

# Korelasi Micro RNA-21 dengan Nefrin, Podosin, dan Rasio Albumin Kreatinin Urin pada Pasien Penyakit Ginjal Diabetik = Correlation of Micro RNA-21 with Nephryn, Podocin, and Urinary Albumin Creatinine Ratio in Diabetic Kidney Disease Patients

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## Abstrak

Latar Belakang: Penyakit ginjal diabetik (PGD) merupakan komplikasi mikrovaskular yang paling sering terjadi pada diabetes melitus. Podositopati merupakan kunci utama dari kerusakan glomerular pada PGD. miRNA-21 merupakan regulator epigenetik yang mempunyai peran dalam kerusakan podosit pada PGD, namun hasil dari penelitian yang sudah ada sebelumnya masih menyisakan kontroversi tentang peran miRNA-21 pada patogenesis PGD. **Tujuan:** Mengetahui korelasi antara kadar miRNA-21 dengan kadar nefrin urin, podosin urin, dan rasio albumin kreatinin urin pada pasien PGD. **Metode:** Studi potong lintang terhadap 42 pasien PGD di RSUPN Cipto Mangunkusumo Jakarta selama periode April sampai Juli 2023. Uji korelasi dilakukan untuk menilai hubungan miRNA-21 dengan nefrin, podosin, dan rasio albumin kreatinin urin. Regresi linier dilakukan untuk menilai variabel perancu terhadap hubungan tersebut. **Hasil:** Didapatkan hasil rerata ekspresi relatif miRNA-21 0,069 (0,024), median nefrin 35,5 (15,75 – 51,25)ng/ml, median podosin 0,501 (0,442– 0,545) ng/mL, dan rasio albumin kreatinin urin 150 (94,56 – 335,75) ng/ml. Ditemukan korelasi antara miRNA-21 dengan nefrin ( $r = 0,598$ ;  $p = <0,0001$ ). Ditemukan korelasi antara miRNA-21 dengan rasio albumin kreatinin urin ( $r = 0,604$ ;  $p = <0,0001$ ). Tidak didapatkan korelasi antara miRNA-21 dengan podosin. **Simpulan:** Terdapat korelasi positif antara miRNA-21 dengan nefrin dan rasio albumin kreatinin urin namun tidak didapatkan korelasi yang bermakna antara miRNA-21 dengan podosin urin.

.....Diabetic kidney disease (DKD) is the most common microvascular complication in diabetes mellitus. Podocytopathy is a key component of glomerular damage in DKD. miRNA-21 is an epigenetic regulator that plays a role in podocyte damage in DKD, however, the results of previous studies have not resolved the controversy about the role of miRNA-21 in the pathogenesis of DKD. **Objective:** The aim is to investigate the correlation between miRNA-21 levels and the urinary nephryn, urinary podosin, and urinary albumin-creatinine ratio (uACR) in patients with DKD. **Methods:** A cross-sectional study of 42 patients with DKD was conducted at Cipto Mangunkusumo Hospital Jakarta from April to June 2023. A correlation test was performed to assess the association of miRNA-21 with the nephryn, podosin, and uACR. A linear regression test was performed to assess the confounding variables in these relationships. **Results:** The mean relative expression of miRNA-21 was 0.069 (0.024), the median nephryn was 35.5 (15.75 - 51.25) ng/ml, the median podocin was 0.516 (0.047 - 0.620) ng/ml, and the uACR was 150 (94.56 - 335.75) ng/ml. There was a correlation between miRNA-21 and nephryn ( $r = 0.598$ ;  $p = <0.0001$ ). There was a correlation between miRNA-21 and the uACR ( $r = 0.604$ ;  $p = <0.0001$ ). No correlation was found between miRNA-21 and podocin. **Conclusions:** There was a positive correlation between miRNA-21 and nephryn and urinary albumin-creatinine ratio, but no significant correlation between miRNA-21 and urinary podocin.