Optimizing Kidney Disease Management during Ramadan: Evidence-Based Risk Stratification and Tailored Strategies

Sourabh Sharma[1], Manisha Sahay[2], Mastakim Ahmed Mazumder[3], Sanjay Kalra[4]

Abstract

Fasting during Ramadan poses distinct challenges for individuals with kidney disease, requiring a careful balance between spiritual commitments and health maintenance. This article combines insights from recent research and guidelines to offer a thorough framework for risk assessment. Patients are classified into low, moderate, and high-risk categories based on individual, environmental, and health-related factors. Management approaches are organized into four main areas: spiritual support, non-drug interventions, medication adjustments, and modifications to kidney replacement therapy (KRT). Evidence indicates that stable chronic kidney disease (CKD) patients, especially those in stages 1–3, and kidney transplant recipients with stable graft function can fast safely with careful supervision. Conversely, patients with advanced CKD, those on dialysis, and individuals with significant additional health issues are advised against fasting due to possible complications. Essential recommendations include optimizing hydration, customizing medication plans, conducting regular monitoring, and making dietary adjustments. By merging medical knowledge with cultural awareness, healthcare providers can facilitate safe fasting and enhance health outcomes during Ramadan.

Keywords: Ramadan, Chronic kidney disease, Religion, Fasting, Dialysis

DOI: https://doi.org/10.47391/JPMA.25-21

Introduction

Ramadan, the sacred month of fasting followed by Muslims around the globe, requires participants to refrain from eating, drinking, and taking medications from dawn until dusk. For those with chronic kidney disease (CKD), extended fasting can lead to risks such as dehydration, electrolyte imbalances, and a decline in kidney function.[1] Recent research has highlighted different impacts of fasting on renal health, with results varying based on the stage of CKD, age, existing health conditions, and location.[2] Although religious exceptions are available for individuals at risk of serious harm, many patients opt to fast, emphasizing the importance of personalized medical advice. This article combines findings from literature reviews and studies related to CKD, dialysis, and kidney transplantation to offer evidence-based strategies for managing kidney health during Ramadan.

Epidemiological Context

CKD is common in South Asia, largely due to the high incidence of diabetes and hypertension, which lead to considerable risks of death and illness. During Ramadan, the duration of fasting can vary significantly based on geographical location and the time of year, lasting anywhere from 10 to 20 hours. This variation greatly affects hydration levels and kidney health.[2]

Risk Stratification for Patients with Kidney Disease

Effective management begins with categorizing patients into risk groups based on host, environmental, and disease factors (Table). These considerations ensure patient safety while aligning care with their spiritual goals. We recommend to avoid fasting in moderate-high risk patients.

Risk Considerations

Extended fasting during Ramadan, particularly in warm climates, heightens the likelihood of dehydration and imbalances in electrolytes.[1,2] Individuals with severe chronic kidney disease, diabetes, or heart conditions are especially vulnerable and might need medical exemptions from fasting.

Effects of Fasting on Renal Function

Research results regarding the impact of fasting on kidney function vary. Although some studies indicate either stable renal function or betterment in proteinuria, others demonstrate reductions in eGFR or rises in serum creatinine. Factors such as age, stage of CKD, and hydration habits during non-fasting periods significantly effect fasting tolerance.[3]

Guidelines for Fasting

Guidelines for safe fasting suggest that one should end the

[1]Department of Nephrology, Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi; [2]Department of Nephrology, Osmania Medical College, Hyderabad; [3]Guwahati Metro Hospital, Guwahati, Assam; [4]Department of Endocrinology, Bharti Hospital, Karnal, India; University Center for Research & Development, Chandigarh University, Mohali, India;
Correspondence: Sanjay Kalra. e-mail: brideknl@gmail.com
ORCID ID: 0000-0003-1308-121X

Table: Risk stratification of CKD patients observing Ramadan.

Category	Low Risk	Moderate Risk	High Risk
Host Factors			
Age	< 60 years	60–70 years	> 70 years
Comorbidities	None or well-controlled	Mild-to-moderate (e.g., controlled DM)	Severe (e.g., HF, uncontrolled DM)
Hydration Awareness	Fully adherent	Partially adherent	Poor adherence
Nutritional Status	Well-nourished	Mild malnutrition	Moderate-to-severe malnutrition
Environmental Factors			
Fasting Duration	< 12 hours	12–15 hours	> 15 hours
Geographical Climate	Cool climate	Mildly warm	Hot/arid regions
Support System	Strong caregiver support	Limited caregiver support	No caregiver support
Disease Factors			
Potassium Status	< 5 mg/dL	5–5.5 mg/dL	> 5.5 mg/dL
Renal Function (eGFR)	> 60 mL/min	30–60 mL/min	< 30 mL/min
Urine Output	> 1000 mL/day	400–1000 mL/day	< 400 mL/day (Oliguria/anuria)
Dialysis Status	Not on dialysis	Not on dialysis but fluctuating parameters	On dialysis
History of AKI	None	One mild episode	Recurrent or severe episodes
Hospitalization Frequency	No recent admissions	1–2 in the last 6 months	> 2 in the last 6 months
Drug Regimen	Simple regimen	Complex regimen	Nephrotoxic drugs or polypharmacy
Transplant Status	> 1 year post-transplant, stable function	< 1 year post-transplant, stable function	Unstable or recent transplant

fast if serum creatinine increases by over 30% or if signs of worsening renal function appear.[3] Patients with diabetic chronic kidney disease are frequently considered high-risk and are typically recommended to avoid fasting because of the heightened dangers of hypoglycaemia, dehydration, and ketoacidosis.[2,3]

Special Considerations for Dialysis and Transplant Patients

1. Transplant Patients

Research shows that kidney transplant recipients who are stable for over a year after surgery can engage in fasting without negative consequences, as long as they stay hydrated and follow their medication regimens. Those with unstable graft function or recent transplants should steer clear of fasting due to increased risks of rejection and dehydration.[4]

2. Dialysis Patients

Fasting is typically not recommended for patients undergoing haemodialysis and peritoneal dialysis because of potential fluid and electrolyte imbalances. If fasting is opted for, dialysis timings should be modified to coincide with hours when fasting is not taking place, while carefully observing ultrafiltration and any complications that may arise during dialysis.[3,5]

Management Strategies

1. Spiritual Guidance

Spiritual guidance can be sought by patients with kidney disease to reach informed decisions.[6]

Religious Exemptions: Highlight Islamic teachings permitting exemptions for high-risk individuals, emphasizing the option of fidya or kaffarah (compensatory deeds) for missed fasts.

Consultation with Scholars: Encourage patients to seek advice from religious authorities to make informed decisions.

Health as Worship: Reinforce the idea that preserving health aligns with spiritual duties.

Alternative Practices: Suggest other acts of devotion, such as increased prayer or charity, for those unable to fast.

Community Support: Facilitate discussions with family and caregivers to align expectations and enhance support.

2. Non-Pharmacological Interventions

Hydration: Encourage 1.5–2 litres of water intake during non-fasting hours, focussing on Suhoor and Iftar. Avoid caffeinated or sugary beverages that may exacerbate dehydration. Also, Person specific beverage advice is essential to suit preferences and requirements. Beverage hydration index (BHI) is an index which helps us judge the hydrating capacities of different beverages for this purpose.[6] In a study done by Diana S et al,[8] drinking pattern of 4-2-2 glasses (sequence of four glasses at iftar, two glasses at nighttime, two glasses at suhoor) had a significantly higher chance to adhere with recommended fluid intake compared to other patterns prevalent in that study cohort (most common being 2-4-2 pattern).

Dietary Adjustments: Promote meals rich in water and fibre, such as soups, stews, and hydrating fruits like watermelon. Minimize salty and fried foods to reduce thirst and fluid retention.

Monitoring: Educate patients to self-monitor weight,

blood pressure, and urine output for signs of fluid imbalance.

Physical Activity: Recommend light activity during non-fasting hours to maintain physical health.

Sleep Hygiene: Advise structured sleep patterns to manage disruptions caused by fasting schedules.

3. Pharmacological Adjustments

Diuretics: Shift doses to Suhoor to minimize nocturnal diuresis; consider dose reduction for high-risk patients.

SGLT2 Inhibitors: Pause therapy for patients with dehydration risks or adjust dosing schedules (sick day rule).

RAAS Inhibitors: Monitor serum potassium levels closely and adjust therapy as needed.

Phosphate Binders: Administer during meals at Iftar and Suhoor for optimal efficacy.

Post-Transplant Medications: Ensure strict adherence to immunosuppressive therapy; monitor drug levels during fasting periods.

4. Kidney Replacement Therapy (KRT) Adjustments

Dialysis Timing: Schedule sessions during non-fasting hours to reduce the risk of dehydration and fatigue.

Fluid Management: Adjust ultrafiltration rates to prevent haemodynamic instability during fasting.

Electrolyte Monitoring: Regularly monitor serum potassium, phosphorus, and sodium to avoid imbalances.

Dietary Support: Tailor protein, phosphate, and potassium intake to dialysis needs.

Emergency Access: Provide patients with an action plan for symptoms such as fatigue, dizziness, or worsening renal function.

Conclusion

Effectively managing kidney diseases during Ramadan should involve a comprehensive strategy considering the personal health risks, cultural traditions, and medical requirements. By combining research-backed methods with a focus on the patient's needs, healthcare professionals can facilitate safe fasting while emphasizing overall health and wellness. Successful outcomes depend on the teamwork between patients, caregivers, and healthcare providers.

References

1. Emami-Naini A, Roomizadeh P, Baradaran A, Abedini A, Abtahi M. Ramadan fasting and patients with renal diseases: A mini review of the literature. J Res Med Sci. 2013 ;18:711-6.
2. Malik S, Bhanji A, Abuleiss H, Hamer R, Shah SH, Rashad R, Junglee N, Waqar S, Ghouri N. Effects of fasting on patients with chronic kidney disease during Ramadan and practical guidance for healthcare professionals. Clin Kidney J. 2021;14:1524-1534.
3. Ahmad S, Chowdhury TA. Fasting during Ramadan in people with chronic kidney disease: a review of the literature. Ther Adv Endocrinol Metab. 2019;10:2042018819889019.
4. Malik S, Hamer R, Shabir S, Youssouf S, Morsy M, Rashid R, Waqar S, Ghouri N. Effects of fasting on solid organ transplant recipients during Ramadan - a practical guide for healthcare professionals. Clin Med (Lond). 2021;21:e492-e498.
5. Al Wakeel J, Mitwalli AH, Alsuwaida A, Al Ghonaim M, Usama S, Hayat A, Shah IH. Recommendations for fasting in Ramadan for patients on peritoneal dialysis. Perit Dial Int. 2013;33:86-91.
6. Abolaban H, Al-Moujahed A. Muslim patients in Ramadan: A review for primary care physicians. Avicenna J Med. 2017;7:81-87.
7. Kalra S, Kapoor N, Sharma S. Beverage Hydration Index. J Ren Nutr Metab. 2024; 9: 43-45.
8. Sunardi D, Chandra DN, Medise BE, Friska D, Manikam NRM, Lestari W, Insani PNC, Ayusari AA, Mayasari D, Saftarina F, Sari DK, Ulvie YNS. Assessment of water consumption during Ramadan intermittent fasting: Result from Indonesian cross-sectional study. Front Nutr. 2022;9:922544.