

INTISARI

HUBUNGAN SYSTEMIC INFLAMMATION INDEX (SII) TERHADAP LENGTH OF STAY (LOS) PADA PASIEN COVID-19 DI RUMAH SAKIT UMUM PUSAT DR. SARDJITO

Latar Belakang: Coronavirus Disease-2019 (COVID-19) merupakan penyakit infeksius yang disebabkan oleh SARS-CoV-2. Inflamasi berat menjadi salah satu tanda patologis pada pasien yang terinfeksi oleh virus tersebut. *Systemic Inflammation Index* (SII) merupakan indeks objektif yang menunjukkan inflamasi sistemik berdasarkan integrasi atas beberapa parameter pemeriksaan darah perifer. Perhitungan parameter ini didapat dari perkalian jumlah platelet dengan Neutrophil-to-Lymphocyte Ratio (NLR). SII diketahui memiliki korelasi positif dengan indeks inflamasi lain dan telah terbukti akurat menjadi asesmen prediktor pada beberapa jenis penyakit. Pada pasien yang terinfeksi oleh SARS-CoV-2, indeks ini dinilai mampu menjadi penanda prognostik yang paling signifikan jika dibandingkan dengan pemeriksaan darah perifer lain sehingga memungkinkan untuk dapat menggambarkan perjalanan penyakit serta panjang lama rawat pasien. Akan tetapi, kajian terkait hubungan SII terhadap lamanya hospitalisasi pasien atau Length of Stay (LOS) pada pasien COVID-19 masih relatif baru sehingga diperlukan adanya studi lebih lanjut.

Tujuan: Untuk mengetahui adanya hubungan antara Systemic Inflammation Index (SII) dengan Length of Stay (LOS) pada pasien COVID-19 di RSUP Dr. Sardjito.

Metode: Studi retrospektif dengan mengambil data rekam medis elektronik pasien rawat inap yang telah terkonfirmasi COVID-19 di instalasi rekam medis RSUP Dr. Sardjito dari bulan Maret 2020–Maret 2022. Sampel yang terlibat sebanyak 323 subjek dengan kriteria inklusi telah dirawat inap dan berusia di atas 18 tahun. Subjek yang tidak memiliki hasil PCR dan telah meninggal dunia dieksklusikan dalam penelitian ini. Analisis data untuk mengetahui hubungan antara SII dengan LOS dilakukan dengan uji korelasi Bivariate Spearman's rho.

Hasil: Didapatkan 303 subjek yang memenuhi kriteria penelitian. Analisis korelasi Spearman menunjukkan adanya korelasi lemah yang signifikan antara SII dengan LOS ($r = 0.160$, $p = 0.005$). *Cut-off* SII ditentukan melalui nilai maksimum Youden's Index sebesar 1241.74 (Sensitivitas 60.2%, Spesifisitas 56%, AUC 0.576, $p = 0.021$).

Kesimpulan: Terdapat korelasi antara SII dan LOS pada pasien rawat inap COVID-19 di RSUP Dr. Sardjito.

Kata Kunci: *Systemic Inflammation Index, Length of Stay, COVID-19, SARS-CoV-2, Inflamasi*

ABSTRACT

RELATIONSHIP BETWEEN SYSTEMIC INFLAMMATION INDEX (SII) AND LENGTH OF STAY (LOS) IN HOSPITALIZED COVID-19 PATIENTS AT RUMAH SAKIT UMUM PUSAT DR. SARDJITO

Background: Coronavirus Disease-2019 (COVID-19) is an infectious disease caused by SARS-CoV-2, with severe inflammation as one of its clinical feature. Systemic Inflammation Index (SII), an inflammatory index that indicates systemic inflammation based on the calculation of several blood parameters, is obtained by multiplying the number of platelets by the Neutrophil-to-Lymphocyte Ratio (NLR). SII is known to have a positive correlation with other inflammation indices and has been proven to be accurate in predicting various types of diseases. In patients infected with SARS-CoV-2, SII is considered to be one of the most significant prognostic marker compared to other peripheral blood tests, allowing it to predict the disease course and length of patient hospitalization. However, studies on the relationship between SII and the length of hospitalization of COVID-19 patients, also known as Length of Stay (LOS), are still relatively new, thus requiring further investigation.

Objective: Analyzing the relationship between the Systemic Inflammation Index (SII) and Length of Stay (LOS) in hospitalized patients at RSUP Dr. Sardjito.

Metode: A retrospective study was conducted on hospitalised patients diagnosed with COVID-19 in RSUP Dr. Sardjito from March 2020—March 2022. A total of 303 subjects were involved in the study, meeting the inclusion criteria of being hospitalized and aged above 18 years. Subjects with no PCR results and those who had deceased were excluded from the study. Data analysis to determine the relationship between SII and LOS was done using the Spearman's rho correlation test.

Result: There were 303 subjects who met the research criterias. Spearman's correlation analysis showed a significant correlation between SII and LOS ($r = 0.160$, $p = 0.005$). The SII cut-off was determined by the maximum Youden's Index value of 1241.74 (Sensitivity 60.2%, Specifity 56%, AUC 0.576, $p = 0.021$).

Conclusion: There was a significant correlation found between SII and LOS in hospitalized patient at RSUP Dr. Sardjito.

Keywords: Systemic Inflammation Index, Length of Stay, COVID-19, SARS-CoV-2, Inflammation