INTISARI

PARAMETER IMUNOTROMBOSIS SEBAGAI FAKTOR PREDIKTOR TERHADAP PENINGKATAN KEBUTUHAN PENGGUNAAN TERAPI OKSIGEN PADA PASIEN COVID-19 DI RS AKADEMIK UGM : PROFIL HEMATOLOGI DAN D-DIMER

Agit Sena Adisetiadi[1], Mardiah Suci Hardianti[2], Johan Kurnianda[2],
Ika Trisnawati[3]
[1]PPDS2 Hematologi Onkologi Medik Ilmu Penyakit Dalam, [2]Divisi Hematologi Onkologi Medik Departemen Ilmu Penyakit Dalam, [3]Divisi Pulmonologi Departemen Ilmu Penyakit Dalam
Fakultas Kedokteran, Kesehatan Masyarakat dan Keperawatan UGM/ RSUP Dr. Sardjito Yogyakarta

Latar belakang : Hipoksemia yang progresif dan gagal napas merupakan salah satu penyebab utama kematian pada Covid-19 yang dikaitkan dengan inflamasi dan trombosis. Lonjakan kasus Covid-19 yang tinggi mencapai puncaknya di Indonesia pada Juli 2021 mengakibatkan sebagian fasilitas layanan kesehatan kehabisan oksigen dan meningkatkan resiko kematian. Pemeriksaan profil hematologi sederhana dan d-dimer diharapkan dapat membantu memprediksi peningkatan kebutuhan oksigen pada pasien Covid-19.

Metode : Penelitian *cross sectional* pada pasien Covid-19 terkonfirmasi yang dirawat inap di RSA UGM Yogyakarta. Total 405 subjek dilakukan penilaian peningkatan kebutuhan oksigen berdasarkan peningkatan skor WHO *Clinical Progression Scale* selama perawatan. Analisis statistik dilakukan untuk mencari *cut off* parameter laboratorium serta karakteristik pasien yang menjadi prediktor peningkatan kebutuhan oksigen. Analisis lanjutan dilakukan dengan uji multivariate *logistic regression* dan pembuatan model skoring.

Hasil : Didapatkan dNLR dan d-dimer berpengaruh terhadap peningkatan kebutuhan oksigen berturut-turut dengan nilai p=0,005 (OR 1,932; CI 95% 1,214–3,075) dan p=0,047 (OR 1,558; CI 95% 1,006-2,412). Model prediktor dengan dengan variabel dNLR, d-dimer, diabetes dan pneumonia didapatkan hasil total skor ≥ 5 (OR 3,182; CI 95% 2,156 – 4,697) meningkatkan resiko 3 kali lipat terhadap peningkatan kebutuhan oksigen selama perawatan dibandingkan dengan skor < 5.

Kesimpulan : Terdapat pengaruh signifikan dari profil hematologi dan d-dimer terhadap peningkatan kebutuhan oksigen pada pasien Covid-19. Pada situasi prevalensi infeksi Covid yang tinggi serta kondisi dengan fasilitas layanan yang terbatas, model skor prediktor dapat bermanfaat untuk identifikasi awal kasus yang memerlukan penanganan lebih lanjut terkait peningkatan kebutuhan oksigen.

Kata kunci : dNLR, D-dimer, kebutuhan oksigen, Covid-19

ABSTRACT

Immunothrombosis Parameter as a Predictor Factor for Increased Oxygen Therapy Requirement in COVID-19 Patients at UGM Academic Hospital: Hematological Profile and D-Dimer

Agit Sena Adisetiadi[1], Mardiah Suci Hardianti[2], Johan Kurnianda[2], Ika Trisnawati[3]
[1]Subspecialty Programme, Division of Hematology-Medical Oncology, Department of Internal Medicine, [2]Division of Hematology-Medical Oncology, Department of Internal Medicine, [3]Division of Pulmonology, Department of Internal Medicine
Dr. Sardjito General Hospital/ Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Indonesia

Background: Progressive hypoxemia and respiratory failure are major causes of death in COVID-19, associated with inflammation and thrombosis. The surge in COVID-19 cases, reaching its peak in Indonesia in July 2021, led to a shortage of oxygen supply in healthcare facilities, increasing the risk of mortality. Simple hematological profiling and D-dimer examination are expected to help predict the increased oxygen therapy requirement in COVID-19 patients.

Methods: A cross-sectional study was conducted on confirmed COVID-19 inpatients at UGM Academic Hospital, Yogyakarta. Total 405 subjects were assessed for increased oxygen therapy requirement based on the increment of the WHO Clinical Progression Scale score during treatment. Statistical analysis was performed to determine the laboratory parameter cutoff and patient characteristics that predict increased oxygen therapy requirement. Further analysis was conducted using multivariate logistic regression and scoring model development.

Results: It was found that dNLR and D-dimer were significantly associated with consecutive increases in oxygen therapy requirement, with p-values of 0.005 (OR 1.932; 95% CI 1.214–3.075) and 0.047 (OR 1.558; 95% CI 1.006–2.412), respectively. The predictor model with dNLR, D-dimer, diabetes, and pneumonia as variables yielded a total score ≥ 5 (OR 3.182; 95% CI 2.156–4.697), indicating a three-fold increase in the risk of increased oxygen therapy requirement during treatment compared to a score < 5.

Conclusion: Hematological profiling and D-dimer levels significantly influence the increased oxygen therapy requirement in COVID-19 patients. In situations of high COVID infection prevalence and limited healthcare facilities, a scoring model can be beneficial for early identification of cases requiring further intervention regarding increased oxygen therapy requirement.

Keywords: dNLR, D-dimer, oxygen therapy requirement, COVID-19