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ABSTRACT

Systolic Inter-Arm Blood Pressure Difference and Estimated Glomerular Filtration Rate in Type 2 Diabetic Patients in Palestine: a cross-sectional study

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Background: The Palestinian society's rates of Diabetes Mellitus are among the highest worldwide rates. One of the common diabetes complications is diabetic chronic kidney disease. Diabetic chronic kidney disease is associated with inter-arm blood pressure difference, defined as a ⩾10mmHg difference in systolic blood pressure between the right and left arms as a predictor. Several studies have shown that inter-arm blood pressure difference is related to an increased risk of death and vascular problems in patients with type-2 diabetes mellitus.

Objectives: This study aimed to investigate the association between systolic inter-arm blood pressure differences (IABPD) and the estimated glomerular filtration rate (eGFR), as well as chronic kidney disease (CKD), in patients with type 2 diabetes mellitus (T2DM).

Methods: This cross-sectional study included 189 Palestinians diagnosed with T2DM. Data were collected through personal interviews, medical records and three separate blood pressure measurements from both arms. Patients were stratified in two ways:

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based on systolic IABPD ≥15 mmHg and the presence of CKD, indicated by an eGFR of <60 mL/min/1.73 m2 over a three months period. We used simple and multiple linear regression analyses to clarify the association between systolic IABPD (mmHg) and eGFR and to identify independent predictors for eGFR.

Results: The mean age was 61.3 years, with a female percentage of 57.7%. The prevalence of systolic IABPD ≥15 mmHg and CKD was 27.5% and 30.2%, respectively. Among patients with eGFR <60 mL/min/1.73 m2, the median systolic IABPD was 12.5 mmHg (interquartile range (IQR), 13.5 mmHg), whereas in patients with eGFR ≥60 mL/min/1.73 m2, it was 7.5 mmHg (IQR, 9.8 mmHg) with a significant difference (p = .021). The results of the multiple linear regression model did not reveal an independent association between systolic IABPD and eGFR, with an unstandardized coefficient (B) of -0.257 (95% confidence interval (CI), -0.623 to 0.109; p = .167). However, older age (B, -0.886; 95% CI, -1.281 to -0.49; p < .001), hypertension (B, -12.715; 95% CI, -22.553 to -2.878; p = .012) and a longer duration of DM (B, -0.642; 95% CI, -1.10 to -0.174; p = .007) were significantly and negatively associated with eGFR.

Conclusions: Systolic IABPD did not exhibit an independent association with eGFR in T2DM patients. However, older age, a previous history of hypertension, and a longer duration of DM were all significantly associated with lower eGFR.

Keywords: Type 2 diabetes mellitus; chronic kidney disease; diabetes complications; estimated glomerular filtration rate; systolic inter-arm blood pressure difference.

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