

INTISARI

Latar belakang : COVID-19 adalah penyakit infeksi virus yang sedang merebak di seluruh dunia dan telah menjadi pandemi. Manifestasi klinis COVID-19 cukup beragam dan menyebabkan morbiditas dan mortalitas yang bervariasi. Neutrofil dan platelet merupakan salah satu biomarker yang menggambarkan kejadian inflamasi maupun infeksi. Kadar neutrophil dan platelet dalam darah kemungkinan menggambarkan keparahan penyakit, tingginya mortalitas dan *length of stay*.

Tujuan : Mengetahui hubungan nilai rasio neutrofil dibanding platelet terhadap mortalitas dan *length of stay* rumah sakit pada pasien COVID-19.

Metode : Penelitian ini menggunakan metode observasional retrospektif yang dilakukan di Instalasi Catatan Medik dan Akuntansi RSUP Dr. Sardjito, dengan sampel pasien terkonfirmasi COVID-19 periode Maret 2020 – April 2021 yang dilakukan pemeriksaan kadar rasio neutrofil dan platelet (NPR). Data yang didapat dilihat sebaran datanya, kemudian dianalisis hubungan dari kadar NPR dengan mortalitas dan *length of stay* pasien. Analisis regresi cox digunakan untuk uji univariat dan multivariat dari kadar NPR dengan mortalitas dan *length of stay* pasien. Analisis untuk mengetahui ketahanan hidup pasien antara kadar NPR dengan mortalitas dan *length of stay*, digunakan metode Kaplan-Meier.

Hasil : Jumlah populasi sampel sebanyak 273 pasien yang memenuhi kriteria inklusi dan eksklusi. Subjek terdiri dari 61,54% laki-laki dan 38,46% perempuan. Usia pasien dikelompokkan menjadi 2 kategori yaitu <65 tahun dan ≥ 65 tahun. Berdasarkan proporsi tersebut diperoleh sebanyak 214 pasien (78,4%) berusia <65 tahun dan sebanyak 59 pasien (21,6%) berusia ≥ 65 tahun. Subjek dengan kadar NPR $\geq 0,027$ mempunyai risiko kematian lebih tinggi (HR 1,807; $p = 0,007$) dibandingkan subjek dengan kadar NPR <0,027. Lama hari rawat berbeda bermakna ($p = 0,046$) antar kelompok subjek, dengan median *length of stay* subjek NPR $\geq 0,027$ adalah 22 hari, sedangkan subjek NPR <0,027 adalah 16 hari.

Kesimpulan : Peningkatan kadar NPR $\geq 0,027$ pada pasien COVID-19 berhubungan dengan peningkatan mortalitas dan *length of stay* pasien.

Kata kunci : COVID-19, neutrofil, platelet, rasio neutrofil dan platelet, *length of stay*, mortalitas

ABSTRACT

Background: COVID-19 is a viral infectious disease that is spreading worldwide, and has become a pandemic. Its multiple clinical manifestations also result in extensive morbidity and mortality. Neutrophils and platelets are biomarkers that describe the incidence of inflammation and infection. Neutrophil and platelet levels in the blood reflect the possible severity of disease, high mortality and length of stay.

Objective: To know the relationship between the neutrophil to platelet ratio values on mortality and length of stay in hospital of COVID-19 patients.

Methods: This study used observational cohort retrospective method at the Medical Records and Accounting Departement, Dr. Sardjito Hospital by reviewing confirmed COVID 19 patient's medical records examined neutrophil and platelet level in the period of April 2020 until March 2021. Cox regression analysis was used for univariate and multivariate tests between NPR levels with mortality and patient length of stay. And to detemine patient survival between NPR level with mortality and hospital length of stay, Kaplan-Meier was used.

Result : Total sample population was 273 patients, and met inclusion and exclusion criteria. Subject consist of 61.54% male patients and 38.46% female patients. Patients' age was grouped into 2 categories, namely <65 years and 65 years. Based on this proportion, there were 214 patients (78.4%) aged <65 years and 59 patients (21.6%) aged ≥ 65 years. Subjects with higher NPR level (≥ 0.027) were at higher risk of death (HR 1.807; $p = 0.007$) than those with lower NPR level. The difference in LOS was significantly different between groups of subjects, with the median LOS for subjects with $\text{NPR} \geq 0.027$ was days, while for subjects with $\text{NPR} < 0.027$ was 16 days ($p = 0.046$).

Conclusion : Increased NPR level ≥ 0.027 is strongly related with increased risk of mortality and length of hospital stay in COVID-19 patients.

Keywords: COVID-19, neutrophils, platelets, neutrophil to platelet ratio, length of stay, mortality.