

ABSTRAK

HUBUNGAN KADAR HbA1c DENGAN MIKROALBUMINURIA PADA PASIEN PROLANIS DM DI LABORATORIUM PRODIA BALIKPAPAN TAHUN 2025

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Diabetes melitus merupakan penyakit metabolik kronis yang dapat menyebabkan komplikasi mikrovaskular, salah satunya nefropati diabetik yang ditandai dengan munculnya mikroalbuminuria. Kadar hemoglobin terglikasi (HbA1c) mencerminkan kontrol glikemik selama 2–3 bulan terakhir dan diduga berhubungan dengan kerusakan ginjal. Penelitian ini bertujuan menganalisis hubungan kadar HbA1c dengan mikroalbuminuria yang dinyatakan sebagai rasio albumin-kreatinin urin (AUK) pada pasien Prolanis DM di Laboratorium Prodia Balikpapan tahun 2025. Penelitian menggunakan desain observasional analitik dengan pendekatan *cross-sectional* menggunakan data sekunder hasil pemeriksaan laboratorium. Sebanyak 361 sampel dipilih dari populasi 3.660 pasien menggunakan teknik *simple random sampling*. Uji normalitas dilakukan dengan Kolmogorov-Smirnov dan analisis hubungan menggunakan uji korelasi Spearman. Rata-rata kadar HbA1c sebesar 7,95% (SD=2,24), dengan 59,3% pasien memiliki HbA1c $\geq 7\%$. Median AUK sebesar 47,45 mg/g (1,69–8.843,18 mg/g), dengan 48,5% pasien mengalami mikroalbuminuria dan 16,1% makroalbuminuria. Kedua variabel tidak berdistribusi normal ($p < 0,001$). Uji Spearman menunjukkan hubungan positif yang bermakna antara kadar HbA1c dan AUK ($r = 0,330$; $p < 0,001$). Disimpulkan bahwa peningkatan kadar HbA1c berkorelasi dengan peningkatan AUK, meskipun kekuatan korelasinya lemah. Hasil ini menunjukkan pentingnya pengendalian glikemik untuk mencegah komplikasi ginjal pada pasien diabetes melitus.

Kata kunci: HbA1c, mikroalbuminuria, rasio albumin-kreatinin urin, Prolanis, diabetes melitus.

ABSTRACT

RELATIONSHIP BETWEEN HbA1c LEVELS AND MICROALBUMINURIA IN PROLANIS DIABETES MELLITUS PATIENTS AT PRODIA LABORATORY BALIKPAPAN IN 2025

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Diabetes mellitus is a chronic metabolic disease that may lead to microvascular complications, including diabetic nephropathy characterized by microalbuminuria. Glycated hemoglobin (HbA1c) reflects glycemic control over the previous 2–3 months and may be associated with renal damage. This study aimed to analyze the relationship between HbA1c levels and microalbuminuria expressed as the urine albumin-to-creatinine ratio (ACR) among Prolanis diabetes mellitus patients at Prodia Laboratory Balikpapan in 2025. An analytical observational study with a *cross-sectional* design was conducted using secondary laboratory data. A total of 361 samples were selected from 3,660 patients through *simple random sampling*. Data were analyzed using the Kolmogorov-Smirnov normality test and Spearman's rank correlation test. The mean HbA1c level was 7.95% (SD=2.24), with 59.3% of patients having HbA1c $\geq 7\%$. The median ACR was 47.45 mg/g (1.69–8,843.18 mg/g); 48.5% of patients had microalbuminuria and 16.1% had macroalbuminuria. Both variables were not normally distributed ($p < 0.001$). Spearman's correlation demonstrated a significant positive association between HbA1c and ACR ($r = 0.330$; $p < 0.001$). In conclusion, higher HbA1c levels were associated with increased ACR, although the correlation was weak. These findings emphasize the importance of glycemic control to prevent early renal complications in patients with diabetes mellitus.

Keywords: HbA1c, microalbuminuria, albumin-to-creatinine ratio, Prolanis, diabetes mellitus.