

## **ABSTRACT**

**Background:** Heart failure is a complex syndrome characterized by shortness of breath and fatigue, accompanied by structural and functional changes, and neurohormonal activation. This chronic process is thought to affect leukocytes, including lymphocytes. Recent research suggests that a low relative lymphocyte count may be associated with decreased cardiac function in chronic heart failure.

**Objective:** To determine the relationship between the relative lymphocyte count and left ventricular ejection fraction (LVEF) in patients with chronic heart failure.

**Methods:** This cross-sectional study was conducted from March to June 2025 at RSUD Raden Mattaher Jambi. Data were collected from patient medical records, including lymphocyte counts upon hospital admission and LVEF measured using echocardiography several days later. Bivariate analysis was performed to examine the relationship between leukocyte counts and LVEF using the Pearson correlation test.

**Results:** Of the 123 patients with chronic heart failure, the majority were male (72.4%), with normal relative lymphocyte counts (68.3%) and low LVEF (82.9%). The average age of the patients was 56 years, with a prevalence of diabetes (22.8%), dyslipidemia (7.3%), hypertension (40.7%), arrhythmia (17.9%), coronary heart disease (69.1%), and valvular heart disease (74.8%). Pearson's statistical test results showed no significant correlation between the relative lymphocyte count and LVEF ( $p = 0.072$ ;  $r = -0.163$ ).

**Conclusion:** No significant correlation between the relative lymphocyte count and left ventricular ejection fraction in patients with chronic heart failure.

**Keywords:** Relative Lymphocyte Count, Left Ventricular Ejection Fraction, Chronic Heart Failure

## ABSTRAK

**Latar belakang:** Gagal jantung adalah sindroma kompleks dengan gejala sesak napas dan kelelahan, disertai perubahan struktural, fungsional, dan aktivasi neurohormonal. Proses kronis ini diduga mempengaruhi leukosit, termasuk limfosit. Penelitian terbaru menunjukkan bahwa rendahnya jumlah limfosit relatif dapat berkaitan dengan penurunan fungsi jantung pada gagal jantung kronis.

**Tujuan:** Mengetahui hubungan jumlah limfosit relatif dan left ventricular ejection fraction (LVEF) pada pasien gagal jantung kronis.

**Metode:** Penelitian *cross-sectional* dilakukan pada Maret-Juni 2025 di RSUD Raden Mattaher Jambi. Data dikumpulkan dari rekam medis pasien, termasuk jumlah limfosit pada saat masuk rumah sakit dan LVEF yang diukur menggunakan ekokardiografi beberapa hari kemudian. Analisis bivariat dilakukan untuk menguji hubungan antara jumlah leukosit dan LVEF menggunakan uji korelasi Pearson.

**Hasil:** Dari 123 pasien gagal jantung kronis, mayoritas berjenis kelamin laki-laki (72,4%), dengan jumlah limfosit relatif normal (68,3%) dan LVEF rendah (82,9%). Rata-rata umur pasien 56 tahun dengan prevalensi penyakit diabetes (22,8%), dislipidemia (7,3%), Hipertensi (40,7%), Aritmia (17,9%), PJK (69,1%), kelainan katup jantung (74,8%). Hasil uji statistik Pearson menunjukkan tidak terdapat korelasi signifikan antara jumlah limfosit relatif terhadap LVEF ( $p = 0,072$ ;  $r = -0,163$ )

**Kesimpulan:** Tidak terdapat korelasi signifikan antara limfosit relatif terhadap fraksi ejeksi ventrikel kiri pada pasien gagal jantung kronis.

**Kata kunci:** Limfosit Relatif, Fraksi Ejeksi Ventrikel Kiri, Gagal Jantung Kronis