

Correlation of Urinary Nephryn with Albuminuria as Early Marker of Diabetic Nephropathy in Type 2 Diabetes Mellitus

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Abstract

Background: Diabetic nephropathy (DN) is a leading cause of end-stage renal disease and a public health concern nowadays. Early detection is imperative to halt the progression. Albuminuria has been considered a gold standard for early detection of DN, but it has several limitations. Nephryn is a podocyte-specific protein and a key structural element of the glomerular filtration barrier, which has been considered a promising early marker of DN.

Objectives: To determine the correlation of urinary nephryn with albuminuria as an early marker of diabetic nephropathy in type 2 DM.

Methods: This case-control study was performed from July 2023 to December 2024. A total 86 participants were recruited purposively and allocated into four groups. Group A comprised non-diabetic healthy individuals, while other three groups consisted of people with type 2 DM, categorized into Group B (normoalbuminuria), Group C (microalbuminuria), and Group D (macroalbuminuria). Informed written consent was taken. History, clinical evaluation, and laboratory investigations, including UACR, urinary nephryn, s. creatinine, urine R/M/E, HbA1c, FPG, and PPG were done. SPSS version 26.0 was used for statistical analysis. P-value <0.05 was considered significant.

Result: Urinary nephryn increased progressively and significantly across the group and showed significant positive correlations with HbA1c & UACR and a negative correlation with eGFR. It has a very high and significant odds ratio of 116.83. ROC curve of urinary nephryn revealed AUC 0.977 (≥ 0.75 ng/ml) with 92.16% sensitivity and 90.91% specificity for predicting DN. It was 100% positive among diabetes with micro or macroalbuminuria, and 76.19% positive in those with normoalbuminuria.

Conclusion: Urinary nephryn revealed a significant positive correlation with UACR in people with type 2 DM. Even in the normoalbuminuria stage, its significant positivity suggests that it could be a more reliable early predictive marker of diabetic nephropathy than UACR. [*J Assoc Clin Endocrinol Diabetol Bangladesh*, 2025;4(Suppl 1): S46]

Keywords: Urinary nephryn, Albuminuria, Diabetic nephropathy

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