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ABSTRACT

Association Between Inter-Arm Blood Pressure Difference and Chronic Kidney Disease in Type 2 Diabetic Patients

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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 ≥ 10 mmHg 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.

Rationale: The effect of inter-arm blood pressure difference on the development of organ damage is still debated, with no research focusing on the impact of inter-arm blood pressure difference on the development of chronic kidney disease in type 2 diabetes patients. As a result, this study aims to investigate the association between systolic inter-arm blood pressure difference and the development of chronic kidney disease in type 2 diabetic patients.

Methods: This cross-sectional study included 189 Palestinian patients with type 2 diabetes mellitus reporting to the West Bank hospitals between August 2021 and June 2022. Data were collected through personal interviews, medical records, and systemized blood pressure



measurements. Blood pressure measurements were taken three times in a sequence of the right arm and then the left arm; with a 2-minute resting period between each measurement. The study was approved by the Palestinian Ministry of Health and Al-Quds University Ethics Committee. SPSS version 26.0 and the R environment v.4.1.3 were used for data analysis. The chi-square test was used for categorical variables, and independent sample t-test for continuous variables. univariate analysis and multiple logistic regression analysis were used to examine if IABPD ≥ 15 is independently associated with CKD.

Results: The prevalence of systolic inter-arm blood pressure difference ≥ 15 was 27.5% (n=52), with a higher prevalence in the chronic kidney disease group compared to those without chronic kidney disease (38.6% vs 22.7%, P-value=0.025). Using multivariate logistic regression adjusted for sex, age, body mass index, duration of Diabetes Mellitus, history of hypertension, and history of cardiovascular disease. Thus, inter-arm blood pressure difference ≥ 15 was not an independent risk factor for predicting the development of chronic kidney disease.

Conclusion: The inter-arm blood pressure difference is not an independent risk factor for developing chronic kidney disease in patients with type 2 diabetes mellitus. Thus, there is no clear value in utilizing it as a predictor for the development of chronic kidney disease in type-2 diabetic patients.

Keywords: Diabetes Mellitus, chronic kidney disease, Systolic inter-arm blood pressure difference.