Fasting in Ramadan and Diabetes

Zia Ashraf¹* and Mehwish Ameen²
¹College of Allied Health Professionals, Pakistan
²Punjab Medical College, Pakistan

Abstract

During Ramadan, Muslim community fasts from dawn till sunset. In healthy adults, fasting has no proven harms rather have benefits. Diabetes is a metabolic disorder and may have some consequences while fasting. The aim of our review was to determine, whether or fasting in Ramadan causes any complications in diabetes patients and to search ultimately the advice for management of fast while being diabetic. Ramadan fasting is very much acceptable in patients having type-2 diabetes which is well managed. Fasting may be allowed to type-1 diabetes patients with suggestion to monitor their blood glucose level several times a day.

Introduction

Islam has five pillars. Observing Fast in Ramadan is one of the five pillars for adult Muslims worldwide. During fast, eating and drinking is prohibited which is not proven to be harmful for healthy persons [1]. A large survey revealed that 42.8% type-1 diabetes and 78.7% type-2 diabetes patients fasted for two weeks [2]. Only few review articles are available on this concern. Original studies were included in this review including control period: i.e. data from control period consisting before and after Ramadan. Studies without involving controls were excluded. Most papers report survey data but very few report original clinical assays. One thing to account for is that Ramadan is a lunar month and happens 10-11 days earlier in every coming year. Which means, after each 9 years, it occurs in different season. The environmental conditions, temperature and length of fasting changes accordingly. This duration was not always cited in most of the studies.

Ramadan fasting: Effects on glycemic status and other biochemical parameters

Fasting may have increased risks for hypoglycemia due to daytime fasting [3,4], an increase in frequency of hypoglycemia has been reported during fasting in Ramadan both in type-1 and type-2 diabetes patients [5]. According to some studies Ramadan fasting has been reported to have no effect on glycemic status [2-4,6-11]. There were no significant changes in rhythm of blood glucose in type-2 women [9] Several studies have demonstrated that HbA1C values had no significant change during Ramadan fasting [4,6,7,11-14]. Few studies have reported a decrease in HbA1C level too [12,15,16]. There is significant decrease in insulin resistance in males, but it decreases in both genders [14]. Several studies have reported a decrease in triglycerides [4,17]. Some studies have shown no significant change in triglycerides, HDL and LDL levels [9,18,19].

Patients on oral hypoglycemic agents

Several studies have reported a significant effect on glycemic status in type-2 diabetes patients who are treated with OHA [6]. Few studies have reported an increase in hyperglycemic status who took less dose [15].

Patients on insulin treatment

The effect of insulin was observed in patients with type-1 diabetes observing fast. Glycemic control showed improvement in lispro-insulin as compared to human origin insulin [20].
International Diabetes Federation (IDF) and diabetes
UK guidelines for Ramadan

The IDF and diabetes UK have provided proposed three
categories of risk for Muslim patients observing Ramadan fast.
Those classified into high risk are advised not to fast. Patients
on insulin need to make adjustment of dosage. Fasting needs to
be interrupted if blood glucose level falls below 70mg/dl. They
provided following recommendations: Screen people for diabetes
using locally validated screening methods e.g. HbA1C, blood
glucose level. Try to prevent prediabetes with lifestyle modification
and increased physical activity. Glucose monitoring is useful during
Ramadan. Patients with diabetes should be referred to diabetes
training and awareness programs. Overweight and diabetic
patients should reduce caloric intake and prefer high fiber diet. Use
physician recommended medication and keep proper follow-up
[21-23].

References

1. Roky R, Houti I, Moussamih S, Qotbi S, Aadil N (2004) Physiological and
chronobiological changes during Ramadan intermittent fasting. Annals of
Nutrition and Metabolism 48(4): 296-303.
2. Benaji B, Mounib N, Roky R, Aadil N, Houti I, et al. (2006) Diabetes and
Ramadan: review of the literature. Diabetes research and clinical
practice 73(2): 117-125.
3. Benbarka MM, Khalil AB, Beshyah SA, Marjii S, Awad SA (2010) Insulin
pump therapy in Moslem patients with type 1 diabetes during Ramadan
fasting: An observational report. Diabetes technology & therapeutics
12(4): 287-290.
4. Sari R, Balci MK, Akbas SH, Avci B (2004) The effects of diet, sulfonylurea,
and repaglinide therapy on clinical and metabolic parameters in type 2
diabetic patients during Ramadan. Endocrine research 30(2): 169-177.
5. Salti I, Bénard E, Detournay B, Bianchi BM, Le Brigand C, 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): 2306-2311.
6. Chandelia H, Bhargav A, Kataria V (1987) Dietary pattern during
Ramadan fasting and its effect on the metabolic control of diabetes. 
Practical Diabetes International 4(6): 287-290.
7. Bouguerra R, Jabrane J, Maatki C, Ben LS, Hamzaoui J, et al. (2006)
Ramadan fasting in type 2 diabetes mellitus. Annales d’endocrinol
304(6826): 521.
8. Hemmati M, Karamian M, Malekaneh M (2015) Anti-atherogenic
potential of natural honey: Anti-diabetic and antioxidant approaches. J
Pharm Pharmacol 3: 278-284.
9. Khattib FA, Shafigoj YA (2004) Metabolic alterations as a result of
Ramadan fasting in non-insulin-dependent diabetes mellitus patients in
relation to food intake. Saudi medical journal 25(12): 1858-1863.
10. Rashed AH (1992) The fast of Ramadan. BMJ: British Medical Journal
304(6862): 521.
11. Azizi F, Shahkolah B, Shahraz S, Shenfat KR, Zali M, et al. (2003) Ramadan
fasting and diabetes mellitus. Arch Iran Med 6(4): 237-242.
12. Sulmani RA, Laajam M, Al-Attas O, Fanmuyiwa FO, Bashi S, et al. (1991)
The effect of Ramadan fasting on diabetes control in type II diabetic
patients. Nutrition Research 11(2-3): 261-264.
13. Belkhdar J, El Ghomari H, Klöcker N, Mikou A, Nascimi M, et al. (1993)
Muslims with non-insulin dependent diabetes fasting during Ramadan:
Treatment with glibenclamide. BMJ 307(6989): 292-295.
14. Yarahmadi S, Larjani B, Bastanahgh M, Pajouhi M, Baradar RJ, et al.
(2003) Metabolic and clinical effects of Ramadan fasting in patients
with type II diabetes. Journal of the College of Physicians and Surgeons-
Pakistan: JCPSP 13(6): 329-332.
15. Mafauzy M, Mohammed W, Anum M, Zulkifi A, Ruhani A (1990) A study
of the fasting diabetic patients during the month of Ramadan. Med J
Malaysia 45(1): 14-17.
16. Gustaviani RR, Soewondo P, Semiardi G, Sudoyo AW (2004) The influence
of calorie restriction during the Ramadan fast on serum fructosamine
and the formation of beta hydroxybutirate in type 2 diabetes mellitus
patients. Acta Med Indones 36(3): 136-141.
17. Athar S (1996) A report on the first international congress on health and
Ramadan. J Islamic Med Assoc N Am 28(1): 43-44.
18. Nagati K, Kammoun H, Abid A, Blouza S, Jamoussi H, et al. (2000)
Diabetes and fasting during Ramadan: A multicentric Tunisian study.
Medecine et Nutrition 36(2): 90-95.
19. Kalantary S, Raja A, Heidarnia B (2001) Blood sugar changes in NIDDM
patients in the Ramadan month.
20. Kadiri A, Al-Nakhi A, El-Ghazali S, Jabbar A, Al Arouj M, et al. (2001)
Treatment of type 1 diabetes with insulin lispro during Ramadan.
Diabetes Metab 27(4 Pt 1): 482-486.
21. Beshyah SA (2016) IDF-DAR practical guidelines for management of
diabetes during Ramadan: A multicentric Tunisian study. Ibnosina Journal
of Medicine and Biomedical Sciences 8(3): 58-60.
22. Nematy M, Meh dizadeh A (2016) Introducing the practical guideline for
diabetes and Ramadan, developed by international diabetes federation
in collaboration with diabetes and Ramadan international alliance,
2016. J Fasting Health 4(3): 95-96.
23. Ali S, Davies MJ, Brady EM, Gray LJ, Khunti K, et al. (2016) Guidelines for
managing diabetes in Ramadan. Diabetic Medicine 33(10): 1315-1329.