

HUBUNGAN *SYSTEMIC IMMUNE-INFLAMMATION INDEX* (SII) DENGAN KEPARAHAN *CHEMOTHERAPY INDUCED PERIPHERAL NEUROPATHY* (CIPN) PADA PASIEN KANKER PAYUDARA YANG MENDAPAT KEMOTERAPI TAXANE DI RS SARDJITO

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ABSTRAK

Latar Belakang: Kanker payudara merupakan kanker paling umum pada wanita, baik secara global maupun di Indonesia. Kemoterapi berbasis taxane efektif, namun dapat menyebabkan *chemotherapy-induced peripheral neuropathy* (CIPN) melalui mekanisme seperti disfungsi mikrotubulus dan inflamasi saraf perifer. *Systemic Immune-Inflammation Index* (SII) mencerminkan status inflamasi sistemik dan telah dikaitkan dengan prognosis buruk pada kanker payudara, namun, hubungan antara SII dengan tingkat keparahan CIPN masih belum banyak diteliti.

Tujuan: Penelitian ini bertujuan untuk mengevaluasi hubungan antara SII dan keparahan CIPN penderita kanker payudara.

Metode: Penelitian kohort retrospektif ini dilakukan di RS Sardjito Yogyakarta pada September 2024 - Januari 2025. Subjek adalah pasien wanita dengan kanker payudara yang telah menyelesaikan ≥ 3 siklus kemoterapi taxane. Keparahan CIPN dinilai menggunakan *Total Neuropathy Score* versi klinis (TNSc). SII prakemoterapi diambil dari data rekam medis. Analisis ROC digunakan untuk menentukan nilai ambang optimal SII. Hubungan antara SII dan keparahan CIPN dianalisis menggunakan analisis bivariat dan multivariat.

Hasil: Dari 56 pasien, 55,4% mengalami neuropati derajat ringan hingga sedang. Nilai ambang optimal SII untuk memprediksi CIPN adalah 861,2 (sensitivitas 51,6%, spesifisitas 92,0%, AUC 0,724; 95% CI 0,59–0,86; $p=0,004$). SII berkorelasi positif dengan derajat keparahan CIPN ($r=0,454$, $p<0,001$). Analisis multivariat menunjukkan bahwa SII merupakan prediktor signifikan keparahan CIPN (koefisien regresi = 2,404; $p = 0,003$; 95% CI: 0,816 – 3,992).

Kesimpulan: SII prakemoterapi merupakan prediktor signifikan tingkat keparahan CIPN. Pengukuran SII dapat bermanfaat untuk stratifikasi risiko dan perencanaan intervensi pencegahan pada pasien kanker payudara yang mendapat kemoterapi taxane.

Kata kunci: Kanker payudara, taxane, neuropati, *systemic immune-inflammation index*.

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ASSOCIATION BETWEEN THE SYSTEMIC IMMUNE-INFLAMMATION INDEX (SII) AND THE SEVERITY OF CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY (CIPN) IN BREAST CANCER PATIENTS RECEIVING TAXANE-BASED CHEMOTHERAPY AT SARDJITO GENERAL HOSPITAL

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ABSTRACT

Background: Breast cancer is the most prevalent malignancy among women globally, including in Indonesia. Taxane-based chemotherapy is effective but can cause chemotherapy-induced peripheral neuropathy (CIPN) through mechanisms such as microtubule dysfunction and peripheral nerve inflammation. The Systemic Immune-Inflammation Index (SII) reflects systemic inflammatory status and is associated with poor prognosis in breast cancer; however, its relationship with CIPN severity remains unclear.

Objective: This study aimed to evaluate the relationship between SII and the severity of CIPN in breast cancer.

Methods: This retrospective cohort study was conducted at Dr. Sardjito General Hospital, Yogyakarta, from September 2024 to January 2025. Breast cancer patients who had completed ≥ 3 cycles of taxane chemotherapy were included. CIPN severity was assessed using the Total Neuropathy Score clinical version (TNSc). Pre-chemotherapy SII was obtained from medical records. Receiver operating characteristic (ROC) analysis determined the optimal SII cutoff. Associations between SII and CIPN severity were analyzed using bivariate and multivariate analyses.

Results: Of 56 patients, 55.4% experienced mild to moderate neuropathy. The optimal SII cutoff for predicting CIPN was 861.2 (sensitivity 51.6%, specificity 92.0%, AUC 0.724; 95% CI 0.59–0.86; $p=0.004$). SII was correlated positively with CIPN severity ($r=0.454$, $p<0.001$). Multivariate analysis identified SII was a significant predictor of CIPN severity (regression coefficient = 2.404; $p = 0.003$; 95% CI: 0.816–3.992).

Conclusion: Pre-chemotherapy SII is a significant predictor of CIPN severity. SII measurement may be useful for risk stratification and preventive planning in breast cancer patients receiving taxane-based chemotherapy.

Keywords: Breast cancer, taxane, neuropathy, systemic immune-inflammation index.

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