

ABSTRAK

Latar Belakang : Gagal jantung (HF) dan diabetes melitus tipe 2 (T2DM) memiliki prevalensi tinggi dan sering muncul bersamaan, yang memperburuk prognosis pasien. Hiperglikemia kronis dapat memicu disfungsi otot jantung melalui mekanisme stres oksidatif dan akumulasi AGE.

Tujuan: Mengetahui korelasi antara indeks kendali glikemik (HbA1c) dengan fraksi ejeksi ventrikel kiri (LVEF) pada pasien HF dengan T2DM.

Metode: Penelitian analitik observasional dengan rancangan *cross-sectional* menggunakan data sekunder rekam medis pasien rawat inap di RSUP Dr. Sardjito periode Januari 2021–Januari 2024. Analisis korelasi menggunakan uji Spearman Rank, analisis bivariat menggunakan T-test, uji Mann Whitney U, dan tabel kontingensi. Analisis multivariat menggunakan regresi logistik.

Hasil: Melibatkan 117 subjek dengan rerata usia $60,34 \pm 8,678$ tahun. Median HbA1c adalah 8,6% dan median LVEF adalah 35%. Analisis Spearman menunjukkan tidak terdapat korelasi signifikan antara HbA1c dengan LVEF ($r_s = -0,008$; $p = 0,929$). Uji Chi-Square juga menunjukkan tidak ada hubungan signifikan antara kategori HbA1c ($<8\%$ vs $\geq 8\%$) dengan fenotipe HFpEF ($p = 0,319$). Analisis multivariat menemukan hipertensi sebagai satu-satunya prediktor signifikan yang berhubungan dengan fenotipe HF ($p = 0,002$; OR 0,041).

Kesimpulan: Tidak terdapat hubungan bermakna antara kadar HbA1c dengan nilai LVEF maupun distribusi fenotipe gagal jantung pada populasi penelitian ini.

Kata Kunci: HbA1c, LVEF, Gagal Jantung, Diabetes Melitus Tipe 2

ABSTRACT

Background: Heart failure (HF) and type 2 diabetes mellitus (T2DM) have a high prevalence and often coexist, which significantly worsens patient prognosis. Chronic hyperglycemia can trigger cardiac muscle dysfunction through mechanisms such as oxidative stress and advanced glycation end products (AGE) accumulation.

Objective: This study aimed to determine the correlation between the glycemic control index (HbA1c) and left ventricular ejection fraction (LVEF) in HF patients with T2DM.

Method: This was an observational analytical study with a cross-sectional design using secondary medical record data of inpatients at RSUP Dr. Sardjito for the period January 2021–January 2024. Correlation analysis used the Spearman Rank test, while bivariate analysis utilized T-tests, Mann-Whitney U tests, and contingency tables. Multivariate analysis was conducted using logistic regression.

Results: The study involved 117 subjects with a mean age of 60.34 ± 8.678 years. The median HbA1c was 8.6% and the median LVEF was 35%. Spearman analysis showed no significant correlation between HbA1c and LVEF ($r_s = -0,008$; $p = 0,929$). Chi-Square tests also indicated no significant relationship between HbA1c categories ($<8\%$ vs. $\geq 8\%$) and the HFpEF phenotype ($p = 0,319$). Multivariate analysis identified hypertension as the only significant predictor associated with the HF phenotype ($p = 0.002$; OR 0.041).

Conclusion: There is no significant relationship between HbA1c levels and LVEF values or heart failure phenotype distribution in this study population.

Keywords: HbA1c, LVEF, Heart Failure, Type 2 Diabetes Mellitus.