

Kidneys with Diabetes and Ramadan Intermittent Fasting

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Diabetes mellitus (DM) is growing tremendously all over the world especially in the Middle–East and North Africa (MENA) and diabetic nephropathy is one of the important microvascular complications ending up with dialyses necessitating kidney transplantation so giving rise to another follow-up program [1,2].

Ramadan intermittent fasting is exercised by many individuals with DM of any kind (type 1 & type 2) regardless of the risk factors such as dehydration, thrombosis, hypoglycaemia (hypo) and hyperglycaemia, hyperosmolar state (HHS) and even diabetic ketoacidosis coma (DKA) [3,4]. Although exempt from fasting owing to sickness, since from the very first epidemiologic study (EPIDIAR), rate of fasting is being increased even during Covid-19 pandemic [5-11].

Many people with DM and kidney failure would have also either other microvascular (i.e; retinopathy, neuroopathy, foot complications) and or macrovascular complications that would increase the risk of acute complications such as hypo (less than 70 mg/dl) and significant hyperglycaemia (over 300 mg/dl) [12]. Accumulating data attracted the attention of many investigators so that the guidelines for fasting in people with DM are updated for 5 years apart with consensus statements [3,4,13-18]. Although newer medications in type 2 diabetes management look relatively safer when compared with sulfonylureas and insulin use, meanwhile, not all insulin preparations are the same regarding both efficacy and safety [19-25]. Many people with diabetic kidney disease will convert their medications into insulin by the way, meanwhile those who were already on these therapies would need adjustment in order not to further cause hypo since its clearance would be from the affected kidneys [26].

Although very first laboratory sign of the kidney is increased glomerular filtration rate (eGFR), then microalbuminuria will develop when glycaemia and blood pressure could not be managed well. This will increase predictability of instability and worsening the outcomes [18]. According to the International Diabetes Federation Diabetes and Ramadan (IDF-DaR) guidelines those having eGFR less than 30 ml/min are not allowed to fast and those having less than 60ml/min risk starts [3,4,18].

These group of patient profile may have other issues such as higher age (over 70 years) without home support, higher HbA1c (over 7.5%), higher diabetes duration (over 10 years), on hypoglycaemic agents (insulins and sulfonylureas), frequent hypo episodes, suboptimal glucose monitoring, experiencing either DKA or HHS within 6 months, macrovascular complications (heart attack, ongoing angina), cognitive function disorder, moderate intensity work, lack of related education, fasting over 16 hrs, that may further increase the risk of developing additional risks [3,4,18].

Diabetes and Ramadan focused structured education of both people with diabetes, their care givers, as well health care professionals are essential in order to decrease the risk of complications and say whom to say ‘not to fast’, respectfully the guidelines [27-38].

Recent data with artificial intelligence (AI) equipped tools became part of both management and monitoring the glycaemia so that evidence for people with diabetes who fast experience less hypo and hyperglycaemia and as well less glucose variability [39-41].

In Conclusion

Many people with diabetes having kidney disease fast Ramadan regardless of the risk factors. Education will help decrease the undesired consequences and AI will contribute in many ways so as to diminish the complications during fasting.

References

1. International Diabetes Federation. IDF Diabetes Atlas, 11th edn. Brussels, Belgium: International Diabetes Federation; 2025.
2. Hassanein M, Al Awadi FF, El Hadidy KES, Ali SS, Ehtay A, et al. (2019) The characteristics and pattern of care for the type 2 diabetes mellitus population in the MENA region during Ramadan: An international prospective study (DAR-MENA T2DM). *Diabetes Res Clin Pract* 151: 275-284.
3. Hassanein M, Al-Arouj M, Hamdy O, Bebakar WMW, Jabbar A, et al. (2017) Diabetes and Ramadan: Practical guidelines. *Diabetes Res Clin Pract* 126: 303-316.
4. Hassanein M, Afandi B, Ahmedani MY, Alamoudi RM, Alawadi F, et al. (2021) Diabetes and Ramadan: Practical guidelines. *Diabetes Res Clin Pract* 2022: 109185.
5. Surah Al-Baqarah (2025). <https://quran.com/al-baqarah/185>.

6. Salti I, Bénard E, Detournay B, Bianchi-Biscay M, 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: 2306-2311.
7. Babineaux SM, Toaima D, Boye KS, Zagar A, Tahbaz A, et al. (2015) Multi-country retrospective observational study of the management and outcomes of patients with Type 2 diabetes during Ramadan in 2010 (CREED). *Diabet Med* 32: 819-828.
8. Hassanein M, Ahmedani MY, Shaltout I, Alabood M, Buyukbese MA, et al. (2024) Ramadan fasting among adults with type 2 diabetes in five geographically different regions of the world: The DAR 2020 global survey. *Diabetes Epidemiology and Management* 16: 100229.
9. Hassanein M, Zainudin SB, Shaikh S, Shaltout I, Malek R, et al. (2024) An update on the current characteristics and status of care for Muslims with type 2 diabetes fasting during Ramadan: the DAR global survey 2022. *Curr Med Res Opin* 40: 1515-1523.
10. Hassanein M, Alamoudi RM, Kallash MA, Aljohani NJ, Alfadhli EM, et al. (2021) Ramadan fasting in people with type 1 diabetes during COVID-19 pandemic: The DaR Global survey. *Diabetes Res Clin Pract* 172: 108626.
11. Hassanein M, Hussein Z, Shaltout I, Wan Seman WJ, Tong CV, et al. (2021) The DAR 2020 Global survey: Ramadan fasting during COVID 19 pandemic and the impact of older age on fasting among adults with Type 2 diabetes. *Diabetes Res Clin Pract* 173: 108674.
12. Ponirakis G, Hassanein M, Afandi B, Hafidh K, Shaikh S, et al. (2025) Impact of Microvascular Complications on Glycemic Outcomes in People with Type 2 Diabetes Observing Ramadan Fasting. *Journal of Diabetes and Endocrine Practice* <https://www.thieme-connect.com/products/ejournals/pdf/10.1055/s-0045-1813011.pdf>.
13. Al-Arouj M, Bouguerra R, Buse J, Hafez S, Hassanein M, et al. (2005) Recommendations for management of diabetes during Ramadan. *Diabetes Care* 28: 2305-2311.
14. Al-Arouj M, Assaad-Khalil S, Buse J, Fahdil I, Fahmy M, et al. (2010) Recommendations for Management of Diabetes During Ramadan: Update 2010. *Diabetes Care* 33: 1895-1902.
15. Ibrahim M, Abu Al Magd, Annabi FA, Assaad-Khalil S, Ba-Essa EM, et al. (2015) Recommendations for Management of Diabetes During Ramadan: Update 2015. *BMJ Open Diabetes Research & Care* 3: e000108.
16. Ibrahim M, Davies MJ, Ahmad E, Annabi FA, Eckel RH, et al. (2020) Recommendations for Management of Diabetes During Ramadan: Update 2020, Applying the Principles of the ADA/EASD Consensus. *BMJ Open Diabetes Research & Care* 8: e001248.
17. Ibrahim M, Ba-Essa EM, Ahmed A, Ahmad E, Annabi FA, et al. (2025) Recommendations for the Management of Diabetes During Ramadan Applying the Principles of the ADA/ EASD Consensus: Update 2025. *Diabetes Metab Res Rev* 41: e70057.
18. Afandi B, Suliman M, Shaikh S, Beshyah SA, Hasannein M. The 2026 Update of the IDF-DAR Risk Calculator for Fasting in People with Diabetes. *Journal of Diabetes and Endocrine Practice* <https://www.thieme-connect.com/products/ejournals/pdf/10.1055/s-0045-1813010.pdf>.
19. Hassanein M, Malek R, Shaltout I, Sahay RK, Buyukbese MA, et al. (2023) SoliRam Study Investigators. Real-world safety and effectiveness of iGlarLixi in people with type 2 diabetes who fast during Ramadan: The SoliRam observational study. *Diabetes Metab Syndr* 17: 102707.
20. Hassanein M, Malek R, AlSifri S, Sahay RK, Buyukbese MA, et al. (2024) Safety and effectiveness of concomitant iGlarLixi and SGLT-2i use in people with T2D during Ramadan fasting: A SoliRam study subanalysis. *Diabetes Therapy* 15: 2309-2322.
21. Al Sifri S, Basiouny A, Echtay A, Al Omari M, Harman-Boehm I, et al. (2011) The incidence of hypoglycaemia in Muslim patients with type 2 diabetes treated with sitagliptin or a sulphonylurea during Ramadan: a randomised trial. 2010 Ramadan Study Group. *Int J Clin Pract* 65: 1132-1140.
22. Hassanein M, Hafidh K, Ahmedani Y, Odhaib SA, Shaltout I, et al. (2025) Effect of different insulin regimens on individuals with type 2 diabetes during Ramadan fasting in the DAR Global Surveys of 2020 and 2022. *J Diabetes Endocr Pract* <https://www.thieme-connect.com/products/ejournals/pdf/10.1055/s-0045-1811580.pdf>.
23. Büyükbeşe MA (2025) Experiences with Different Types of Insulin for People with Diabetes Who Fast Ramadan. *GISTU Journal of Health and Biological Sciences (GİBTÜ Sağlık ve Biyolojik Bilimler Dergisi)* 1: 103-108.
24. Alamoudi RM, Aljohani NJ, Alfadhli EM, Alzaman N, Alfadhly AF, et al. (2023) Fasting Ramadan in patients with T1DM - Saudi Arabia versus other countries during the COVID-19 pandemic. *Diabetes Metab Syndr* 17: 102676.
25. Hassanein M, Buyukbese MA, Malek R, Pilorget V, Naqvi M, et al. (2020) Real-world safety and effectiveness of insulin glargine 300 U/mL in participants with type 2 diabetes who fast during Ramadan: The observational ORION study. *Diabetes Res Clin Pract* 166: 108189.
26. Hassanein M, Yousuf S, Ahmedani MY, Albashier A, Shaltout I, et al. (2023) Ramadan fasting in people with diabetes and chronic kidney disease (CKD) during the COVID-19 pandemic: The DaR global survey. *Diabetes Metab Syndr* 17: 102799.
27. Eid YM, Sahnoud SI, Abdelsalam MM, Eichorst B (2017) Empowerment-Based Diabetes Self-Management Education to Maintain Glycemic Targets During Ramadan Fasting in People With Diabetes Who Are on Conventional Insulin: A Feasibility Study. *Diabetes Spectr* 30: 36-42.
28. Ghafoor E, Riaz M, Eichorst B, Fawwad A, Basit A (2015) Evaluation of Diabetes Conversation Map™ Education Tools for Diabetes Self-Management Education. *Diabetes Spectr* 28: 230-235.
29. McEwen LN, Ibrahim M, Ali NM (2015) Impact of an individualized type 2 diabetes education program on clinical outcomes during Ramadan. *BMJ Open Diabetes Research and Care* 3: e000111.
30. Ahmedani MY, Siddique M. (2019) Ramadan study group collaborators. Assessing the awareness and care of people with diabetes related to Ramadan fasting; a-cross sectional study from Pakistan. *J Diabetes Metab Disord* 19: 29-36.
31. Ahmedani MY, Ahsan S, Haque MSU (2017) Role of Ramadan specific diabetes education (RSDE); A prospective study. *Pak J Med Sci* 33: 586-593.
32. Ahmedani MY, Alvi SF (2016) Characteristics and Ramadan-specific diabetes education trends of patients with diabetes (CARE): a multinational survey (2014). *Int J Clin Pract* 70: 668-675.
33. Zainudin SB, Abu Bakar KNB, Abdullah SB, Hussain AB (2018) Diabetes education and medication adjustment in Ramadan (DEAR) program prepares for self-management during fasting with tele-health support from pre-Ramadan to post-Ramadan. *Ther Adv Endocrinol Metab* 9: 231-240.

34. Shaltout I, Zakaria A, Abdelwahab AM, Hamed A, Elsaid NH, et al. (2020) Culturally based pre-Ramadan education increased benefits and reduced hazards of Ramadan fasting for type 2 diabetic patients. *J Diabetes Metab Disord* 19: 179-186.
35. Hassanein M, Abdelgadir E, Bashier A (2019) The role of optimum diabetes care in form of Ramadan focused diabetes education, flash glucose monitoring system and pre-Ramadan dose adjustments in the safety of Ramadan fasting in high risk patients with diabetes. *Diabetes Res Clin Pract* 150: 288-295.
36. Al-Ozairi E, El Samad A, Al Kandari J, Aldibbiat AM (2019) Intermittent fasting could be safely achieved in people with type 1 diabetes undergoing structured education and advanced glucose monitoring. *Front Endocrinol (Lausanne)* 10: 84.
37. Oueslati I, Cherif L, Aloui E, Mabrouk M, Yazidi M, et al. (2024) Ramadan diurnal intermittent fasting in patients with diabetes: assessment of knowledge, practices, risk of complications, and impact of pre-Ramadan education. *J Diabetes Metab Disord* 24: 9.
38. (2026) Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: Standards of Care in Diabetes 2026. *Diabetes Care* 49: S89-S131.
39. Zhang L, Yang L, Zhou Z (2023) Data-based modeling for hypoglycemia prediction: Importance, trends and implications for clinical practice. *Front Public Health* 11: 1044059.
40. Shi M, Yang A, Lau ESH, Luk AOY, Ma RCW, et al. (2024) PLoS Med. A novel electronic health record-based, machine-learning model to predict severe hypoglycemia leading to hospitalizations in older adults with diabetes: A territory-wide cohort and modeling study 21: e1004369.
41. Liu K, Li L, Ma Y, Jiang J, Liu Z, et al. (2023) Machine Learning Models for Blood Glucose Level Prediction in Patients With Diabetes Mellitus: Systematic Review and Network Meta-Analysis. *JMIR Med Inform* 11: e47833.

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