



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A SHORT COMMUNICATION: CORRELATION OF RAMADHAN FAST AND TYPE 2 DIABETES MELLITUS

Daniel Setiawan Nathan
Nagreg Primary Health Care

ABSTRACT

During fasting, there is a decrease in food intake, putting patients with diabetes at a higher risk for complications. The length of time fasting can influence the high risk that occurs. This journal review aims to determine the risk of diabetic patients who are fasting during Ramadan and how to handle it. The method used is to search for secondary data on the internet in the form of journal publications. According to research in reviewed journals, during fasting, there are several metabolic changes in the body. The complications that may occur are hypoglycemia, hyperglycemia, dehydration, and thrombosis. We can prevent these complications by implementing the recommended lifestyle or by carrying out pre-Ramadan education.

Keywords: Ramadan, Benefits of Fasting, Type 2 Diabetes

PRELIMINARY

Ramadan is the ninth month in the Islamic lunar calendar. In Ramadan, every Muslim is required to fast, which is to avoid consuming food and drink from dawn (sunrise) until sunset. The fasting worship is carried out for one month (29-30 days). Besides being forbidden to eat and drink, they are also prohibited from consuming cigarettes and drugs. However, there is no food or fluid intake restriction between sunset and sunrise (Ahmedani et al., 2014).

Based on a study, certain recommendations have been made by experts in the field. In this recommendation, Ramadan-specific patient education is identified as a cornerstone of safety during fasting. They should be given advice clearly and carefully to all patients with diabetes. Pre-Ramadan education should include learning about diabetes standards and advice on specific Ramadan issues, including the possible risk of complications during fasting, the importance of monitoring blood glucose, when to break the fast, meal planning, and physical activity during fasting (Al-Arouj et al., 2010).

Decreased food intake can put patients with diabetes at a higher risk of hypoglycemic events, especially in patients taking sulfonylureas, insulin secretagogues, or other insulin therapy (Ali et al., 2016). In smaller studies, patients with oral hypoglycemic drugs or insulin have not shown a significant improvement in hypoglycemia (Bakiner et al., 2009).

However, many Muslims with diabetes choose to continue fasting during the month of Ramadan. A population-based epidemiological study, Epidemiology of Diabetes and Ramadan (EPIDIAR), showed that 43% of patients with type 1 diabetes and 79% of patients with type 2 diabetes reported fasting in 13 Islamic countries during the month of Ramadan (Salti et al., 2004).

The risk of fasting for diabetic patients, especially hypoglycemia, hyperglycemia, and dehydration, as well as an increased risk of thrombosis, occurs in association with hyperglycemic dehydration (Hui et al., 2010). This risk will be greater as the length of fasting increases (Ali et al., 2016). The length of time fasting with restriction of fluid intake will also increase the risk of dehydration. This risk will be greater in countries with long fasting periods, and the risk of hyperglycemia can occur due to osmotic diuresis (Hui et

al., 2010). Dehydration can appear with several associated health problems, such as syncope and falls, fatigue, heat, and increased blood viscosity, leading to thrombosis (Hui et al., 2010; Salim et al., 2013).

Method

This journal review was conducted using secondary data obtained from internet searches in national and international journals. The journal criteria used are journals with a year limit of the last twenty years.

Discussion

Changes in Metabolism during Fasting The results of Bener et al.'s study showed that fasting during Ramadan was significantly associated with decreased blood lipid profile, blood pressure, glucose, and HbA1C levels among diabetic patients. After consulting their doctor, Muslim diabetic patients can fast during Ramadan and benefit their health (Bener, 2014).

Based on the research of Ajabnoor et al., in the month of Ramadan, glucose concentrations were maintained in the normal range, with a significant increase in the morning. Mean morning leptin concentrations were significantly higher than pre-Ramadan values, in contrast to adiponectin, significantly lower. These changes were associated with increased insulin resistance in the morning and evening. Concentrations of hsCRP were lower during Ramadan than during daily living conditions, but normal circadian fluctuations were abolished. However, liver enzymes, total bilirubin, total protein, and albumin all decreased during Ramadan (Ajabnoor, 2014).

Diabetes-Related Risks during Fasting The risks of fasting for patients with diabetes, especially hypoglycemia, hyperglycemia, and dehydration, as well as an increased risk of thrombosis, occur in association with dehydration and hyperglycemia (Hui et al., 2010). Salti et al. found that the risk of severe hypoglycemia, defined as hypoglycemia leading to hospitalization, was increased 4.7-fold in Type 1 diabetes and 7.5-fold in Type 2 diabetes in the fasting state. This study showed that during Ramadan, hospitalizations for severe hyperglycemia of diabetic ketoacidosis increased fivefold in people with Type 2 diabetes (from 1 to 5 events/100 persons/month). In Type 1 diabetes, the incidence of severe hyperglycemia with or without ketoacidosis increased, tripled (from 5 to 17 events/100 persons/month). This increased incidence rate appears to be associated with excessive reductions in drug dosage and those reporting increased food and sugar intake. Individuals with type 1 diabetes are more prone to develop ketoacidosis, especially if their glycemic control is suboptimal before Ramadan (Salti et al., 2004).

Dehydration, volume depletion, and a tendency toward hypotension can occur with fasting during Ramadan, especially if fasting is prolonged and associated with excessive sweating. Therefore, the dose of antihypertensive drugs may need to be adjusted to prevent hypotension. It is common practice that the intake of foods rich in carbohydrates and saturated fats increases during Ramadan. Appropriate counseling should be provided to avoid this practice, and agents previously prescribed to manage high cholesterol and triglycerides should be continued (Ahmad et al., 2012). In the study of Ahmedani et al., most of the low-range readings were in the mild hypoglycemic range (3.11-3.88 mmol/l) and were asymptomatic. The majority of hypoglycemic episodes occur before dawn (before Sahur), i.e., before the start of the actual fast, followed by a midday episode. It may be due to shifting the full dose of morning insulin or oral hypoglycemic agents before meals towards dusk during Ramadan. Based on these findings, Ahmedani et al. suggested that it may be appropriate to reduce the pre-twilight oral hypoglycemic drug dose or insulin to 75% of the total dose, especially when the drug must be administered within 12 hours (Ahmedani et al., 2012).

Pre-Ramadan Education/Education Preparation is paramount in achieving optimal management. Therefore, consultation before Ramadan should be done as early as possible, preferably at least 1-2 months before Ramadan. In areas with large Muslim populations, this may not be possible. Also, a pre-Ramadan assessment should be brought at the time of the next consultation, as is routinely done with preconception and diabetes (Hui et al., 2010). In the CARE study (Characteristics and Ramadan-specific diabetes education trends of patients with diabetes), patients who received pre-Ramadan education were significantly better at following Ramadan-specific diabetes management recommendations during Ramadan (i.e., monitoring blood glucose during fasting well as checking blood glucose levels). and cancel fasting on the development of symptoms of hypoglycemia or hyperglycemia) compared with patients who did not receive education (Ahmedani, 2016).

Monitoring blood glucose during Ramadan is very important for patients with diabetes who fast during Ramadan and, more specifically, in patients with type 1 diabetes and in patients with type 2 diabetes who require insulin. In the EPIDIAR study, two-thirds of patients with type 1 diabetes and one-third of patients with type 2 diabetes monitored blood glucose levels themselves. In contrast, in the CARE study,

improvements were observed, and SMBG (Self-monitoring of Blood Glucose) was performed by eighty percent of the study population. During Ramadan (Ahmedani, 2016).

Fasting during Ramadan for patients with diabetes carries the risk of various kinds of complications. Islamic rules allow patients not to fast. However, suppose patients with diabetes wish to fast. In that case, it is necessary to advise them to monitor their blood glucose levels regularly several times a day, to reduce the risk of hypoglycemia during daytime fasting or hyperglycemia at night. Patients with type 1 diabetes who fast during Ramadan may be better managed with fast-acting insulin. They should have basic knowledge of carbohydrate metabolism, standard principles of diabetes care, and pharmacology of various antidiabetic drugs (Ahmad et al., 2012). Prevention of Complications Several ways can prevent complications, namely by implementing the following lifestyle before and during Ramadan (Ahmad et al., 2012).

The use of drugs such as insulin because it contains derivatives from pigs, the authors still cause polemics. In Islam, it is forbidden to use because it can cause many problems in other organs of the body. Therefore, the authors hope that they will no longer be using DM drugs from pig derivatives.

1. Conduct a pre- Ramadan fasting consultation with a doctor or diabetes educator to review the control and feasibility of fasting safely
2. Record weight every day and tell the doctor if there is a change of more than 2 Kg
3. Learn the warning signs of hyperglycemia and hypoglycemia
4. Take halal medicine regularly according to the instructions, and don't forget to pray for healing only from Allah SWT
5. Continue light to moderate physical activity, especially at night while praying at night or another ritual like tarawih
6. Eat halal food and in moderation. Avoid overeating after breaking the fast and minimize consumption of sweet or fatty foods
7. Record daily dietary intake to help prevent overconsumption or underconsumption
8. If complications occur, break the fast immediately and seek medical assistance
9. Blood glucose test before and two hours after iftar, before a pre-dawn meal, and in the middle of the day
10. At the end of Ramadan, describe achievements and problems and feedback to the doctor

Conclusion

Fasting during Ramadan can lead to complications in diabetic patients. Therefore, it is necessary to conduct pre-Ramadan education or implement the recommended lifestyle before and during Ramadan.

Conflict of Interest

The author declares that there were no conflicts during the writing of this journal.

References

- Ahmad, J., et al. 2012. Diabetic Emergencies Including Hypoglycemia During Ramadan. *Indian J Endocrinol Metab.* 16(4): p. 512-515.
- Ahmedani, MY, et al. 2012. Treatment Ramadan Prospective Diabetes Study: the role of drug dosage and timing alteration, active glucose monitoring and patient education. *Diabetic Medicine.* 29(6): p. 709-15.
- Ahmedani, M., et al. 2014. Implementation of Ramadan-specific diabetes management recommendations: a multi-centered prospective study from Pakistan. *J Diabetes Metab Disord.* 21(13): p. 37.
- Ahmedani, M. and S. Alvi. 2016. Characteristics and Ramadan-specific diabetes education trends of patients with diabetes (CARE): a multinational survey. *Int J Clin Pract.* 70(8): p. 668-75.
- Ajabnoor, GM, et al. 2014. Health Impact of Fasting in Saudi Arabia during Ramadan: Association with Disturbed Circadian Rhythm and Metabolic and Sleeping Patterns. *PLOS One.* 9(5).
- Al-Arouj, M., et al. 2010. Recommendations for management of diabetes during Ramadan: update. *Diabetes Care.* 33(8): p. 1895-902.

- Ali, S., et al. 2016. Review Article: Guidelines for Managing Diabetes in Ramadan. *Diabetic Medicine*. 33(10): p. 1315-29
- Bakiner, O., et al. 2009. Repaglinide plus single-dose insulin glargine: a safe regimen for low-risk type 2 diabetic patients who insist on fasting in Ramadan. *Acta Diabetica*. 46(1): p. 63- 5.
- Bener, A. and MT Yousafzai. 2014. Effect of Ramadan Fasting on Diabetes Mellitus: A Population Based Study in Qatar. *The Journal of the Egyptian Public Health Association*. 89(2): p. 47-52.
- Hui, E., et al. 2010. Management of people with diabetes wanting to fast during Ramadan. *BMJ*. 340.
- Salim, I., et al. 2013. Impact of religious Ramadan fasting on cardiovascular disease: a systematic review of the literature. *Curr Med Res Opin*. 29(4): p. 343-54.
- Salti, I., et al. 2004. A population-based study of diabetes and its characteristics during the fasting month of Ramadan in 13 countries: results of the Epidemiology of Diabetes and Ramadan 1422 2001 (EPIDIAR) study. *Diabetes Care*. 27(10): p. 2306–2311

