

INTISARI

Latar belakang: Kasus pneumonia COVID-19 terus meningkat. Diketahui bahwa hipoksemia merupakan salah satu faktor prediktor kematian. Hipoksemia merupakan tanda awal terjadinya *Acute Respiratory Distress Syndrome* (ARDS). Hipoksemia dapat dideteksi dini dengan pengukuran analisis gas darah, sehingga diharapkan pasien tidak mengalami ARDS. Gambaran radiografi toraks dapat digunakan untuk evaluasi pasien COVID-19.

Tujuan penelitian: Mengetahui korelasi analisis gas darah terhadap gambaran radiografi toraks pneumonia COVID-19.

Bahan dan Cara: Penelitian ini adalah penelitian observasional analitik korelasi *crosssectional* dengan data sekunder secara *consecutive nonrandom sampling*. Subjek penelitian adalah semua pasien COVID-19 dengan hasil PCR positif dengan gambaran pneumonia *typical* yang dilakukan pemeriksaan analisis gas darah dengan rentang waktu dengan pemeriksaan foto toraks kurang dari 4 jam di RSUP Dr Sardjito dengan periode Mei-Juli 2021. Dilakukan penilaian foto toraks dengan sistem *Brixia Score* dengan nilai *Brixia Score* 0-18. Hasil analisis gas darah dikorelasikan dengan nilai *Brixia Score* dengan uji korelasi.

Hasil: didapatkan subjek 57 penelitian yang memenuhi kriteria inklusi dan eksklusi penelitian. Dari 57 subjek penelitian didapatkan jenis kelamin laki-laki lebih banyak yaitu 32 subjek (56,1%), perempuan 25 subjek (43,9%). Dengan sebaran usia <30 tahun sebanyak 2 subjek (3,51%), 31-40 tahun sebanyak 11 subjek (19,3%), 41-50 tahun sebanyak 9 subjek (15,79%) dan yang paling banyak adalah usia >50 tahun yaitu sebanyak 35 subjek (61,4%). Untuk hasil luaran didapatkan 46 subjek sembuh (80,7%), yang meninggal 11 subjek (19,3%). Untuk nilai mean *Brixia score* didapatkan 10,4561 3,246, dan nilai mean pH 7,4760 0,070, mean PaO₂ 78,7175 30,374, mean PaCO₂ 32,2719 7,639, mean HCO₃ 23,7211 3,856, mean SaO₂ 91,3351 11,568 dan mean PaO₂/FiO₂ 190,5380 150,567. Didapatkan korelasi antara PaO₂/FiO₂ dengan *Brixia Score* dengan nilai P = 0,012. Nilai r (-0,353) negatif artinya semakin tinggi nilai PaO₂/FiO₂ maka semakin rendah nilai *Brixia Score*. Tidak terdapat korelasi antara pH, PaO₂, PaCO₂, HCO₃ dan SaO₂ dengan *Brixia Score*.

Kesimpulan : Terdapat korelasi yang bermakna secara statistik antara nilai PaO₂/FiO₂ dengan *Brixia score* pada pasien COVID-19 (p=0,012) dengan nilai koefisien korelasi (r) sebesar - 0,353 yang berarti berkorelasi lemah dengan arah korelasi negatif, semakin tinggi *Brixia score* semakin rendah nilai PaO₂/FiO₂. Tidak terdapat korelasi antara pH, PaO₂, PaCO₂, HCO₃ dan SaO₂ dengan *Brixia Score*.

Kata kunci: Pneumonia COVID-19, *Brixia Score*, radiografi toraks, analisis gas darah

ABSTRACT

Background: COVID-19 pneumonia cases continue to increase. It is known that hypoxemia is a predictor of mortality. Hypoxemia is an early sign of Acute Respiratory Distress Syndrome (ARDS). Hypoxemia can be detected early by measuring blood gas analysis, so it is hoped that the patient does not have ARDS. Chest radiographs can be used for evaluation of COVID-19 patients.

Objectives: To determine the correlation between blood gas analysis and chest radiographic features of COVID-19 pneumonia.

Materials and Methods: This study was a cross-sectional correlation analytic observational study with secondary data using consecutive nonrandom sampling. The research subjects were all COVID-19 patients with positive PCR results with a typical pneumonia picture who underwent blood gas analysis examinations with a time span with a chest X-ray examination of less than 4 hours at Dr Sardjito Hospital for the period May-July 2021. A chest X-ray was assessed using the system Brixia Score with a value of 0-18 Brixia Score. The results of the blood gas analysis were correlated with the Brixia Score with a correlation test.

Results: there were 57 research subjects who met the inclusion and exclusion criteria of the study. Of the 57 research subjects, there were more male sex, namely 32 subjects (56.1%), female 25 subjects (43.9%). With the distribution of age <30 years as many as 2 subjects (3.51%), 31-40 years as many as 11 subjects (19.3%), 41-50 years as many as 9 subjects (15.79%) and the most is age > 50 years as many as 35 subjects (61.4%). For the outcome, 46 subjects recovered (80.7%), 11 subjects died (19.3%). The mean Brixia score is 10.4561 3.246, and the mean pH is 7.4760 0.070, the mean PaO₂ is 78.7175 30.374, the mean PaCO₂ is 32.2719 7.639, the mean HCO₃ is 23.7211 3.856, the mean SaO₂ is 91, 3351 11,568 and mean PaO₂/FiO₂ 190,5380 150.567. The correlation between PaO₂/FiO₂ and Brixia Score was found with P value = 0.012. The value of r (-0.353) is negative, meaning that the higher the PaO₂/FiO₂ value, the lower the Brixia Score. There is no correlation between pH, PaO₂, PaCO₂, HCO₃ and SaO₂ with the Brixia Score.

Conclusion: There is a statistically significant correlation between the PaO₂/FiO₂ value and the Brixia score in COVID-19 patients (p=0.012) with a correlation coefficient (r) of -0.353 which means that it is weakly correlated with a negative correlation direction, the higher the Brixia score, the lower value of PaO₂/FiO₂. There is no correlation between pH, PaO₂, PaCO₂, HCO₃ and SaO₂ with the Brixia Score.

Keywords: Pneumonia COVID-19, Brixia Score, chest radiograph, blood gas analysis