KORELASI GAMBARAN RADIOGRAFI TORAKS PNEUMONIA COVID-19 TERHADAP RASIO PLATELET-LIMFOSIT

Alwi Tri Yuwono[1], Bagaswoto Poedjomartono[2], Sri Retna Dwidanarti[2]
[1]Residen dan [2]Staf Departemen Radiologi, Fakultas Kedokteran, Kesehatan Masyarakat dan Keperawatan Universitas Gadjah Mada, Yogyakarta

INTISARI

Latar belakang: Angka kejadian COVID-19 di Indonesia terus meningkat. Tes diagnostik khusus untuk mendeteksi COVID-19 tidak selalu tersedia dan membutuhkan waktu untuk mendapatkan hasil. Radiografi toraks bermanfaat untuk triage awal pasien dengan suspek COVID-19. Diperlukan satu biomarker yang dapat diandalkan dan terpercaya untuk memprediksi tingkat keparahan pneumonia COVID-19. Diketahui bahwa rasio Platelet-Limfosit sebagai prediktor potensial pneumonia pada pasien COVID-19.

Tujuan penelitian: Mengetahui apakah terdapat hubungan korelasi antara evaluasi gambaran radiografi toraks pneumonia COVID-19 terhadap rasio Platelet-Limfosit.

Bahan dan Cara: Penelitian ini adalah penelitian observasional analitik korelasi *cross-sectional* dengan data sekunder secara *consecutive non-random sampling*. Subjek penelitian adalah pasien COVID-19 dengan hasil PCR positif dengan gambaran pneumonia typical yang dilakukan pemeriksaan darah rutin dengan rentang waktu pemeriksaan foto toraks kurang dari 24 jam di RSUP Dr Sardjito dengan periode Januari 2021-Juli 2021. Hasil penilaian foto toraks yang menggunakan sistem *Brixia score* dikorelasikan dengan rasio Platelet-Limfosit melalui uji korelasi.

Hasil: Didapatkan 46 subjek penelitian yang memenuhi kriteria inklusi dan eksklusi penelitian. Jenis kelamin laki-laki 25 subjek (54,3%) dan perempuan 21 subjek (45,7%). Dengan sebaran usia 18-30 tahun sebanyak 4 subjek (8,7%), 31-40 tahun sebanyak 10 subjek (21%), 41-50 tahun sebanyak 11 subjek (23,9%) dan 51-60 tahun sebanyak 21 subjek (45,7%). Untuk hasil luaran didapatkan 42 subjek membaik (91,3%) dan meninggal 4 subjek (3,06%). Untuk nilai *mean Brixia score* didapatkan 9,33±3,06 dan nilai *mean* rasio Platelet-Limfosit 246,52±165,95. Terdapat korelasi yang cukup kuat dan signifikan antara *Brixia Score* dengan rasio Platelet-Limfosit. Dari hasil analisis kurva ROC didapatkan *Brixia score* memiliki kemampuan yang lebih baik daripada rasio Platelet-Limfosit dalam memprediksi kematian.

Kesimpulan: Terdapat korelasi yang cukup kuat bermakna secara statistik antara *Brixia score* dengan rasio Platelet-Limfosit (p=0,001) dengan nilai koefisien korelasi (r) sebesar 0,484. Hasil analisis kurva ROC didapatkan hasil bahwa *Brixia score* memiliki kemampuan diskriminasi yang lebih baik daripada rasio Platelet-Limfosit memprediksi kematian.

Kata kunci: Pneumonia COVID-19, Rasio Platelet-Limfosit, *Brixia Score*, radiografi toraks

CORRELATION OF THORACIC RADIOGRAPHY IMAGES OF COVID-19 PNEUMONIA TO PLATELET-LYMPHOCYTE RATIO

Alwi Tri Yuwono[1], Bagaswoto Poedjomartono[2], Sri Retna Dwidanarti[2]
[1]Resident and [2]Staff of the Department of Radiology, Faculty of Medicine, Public Health and Nursing, Gadjah Mada University, Yogyakarta

ABSTRACT

Background: The number of cases of COVID-19 in Indonesia continues to increase. Specific diagnostic tests to detect COVID-19 are not always available and take time to get results. Thoracic radiography is useful for the initial triage of patients with suspected COVID-19. A reliable and reliable biomarker is needed to predict the severity of COVID-19 pneumonia. It is known that Platelet-Lymphocyte ratio is a potential predictor of pneumonia in COVID-19 patients.

Objectives: To determine correlation between the evaluation of thoracic radiographic images of COVID-19 pneumonia and Platelet-Lymphocyte ratio.

Materials and Methods: This study was a cross-sectional correlation analytic observational study with secondary data using consecutive non-random sampling. The research subjects were COVID-19 patients with positive PCR results with a typical pneumonia picture who underwent blood examinations of Platelet and Lymphocyte with a time span with a thoracic radiography examination of less than 24 hours at Dr Sardjito Hospital for the period January 2021-July 2021. The results of thoracic radiography assessment using the Brixia score system were correlated with the result of Platelet-Lymphocyte ratio through a correlation test.

Results: There were 46 research subjects who met the inclusion and exclusion criteria of the study. Male 25 subjects (54,3%) and female 21 subjects (45,7%). With the distribution of age 18-30 years as many as 4 subjects (8,7%), 31-40 years as many as 10 subjects (21,7%), 41-50 years as many as 11 subjects (23,9%) and 51-60 years as many as 21 subjects (45,7%). For the outcome, 42 subjects recovered (91,3%) and 4 subjects died (3,06%). The mean Brixia score is $9,33\pm3,06$ and the mean Platelet-Lymphocyte ratio is $246,52\pm165,95$. There is a fairly strong and significant correlation between the Brixia score and the Platelet-Lymphocyte ratio. The results of the ROC curve analysis was Brixia score had a better ability than the Platelet-Lymphocyte ratio in predicting death.

Conclusion: There is a fairly strong and statistically significant correlation between the Brixia score with the Platelet-Lymphocyte ratio (p=0,001) with a correlation coefficient (r) of 0,484. The results of the ROC curve analysis was Brixia score had a better ability than the Platelet-Lymphocyte ratio in predicting death.

Keywords: Pneumonia COVID-19, Platelet-Lymphocyte ratio, Brixia score, thoracic radiography