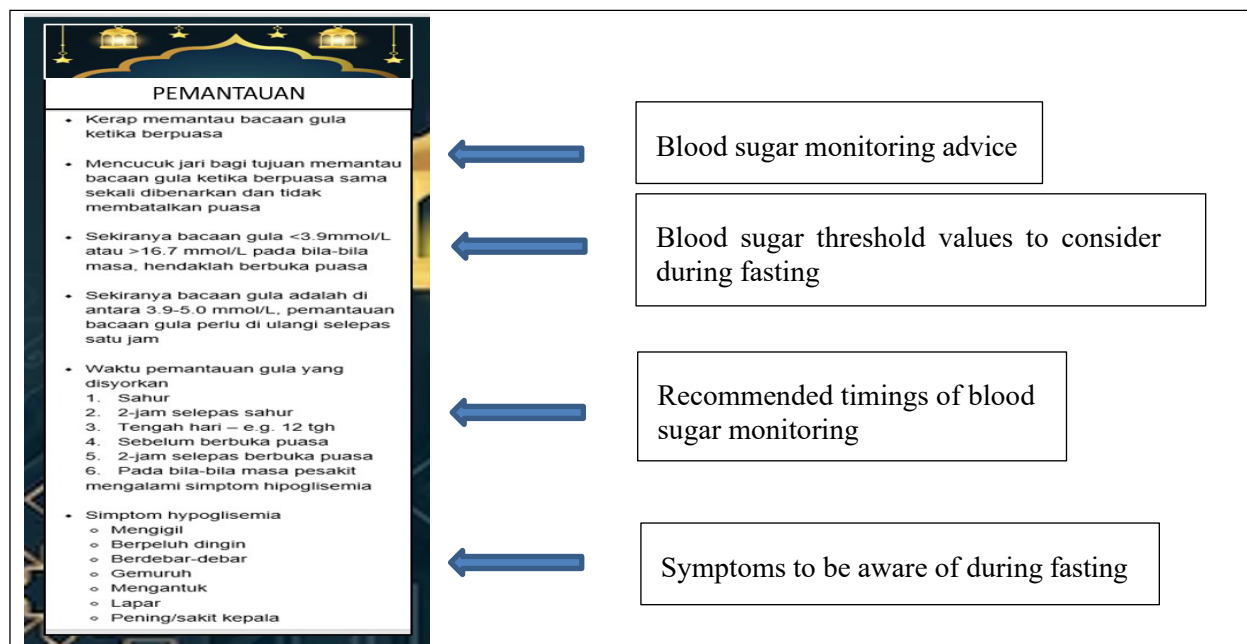


Figure 1. A page from education booklet – monitoring recommendations

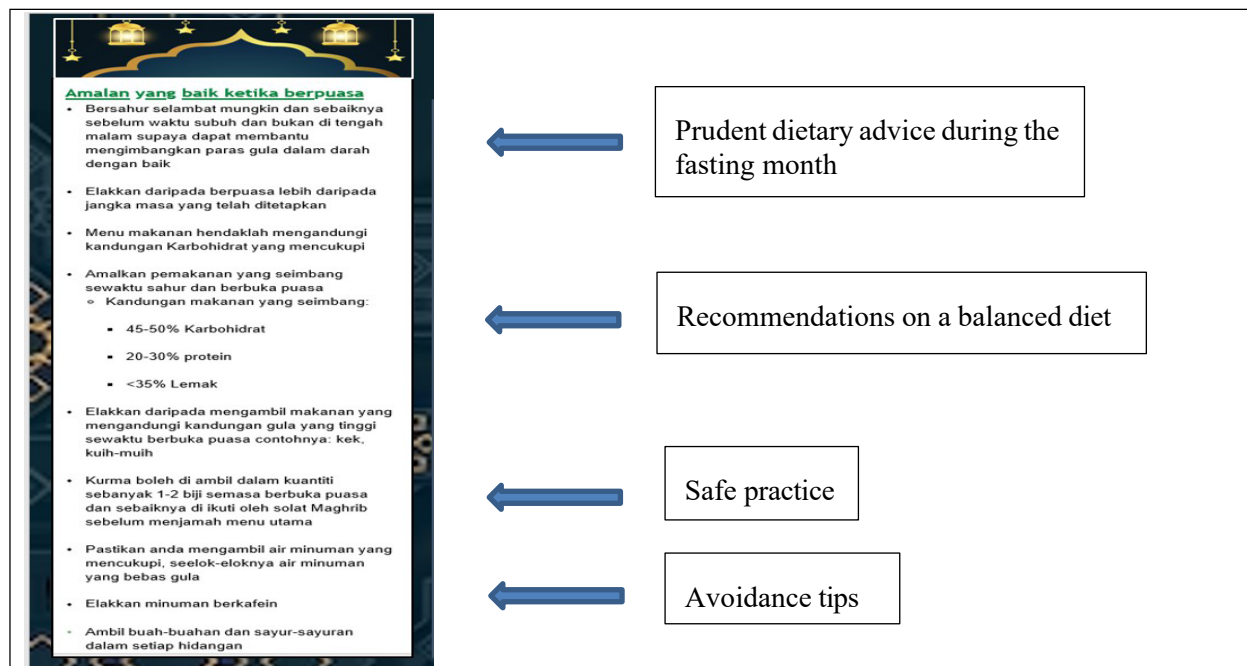


Figure 2. A page from education booklet – dietary advice

Certificate of Completion

At the completion of program, each participant received a certificate in the form of a fridge magnet, as an acknowledgement of their involvement as well as a tool of reminder, to facilitate better management of diabetes in Ramadhan.

This program attracted more than 160 participants and was well received with positive feedback from the attendees. The main benefits derived from this program was seen through better understanding of

glycaemic monitoring and dietary modification, leading to improved fasting experience. Among the encouraging feedback was the ability to manage medications better due to enhanced ability to monitor blood sugar and titrate treatment, accordingly, leading to better self-management practices.

As evidenced by this program, a multifaceted diabetes in Ramadhan educational activity is essential in increasing awareness and improving diabetes control during fasting. This program utilized a cohesive structure of integrated diabetes management, with a team consisting of physicians, endocrinologists, diabetic educators and dietitians. To provide a greater impact, a recommendation is crucial for a similar comprehensive program that can be translated to a larger group of participants, with multi-centre engagement, involving primary, secondary and tertiary medical care centres. It will also be necessary to provide adequate training to the relevant healthcare providers, including medical officers, physicians, diabetic educators and support staff for better knowledge dissemination and improved patient care.

CONCLUSION

This novel and innovative diabetes in Ramadhan patient education program was specially designed for better management of diabetes for patients fasting in the month of Ramadhan. It provides an essential service and aims to fill the gap in crucial knowledge dissemination that is urgently required in this country. This comprehensive and engaging program has been tailored to local specifications with potential for multi-centre engagement, as well as to enable patient empowerment and pave the way to fasting safely.

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CONFLICT OF INTEREST

The authors affirmed that there is no conflict of interest in this article.

AUTHOR CONTRIBUTION

Fatimah Zaherah Mohamed Shaha designed the program and education material. Nur 'Aini Eddy Warman and Mohd Hazriq Awang provided education on blood sugar monitoring and safe practices. Aimi Fadilah Mohamed and Nur Aisyah Zainordin performed risk stratification. Rohana Abdul Ghanif provided specialized patient education.

AI GENERATIVE DECLARATION

The author declares that generative AI tools were not used in the creation of this article, except for text paraphrasing and cross-checking references. The author assumes full responsibility for the accuracy, integrity, and final content of this work.

RESEARCH ETHICS STATEMENT

The author(s) declare that this study did not involve any human biological samples or data, or animal subjects. Consequently, formal ethics committee approval and informed consent were not required for this research.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to institutional and ethical requirements.

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