

KORELASI KADAR SERUM FERRITIN TERHADAP BRIXIA SCORE RADIOGRAFI TORAKS PNEUMONIA COVID-19

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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 kadar serum ferritin sebagai prediktor potensial pneumonia pada pasien COVID-19.

Tujuan penelitian: Mengetahui apakah terdapat hubungan korelasi antara kadar serum ferritin terhadap *Brixia score* radiografi toraks pneumonia COVID-19.

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 kadar serum ferritin dengan rentang waktu pemeriksaan foto toraks kurang dari 24 jam di RSUP Dr Sardjito dengan periode Januari 2021-Juli 2021. Hasil kadar serum ferritin dikorelasikan dengan hasil penilaian foto toraks yang menggunakan sistem *Brixia score* melalui uji korelasi.

Hasil: Didapatkan 35 subjek penelitian yang memenuhi kriteria inklusi dan eksklusi penelitian. Jenis kelamin laki-laki 19 subjek (54,3%) dan perempuan 16 subjek (45,7%). Dengan sebaran usia 18-30 tahun sebanyak 3 subjek (8,57%), 31-40 tahun sebanyak 6 subjek (17,14%), 41-50 tahun sebanyak 8 subjek (22,86%) dan 51-60 tahun sebanyak 18 subjek (51,43%). Untuk hasil luaran didapatkan 28 subjek diizinkan pulang (80%) dan meninggal 7 subjek (20%). Untuk nilai *mean Brixia score* didapatkan $9,77 \pm 3,60$ dan nilai *mean* kadar serum ferritin $1.167,46 \pm 1.163,42$. Terdapat korelasi yang cukup kuat dan signifikan antara kadar serum ferritin dengan *Brixia Score*. Dari hasil analisis kurva ROC didapatkan *Brixia score* memiliki kemampuan yang lebih baik daripada kadar serum ferritin dalam memprediksi kematian.

Kesimpulan: Terdapat korelasi yang cukup kuat bermakna secara statistik antara kadar serum ferritin dengan *Brixia score* ($p=0,01$) dengan nilai koefisien korelasi (r) sebesar 0,424. Hasil analisis kurva ROC didapatkan hasil bahwa *Brixia score* memiliki kemampuan diskriminasi yang lebih baik daripada kadar serum ferritin dalam memprediksi kematian.

Kata kunci: Pneumonia COVID-19, kadar serum ferritin, *Brixia Score*, radiografi toraks

CORRELATION BETWEEN SERUM FERRITIN LEVELS AND BRIXIA SCORE THORACIC RADIOGRAPHY OF PNEUMONIA COVID-19

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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 serum ferritin level is a potential predictor of pneumonia in COVID-19 patients.

Objectives: To determine correlation between serum ferritin levels and Brixia score chest radiography of COVID-19 pneumonia.

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 serum ferritin levels 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 serum ferritin levels were correlated with the results of chest X-ray assessment using the Brixia score system through a correlation test.

Results: There were 35 research subjects who met the inclusion and exclusion criteria of the study. Male 19 subjects (54,3%) and female 16 subjects (45,7%). With the distribution of age 18-30 years as many as 3 subjects (8,57%), 31-40 years as many as 6 subjects (17,14%), 41-50 years as many as 8 subjects (22,86%) and 51-60 years as many as 18 subjects (51,43%). The outcome was that 28 subjects were allowed to go home (80%) and 7 subjects (20%) died. The mean Brixia score is $9,77 \pm 3,06$ and the mean serum ferritin level is $1.167,46 \pm 1.163,42$. There is a fairly strong and significant correlation between serum ferritin levels and the Brixia score. The results of the ROC curve analysis was Brixia score had a better ability than serum ferritin levels in predicting death.

Conclusion: There is a fairly strong and statistically significant correlation between serum ferritin levels with the Brixia score ($p=0,01$) with a correlation coefficient (r) of 0,424. The results of the ROC curve analysis was Brixia score had a better ability than serum ferritin levels in predicting death.

Keywords: Pneumonia COVID-19, serum ferritin levels, Brixia score, thoracic radiography



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