

INTISARI

Latar belakang: Penyakit Coronavirus 2019 (COVID-19) adalah penyakit infeksi saluran pernafasan akut. Gejala COVID-19 bervariasi dalam tingkat keparahan dan manifestasi klinis. Limfopenia, yang didefinisikan sebagai jumlah limfosit yang rendah ($< 1000 \text{ sel}/\mu\text{L}$), umumnya ada pada pasien dengan COVID-19 dan tingkat limfopenia berkorelasi dengan tingkat keparahan penyakit pada pasien dengan COVID-19. Pemeriksaan angka limfosit hampir di setiap rumah sakit bisa dikerjakan.

Tujuan: Mengetahui hubungan antara angka limfosit terhadap mortalitas dan lama rawat pasien terkonfirmasi COVID-19 di ICU COVID RSUP Dr. Sardjito

Metode: Observasional kohort retrospektif dilakukan dengan mengumpulkan data rekam medis pasien terkonfirmasi COVID-19 yang dilakukan pemeriksaan angka limfosit di RS Dr. Sardjito selama perawatan dari 1 Januari 2021 hingga 31 Desember 2021. *Cut-off point* angka limfosit sebagai faktor mortalitas ditetapkan menggunakan kurva ROC dan *Youden's index*. Analisis *survival* Kaplan meier dilakukan untuk mengetahui hubungan antara angka limfosit dengan mortalitas dan durasi rawat inap. Hubungan antara angka limfosit dengan mortalitas dan durasi rawat inap dianalisis secara univariat dan multivariat menggunakan *Cox regression*.

Hasil: Total subjek penelitian adalah 217 pasien yang sesuai dengan kriteria inklusi dan eksklusi. *Cut-off point* ditetapkan $1,06.10^3 \text{ sel}/\mu\text{L}$ dengan jumlah subjek penelitian angka limfosit $< 1,06.10^3 \text{ sel}/\mu\text{L}$ sebanyak 121 pasien dan $> 1,06.10^3 \text{ sel}/\mu\text{L}$ sebanyak 96 pasien. Analisis multivariat menunjukkan bahwa subjek dengan angka limfosit $< 1,06.10^3 \text{ sel}/\mu\text{L}$ secara independen dan signifikan memiliki risiko peningkatan mortalitas, waktu *survival* lebih pendek (178,18 jam) dibandingkan dengan $> 1,06.10^3 \text{ sel}/\mu\text{L}$ (368,24 jam). Durasi rawat inap lebih singkat pada kelompok pasien dengan angka limfosit $< 1,06.10^3 \text{ sel}/\mu\text{L}$ dengan median 128,77 jam (12,84 – 983,99 jam) OR 0,802, 95% CI 1.032-2,646; $p=0.110$ dibandingkan dengan $> 1,06.10^3 \text{ sel}/\mu\text{L}$ dengan median 164,49 jam (7,37 – 1383,43 jam), dengan mortalitas lebih tinggi secara signifikan ($p = 0,000$) pada kelompok limfosit rendah (64,8%) dibandingkan kelompok dengan limfosit tinggi (35,2%).

Kesimpulan: Angka limfosit rendah $< 1,06.10^3 \text{ sel}/\mu\text{L}$ pada pasien COVID-19 berhubungan dengan peningkatan risiko mortalitas independen dan signifikan secara statistik dan berhubungan dengan penurunan lama rawat inap tetapi tidak signifikan secara statistik.

Kata kunci: COVID-19, angka limfosit, mortalitas, lama rawat

ABSTRACT

Background: Corona virus disease 2019 (COVID-19) is an acute infection of the respiratory tract with variety of clinical manifestation and severity. Lymphopenia is defined as low lymphocyte count (<1000 cells/ μL). In patients with COVID-19, lymphocyte count correlates to the severity of the disease. The examination for lymphocyte count is readily available in most hospitals.

Aim: To study the relationship of lymphocyte count to mortality and length of stay in COVID-19 at ICU COVID of Dr. Sardjito.

Methods: Retrospective cohort observational studies were conducted using medical records of confirmed COVID-19 patients who went through lymphocyte count examination in RSUP Dr. Sardjito Hospital between 1st January 2021 to 31st December 2021. Lymphocyte count cut-off point as a mortality factor was determined with ROC curve and Youden's index. Survival analysis using Kaplan Meier was done to investigate the relation of lymphocyte count to mortality and length of stay. The relation between lymphocyte count and other factor affecting mortality and length of stay was analysed with Cox regression.

Result: Total study subjects were 217 patients who met inclusion and exclusion criteria. Cut-off point of lymphocyte count was set at $1.06,10^3$ cells/ μL . Patients with lymphocyte count $< 1.06,10^3$ cells/ μL were 121 patients and $>1.06,10^3$ cells/ μL were 96 patients. Multivariate analysis showed that subjects with lymphocyte count $<1.06,10^3$ cells/ μL independently and significantly had an increased risk of mortality, shorter survival time (178.18 hours) compared to $>1.06,10^3$ cells/ μL (368.24 hours). The duration of hospitalization was shorter in the group of patients with lymphocyte count $<1.06,10^3$ cells/ μL with a median of 128.77 hours (12.84 – 983.99 hours) OR 0.802, 95% CI 1.032-2.646; $p=0.110$) compared to $>1.06,10^3$ cells/ μL with a median of 164.49 hours (7.37 – 1383.43 hours), with significantly higher mortality ($p = 0.000$) in the low lymphocyte group (64.8%) than the high lymphocyte group (35.2%).

Conclusion: Low lymphocytes $<1.06,10^3$ cells/ μL in COVID-19 patients is independently and significantly associated with increased risk of mortality and insignificantly associated with shorter length of stay.

Key words: COVID-19, lymphocyte count, mortality, length of stay