

KORELASI JUMLAH LEUKOSIT DAN *NEUTROPHIL TO LYMPHOCYTE RATIO* (NLR) DENGAN SUBTIPE *CARCINOMA MAMMAE* DI RSUD PROF. Dr. MARGONO SOEKARJO PURWOKERTO

ABSTRAK

Latar belakang: *Carcinoma mammae* merupakan kanker dengan insidensi dan mortalitas tinggi pada wanita dan memiliki karakteristik biologis yang berbeda berdasarkan sub tipe molekuler, seperti Luminal A, Luminal B, HER2, dan *Triple Negative Breast Cancer* (TNBC). Proses inflamasi berperan penting dalam perkembangan keganasan, dan biomarker hematologi seperti jumlah leukosit serta *Neutrophil to Lymphocyte Ratio* (NLR) dapat mencerminkan aktivitas inflamasi sistemik. Pemeriksaan leukosit dan NLR bersifat sederhana, murah, dan mudah diakses dibandingkan biomarker serum lainnya, sehingga berpotensi digunakan sebagai penanda tambahan dalam karakterisasi sub tipe *carcinoma mammae*. Namun, bukti hubungan antara jumlah leukosit dan NLR dengan sub tipe *carcinoma mammae* masih terbatas dan belum banyak diteliti di RSUD Prof. Dr. Margono Soekarjo. **Tujuan:** Mengetahui korelasi antara jumlah leukosit dan *Neutrophil to Lymphocyte Ratio* (NLR) dengan sub tipe *carcinoma mammae* pada pasien di RSUD Prof. Dr. Margono Soekarjo. **Metode:** Penelitian ini merupakan penelitian observasional analitik dengan desain *cross-sectional* menggunakan data rekam medis pasien *carcinoma mammae* yang telah didiagnosis. Data yang dikumpulkan meliputi jumlah leukosit, nilai NLR, serta sub tipe *carcinoma mammae* (Luminal A, Luminal B, HER2, dan TNBC). Analisis statistik dilakukan untuk menilai hubungan antara jumlah leukosit dan NLR dengan sub tipe *carcinoma mammae* menggunakan uji korelasi *Chi-Square*. **Hasil:** Sebanyak 76 subjek penelitian dianalisis, dengan mayoritas pasien memiliki nilai NLR tinggi (57,9%) dan leukosit dalam batas normal (71,1%). Sub tipe *carcinoma mammae* yang paling banyak ditemukan adalah Luminal B (34,2%), diikuti HER2 (25,0%), TNBC (23,7%), dan Luminal A (17,1%). Nilai rata-rata NLR pada seluruh subjek adalah $4,07 \pm 2,21$, sedangkan rata-rata jumlah leukosit sebesar $9,83 \pm 3,17 \times 10^3/\mu\text{L}$. Rata-rata NLR tertinggi terdapat pada sub tipe Luminal B ($5,17 \pm 2,61$), diikuti HER2 ($4,05 \pm 1,70$), TNBC ($3,73 \pm 1,80$), dan terendah pada Luminal A ($2,39 \pm 1,23$). Hasil uji *Chi-Square* menunjukkan bahwa jumlah leukosit tidak memiliki korelasi bermakna dengan sub tipe *carcinoma mammae* ($p = 0,613$), sedangkan NLR menunjukkan hubungan yang bermakna secara statistik dengan sub tipe *carcinoma mammae* ($p = 0,033$). **Kesimpulan:** Jumlah leukosit tidak berhubungan signifikan dengan sub tipe *carcinoma mammae*, sedangkan NLR menunjukkan hubungan yang bermakna dengan sub tipe *carcinoma mammae*. NLR berpotensi digunakan sebagai parameter hematologi sederhana untuk mendukung penilaian karakteristik biologis tumor pada *carcinoma mammae*.

Kata kunci: *carcinoma mammae*, leukosit, *neutrophil to lymphocyte ratio* (NLR), sub tipe kanker payudara, inflamasi

**CORRELATION BETWEEN TOTAL LEUKOCYTE COUNT AND NEUTROPHIL TO
LYMPHOCYTE RATIO (NLR) WITH CARCINOMA MAMMAE SUBTYPES AT RSUD
PROF. DR. MARGONO SOEKARJO PURWOKERTO**

ABSTRACT

Background: Carcinoma mammae is a cancer with high incidence and mortality in women and has distinct biological characteristics based on molecular subtypes, including Luminal A, Luminal B, HER2, and Triple Negative Breast Cancer (TNBC). Inflammatory processes play an important role in cancer progression, and hematological biomarkers such as total leukocyte count and the Neutrophil to Lymphocyte Ratio (NLR) may reflect systemic inflammatory activity. Leukocyte and NLR examinations are simple, inexpensive, and easily accessible compared with other serum biomarkers, making them potential additional markers in the characterization of carcinoma mammae subtypes. However, evidence regarding the association between leukocyte count and NLR with carcinoma mammae subtypes remains limited and has not been widely investigated at RSUD Prof. Dr. Margono Soekarjo. **Objective:** To determine the correlation between leukocyte count and Neutrophil to Lymphocyte Ratio (NLR) with carcinoma mammae subtypes in patients at RSUD Prof. Dr. Margono Soekarjo. **Methods:** This research was an analytical observational study with a cross-sectional design using medical record data from patients diagnosed with carcinoma mammae. The collected variables included leukocyte count, NLR value, and carcinoma mammae subtypes (Luminal A, Luminal B, HER2, and TNBC). Statistical analysis was performed to assess the correlation between leukocyte count and NLR with carcinoma mammae subtypes using the Chi-Square test. **Results:** A total of 76 subjects were included in the analysis. Most patients had high NLR values (57.9%), while leukocyte counts were generally within the normal range (71.1%). The most frequent subtype was Luminal B (34.2%), followed by HER2 (25.0%), TNBC (23.7%), and Luminal A (17.1%). The mean NLR value was 4.07 ± 2.21 , while the mean leukocyte count was $9.83 \pm 3.17 \times 10^3/\mu\text{L}$. The highest mean NLR value was found in the Luminal B subtype (5.17 ± 2.61), followed by HER2 (4.05 ± 1.70), TNBC (3.73 ± 1.80), and the lowest in Luminal A (2.39 ± 1.23). The Chi-Square test showed that leukocyte count had no significant correlation with carcinoma mammae subtypes ($p = 0.613$), whereas NLR demonstrated a statistically significant correlation with carcinoma mammae subtypes ($p = 0.033$). **Conclusion:** Leukocyte count is not significantly associated with carcinoma mammae subtypes, whereas NLR shows a significant association with carcinoma mammae subtypes. NLR has the potential to be used as a simple hematological parameter to support the assessment of tumor biological characteristics in carcinoma mammae.

Keywords: carcinoma mammae, leukocyte, neutrophil to lymphocyte ratio (NLR), breast cancer subtype, inflammation