Impact of Ramadan Fasting on Renal Function in Patients with Diabetic and Non-Diabetic Chronic Kidney Disease

March, 2025

Zeynep Ardahan[1], Ömer Celal Elçioğlu[2]

[1]Bezmialem Vakıf University, Faculty of Medicine, Istanbul, Turkey.

[2]Bezmialem Vakıf University, Faculty of Medicine, Department of Nephrology, Istanbul, Turkey.

PLAN

INTRODUCTION

AIM

MATERIAL & METHOD

RESULTS

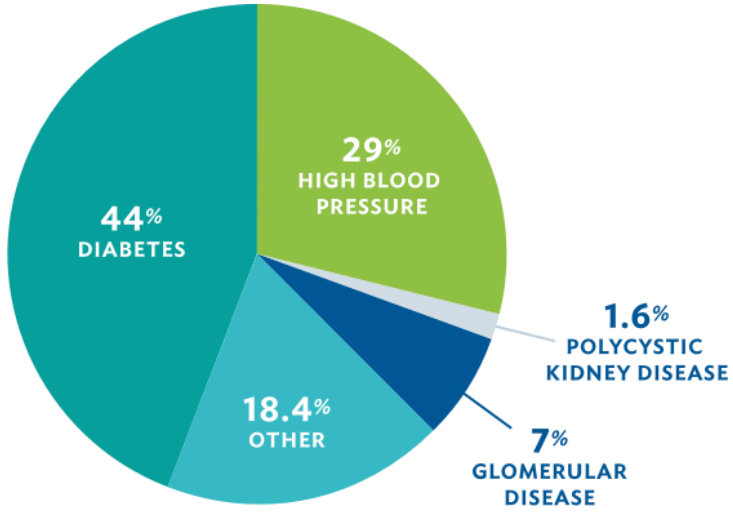
CONCLUSION

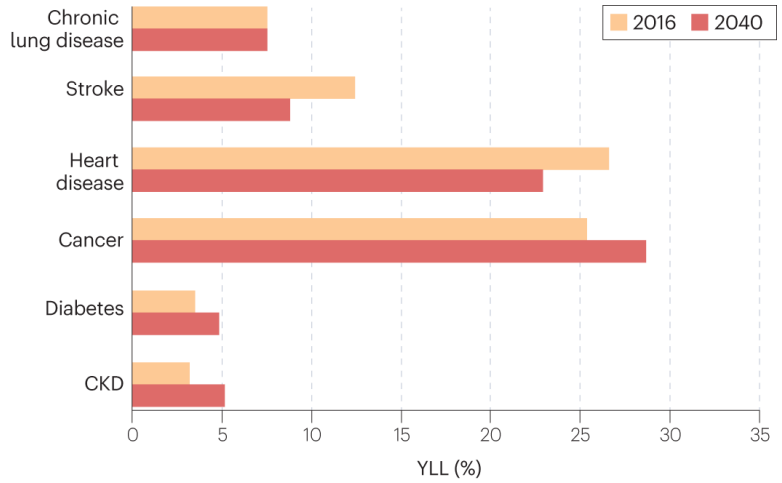
INTRODUCTION

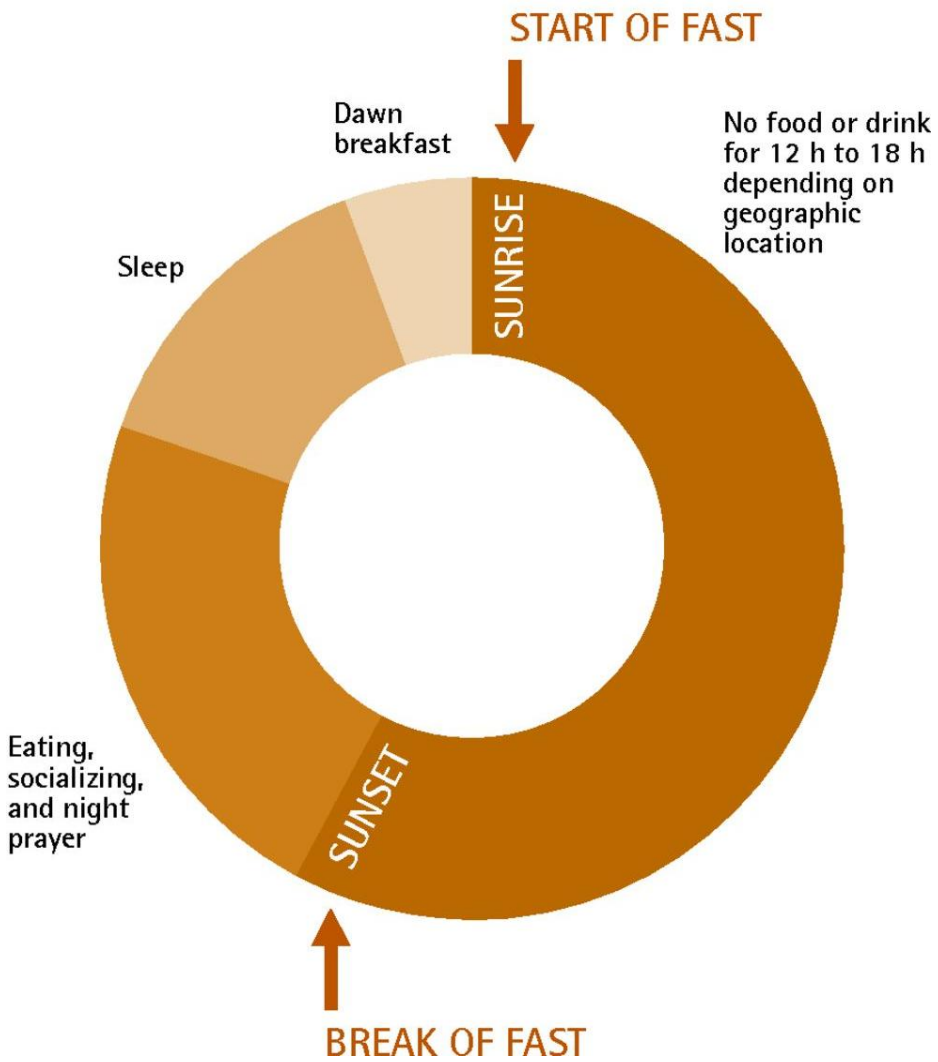
- Chronic kidney disease (CKD) is a significant global public health concern, affecting approximately 10% of the world's population.

- CKD defined as abnormalities in kidney structure or function present for more than three months, with implications for health. These abnormalities include markers of kidney damage or a decreased glomerular filtration rate (GFR) of less than 60 mL/min/1.73 m².

- The progressive nature of CKD leads to reduced quality of life and increased mortality rates among affected individuals. Patients with CKD stages 2-4 are particularly sensitive to dietary and lifestyle modifications, which can slow disease progression.







- Ramadan fasting, one of the Five Pillars of Islam, involves complete abstinence from food and drink from sunrise to sunset.
- Depending on the season and geographical location, the fasting duration can vary between 12 and 18 hours. Islamic teachings provide exemptions from fasting for individuals with significant health conditions, such as CKD, to prevent potential harm. However, many patients with CKD choose to fast during Ramadan due to personal, cultural, or religious reasons.

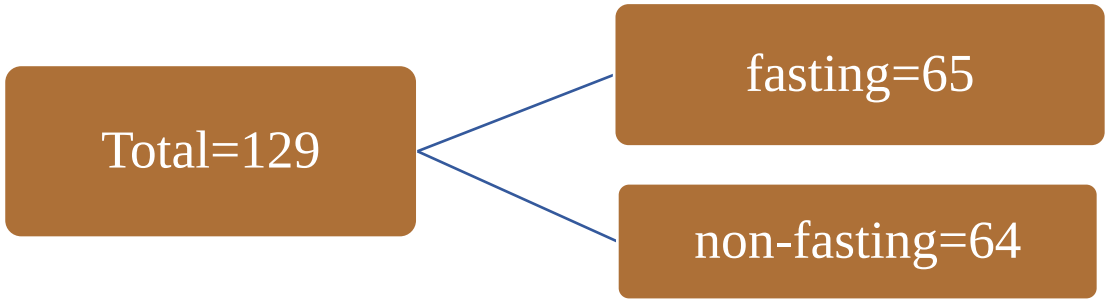
AIM

- This study aims to evaluate the impact of Ramadan fasting on renal function in patients with CKD stages 2-4, specifically comparing outcomes between fasting and non-fasting groups.

MATERIAL AND METHODS

- This observational study was conducted at the Nephrology Clinic of Bezmialem Vakıf University Faculty of Medicine. Data collection began retrospectively for the three months preceding Ramadan (11 March 2024 to 9 April 2024) and continued prospectively for the three months following Ramadan. Ethical approval was obtained from the local ethics committee. Patients were informed about potential health risks associated with fasting.

- Participants (n=129) were divided into fasting (n=65) and non-fasting (n=64) groups. Primary outcome was the change in estimated glomerular filtration rate (ΔeGFR) using the CKD-EPI 2021 equation. Secondary outcomes included changes in inflammatory markers and subgroup analyses by comorbidity status.



Inclusion Criteria:

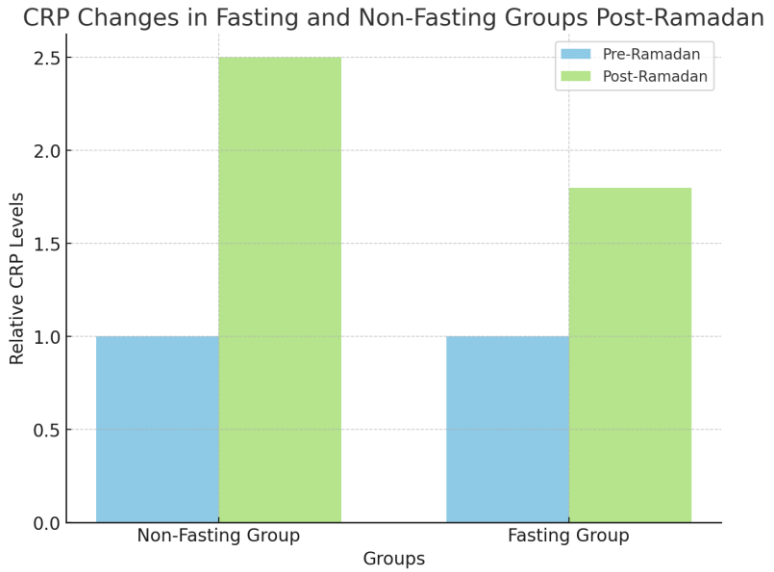
- Patients aged 18 to 80 years with an eGFR of 15–90 mL/min/1.73 m², diagnosed with diabetic or non-diabetic nephropathy.

Exclusion Criteria:

- Development of acute kidney injury during Ramadan.
- Advanced CKD (stage 5).
- Presence of liver cirrhosis.
- Patients undergoing dialysis.
- History of low ejection fraction heart failure.
- Undergoing angiographic or surgical procedures during follow-up.
- Initiation or discontinuation of medications affecting eGFR during the follow-up period.

RESULTS

- ΔeGFR was not significantly different between fasting and non-fasting groups. **(p=0.232**).
- Inflammatory markers such as CRP increased significantly in both groups post-Ramadan, though changes were greater in the non-fasting group. This supports the hypothesis that fasting may confer anti-inflammatory benefits
- Subgroup analyses revealed no significant differences in ΔeGFR among diabetic and non-diabetic patients. Fasting was well tolerated, even among patients on oral antidiabetic or antihypertensive medications.



CONCLUSION

- Ramadan fasting did not adversely affect renal function in CKD patients under medical supervision. These findings suggest that stable CKD patients can fast safely with individualized risk assessment and monitoring.
- Similarly, among diabetic patients, fasting appeared to be safe, with no significant adverse effects on renal function.
- Our findings align with previous studies suggesting that Ramadan fasting is generally safe for CKD patients.

References

1. Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group. KDIGO 2024 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. *Kidney Int Suppl*. 2024;105(4S):1-150.

2. Greenberg JH, Hameed S, Nasrallah N, Elgazzar N. Ramadan. In: *Encyclopaedia of Islam and Islamic World*. 2nd ed. New York: Macmillan Reference USA; 2021.

3. Hassan S, Hassan F, Abbas N, Ali T, Smith J, Kumar R. Does Ramadan fasting affect hydration status and kidney function in CKD patients? *Ann Nutr Metab*. 2018;72(3):241-247.

4. Malik S, Bhanji A, Abuleiss H, Rashad R, Junglee N, Waqar S, et al. Effects of fasting on patients with chronic kidney disease during Ramadan and practical guidance for healthcare professionals. *Clin Kidney J*. 2021;14(6):1524-1534.

5. Chowdhury TA, Khan H, Lasker SS, Khan S, Ahmed F. Fasting outcomes in people with diabetes and chronic kidney disease in East London during Ramadan 2018: The East London diabetes in Ramadan survey. *Diabetes Res Clin Pract*. 2019;152:166-170.

6. Bakhit AA, Kurdi AM, Wadera JJ, Alsuwaida AO. Effects of Ramadan fasting on moderate to severe chronic kidney disease. *Saudi Med J*. 2017;38(1):48-52.

THANK YOU

Contact: 190101067@bavu.edu.tr