ABSTRAK

Perbandingan *Neutrophil-to-Lymphocyte Ratio* dan *Systemic Inflammatory Index* dalam Memprediksi Kematian pada Pasien Sepsis RSUP Dr. Sardjito Yogyakarta

Salsabila Chairunnisa Ramadhani[1],
Rizka Humardewayanti Asdie[2], Heni Retno Wulan[2]
Program Studi Kedokteran FK-KMK UGM[1]
Departemen Ilmu Penyakit Dalam[2]
Fakultas Kedokteran, Kesehatan Masyarakat, dan Keperawatan Universitas
Gadjah Mada/RSUP Dr. Sardjito Yogyakarta

Latar Belakang: Menurut *Third International Consensus Definition of Sepsis and Septic Shock (*2016*),* sepsis merupakan disfungsi organ yang mengancam jiwa akibat respon imun dalam tubuh yang terganggu dalam melawan infeksi. Sepsis memiliki angka mortalitas tinggi sehingga dibutuhkan alat untuk memprediksi kematian seperti *Neutrophil-to-lymphocyte ratio* (NLR) dan *Systemic inflammatory index* (SII). Akan tetapi, belum ada studi yang membandingkan kedua alat prognostik tersebut dalam memprediksi mortalitas pada pasien sepsis.

Tujuan: Mengetahui dan membandingkan NLR dan SII dalam memprediksi luaran kematian pada pasien sepsis di RSUP Dr. Sardjito Yogyakarta.

Metode: Penelitian ini menggunakan metode kohort retrospektif dengan mengumpulkan data rekam medis pasien sepsis di RSUP Dr. Sardjito Yogyakarta. Penelitian ini menggunakan variabel bebas yaitu NLR dan SII dengan variabel tergantung yaitu mortalitas pada sepsis. Kriteria inklusi yang digunakan adalah (1) pasien berusia minimal 18 tahun; (2) pasien sepsis yang telah ditegakkan dengan *SOFA Score*. Kriteria eksklusi yang digunakan adalah (1) data rekam medis yang tidak lengkap; (2) pasien dengan penyakit autoimun, keganasan atau HIV; dan (3) pasien sedang menerima terapi imunosupresif. Data akan dianalisis dengan analisis regresi logistik.

Hasil: Analisis dilakukan terhadap 258 subjek terhadap luaran sepsis. Analisis ROC menunjukkan nilai *cut-off* NLR sebesar ≥13,3 (Sn = 0,56; Sp = 0,41; +LR= 0,94; -LR = 1,09) dan nilai *cut-off* untuk SII sebesar 3492 (Sn = 0,53; Sp = 0,56; +LR = 1,21; -LR = 0,83). Analisis regresi logistik variabel NLR terhadap luaran kematian menunjukkan nilai RR sebesar 1,841 (*p value*= 0,022; 95% CI 1,091-3,106). Sementara itu, analisis terhadap SII dengan *cut-off* ≥ 3492 memiliki nilai RR sebesar 1,713 (*p-value* = 0,044; 95% CI 10,16-2,888).

Kesimpulan: SII tidak lebih baik dibandingkan dengan NLR dalam memprediksi mortalitas pada pasien sepsis.

Kata kunci: Sepsis, NLR, SII, Mortalitas

ABSTRACT

Comparison between Neutrophil-to-Lymphocyte Ratio (NLR) and Systemic Inflammatory Index (SII) in Predicting Mortality in Sepsis Patient in Dr. Sardjito Hospital Yogyakarta

Salsabila Chairunnisa Ramadhani[1],
Rizka Humardewayanti Asdie[2], Heni Retno Wulan[2]
Program Studi Kedokteran FK-KMK UGM[1]
Departemen Ilmu Penyakit Dalam[2]
Fakultas Kedokteran, Kesehatan Masyarakat, dan Keperawatan Universitas Gadjah Mada/RSUP Dr. Sardjito Yogyakarta

Background: According to Third International Consensus Definition of Sepsis and Septic Shock (2016), sepsis is a life-threatening organ dysfunction caused by dysregulated host response to infection. Sepsis has high mortality rate thus prognostic tool is needed to predict mortality such as Neutrophil-to- Lymphocyte ratio (NLR) and Systemic Inflammatory Index (SII). However, there is no study that compares both of the prognostic tools in predicting mortality in sepsis.

Objective: This study was conducted to understand and compare NLR and SII in predicting mortality outcome in sepsis patient in RSUP Dr. Sardjito Yogyakarta.

Method: This study was conducted using retrospective cohort method by compiling data from medical records of sepsis patient in RSUP Dr. Sardjito Yogyakarta. This study used NLR and SII as independent variables also mortality in sepsis as its dependent variable. Inclusion criteria used were (1) both male and female patient above 18 years old; (2) the diagnosis of sepsis was made using SOFA score. Exclusion criteria used were (1) the data retrieved from the medical records were incomplete; (2) patient with autoimmune disease, malignancy, or HIV; and (3) patient was currently receiving immunosuppression therapy. Data were analyzed with logistic regression.

Result: After the selection, 258 subjects were included in this study. Cut-off for both NLR and SII were shown by ROC analysis. Cut-off point for NLR is $\geq 13,3$ (Sn = 0,56; Sp = 0,41; +LR= 0,94; -LR = 1,09) and ≥ 3492 for SII (Sn = 0,53; Sp = 0,56; +LR = 1,21; -LR = 0,83). Logistic regression analysis of NLR indicated relative risk of 1,841 (*p value* = 0,022, 95% CI 1,091-3,106). Meanwhile, the analysis of SII indicated relative risk of 1,713 (*p-value* = 0,044; 95% CI 10,16-2,888).

Conclusion: Subject with NLR $\geq 13,3$ has 1,8 times higher risk of mortality than those with NLR <13,3 and subject with SII ≥ 3492 has 1,7 times higher risk of mortality than those with SII <3492. SII is not better than NLR in predicting mortality in sepsis patient.

Keyword: Sepsis, NLR, SII, Mortality