

ABSTRAK

Pendahuluan: *Coronavirus disease-19* (COVID-19) adalah infeksi yang disebabkan oleh *severe acute respiratory syndrome coronavirus 2* (SARS-CoV-2). Pasien yang terinfeksi menunjukkan berbagai gejala manifestasi klinis, salah satunya *acute respiratory distress syndrome* (ARDS) yang dapat berakhir hingga terjadinya kematian. Analisis gas darah arteri (BGA) diketahui dapat digunakan untuk membantu dalam memprediksi kematian pasien COVID-19.

Tujuan: Menganalisis hubungan antara parameter *blood gas analysis* terhadap mortalitas pada pasien COVID-19

Metode: Penelitian observasional analitik dengan desain *cross sectional* pada 124 data pasien COVID-19 di RSUP dr. Kariadi Semarang selama tahun 2020-2021 yang memenuhi kriteria inklusi dan tidak memiliki kriteria eksklusi. Variabel bebas penelitian adalah hasil pemeriksaan *blood gas analysis* (BGA), antara lain pH arteri, PaCO₂, PaO₂, HCO₃, SaO₂ dan FiO₂. Variabel terikat penelitian adalah status mortalitas. Data dianalisis menggunakan aplikasi statistik SPSS edisi 23 dimana hasil signifikan apabila $p < 0.05$

Hasil: Evaluasi pada 124 pasien mendapatkan sebanyak 65 pasien hidup dan 59 pasien meninggal pada akhir penelitian. Nilai PaCO₂, SaO₂, PaO₂, dan FiO₂ memiliki hubungan terhadap mortalitas pasien COVID-19 ($p=0.010$; $p<0.001$; $p<0.001$; $p=0.002$, berturut-turut), sedangkan nilai HCO₃ dan pH tidak berhubungan terhadap mortalitas ($p=0.431$; $p=0.875$, berturut-turut). Analisis multivariat mendapatkan hasil bahwa terdapat hubungan antara nilai PaCO₂ ($p=0.001$) dan nilai SaO₂ ($p=0.018$) terhadap mortalitas subjek penelitian. Secara berurutan faktor yang paling mempengaruhi kejadian mortalitas adalah nilai PaCO₂ ($B= -1,267$) diikuti nilai SaO₂ ($B= -0,937$).

Simpulan: Pemeriksaan *blood gas analysis* pada saat pasien pertama kali datang ke rumah sakit dapat digunakan untuk memprediksi mortalitas pasien COVID-19, terutama nilai PaCO₂ dan SaO₂.

Kata Kunci: Analisis gas darah, COVID-19, mortalitas

ABSTRACT

Introduction: Coronavirus disease-19 (COVID-19) is an infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Infected patients show various clinical manifestations, one of which is acute respiratory distress syndrome (ARDS) which can result in death. It is known that arterial blood gas analysis (BGA) can be used to help predict the death of COVID-19 patients.

Aim: To analyze the relationship between blood gas analysis parameters and mortality in COVID-19 patients

Method: Analytical observational study with cross sectional design on 124 COVID-19 patient data at RSUP dr. Kariadi Semarang during 2020-2021 which meets the inclusion criteria and does not have exclusion criteria. The independent variables of the study were the results of blood gas analysis (BGA), including arterial pH, PaCO₂, PaO₂, HCO₃, SaO₂ and FiO₂. The dependent variable of the study was mortality status. Data were analyzed using the SPSS 23 edition statistical application where the results were significant if $p < 0.05$

Results: Evaluation of 124 patients found that 65 patients were alive, and 59 patients died at the end of the study. PaCO₂, SaO₂, PaO₂, and FiO₂ values were related to mortality in COVID-19 patients ($p=0.010$; $p<0.001$; $p<0.001$; $p=0.002$, respectively), while HCO₃ and pH values were not related to mortality ($p=0.431$; $p=0.875$, respectively). Multivariate analysis showed that there was a relationship between the PaCO₂ value ($p=0.001$) and the SaO₂ value ($p=0.018$) on the mortality of the research subjects. Consecutively, the factor that most influences the incidence of mortality is the PaCO₂ value ($B= -1.267$) followed by the SaO₂ value ($B= -0.937$).

Conclusion: Blood gas analysis examination when a patient first arrives at the hospital can be used to predict the mortality of COVID-19 patients, especially the PaCO₂ and SaO₂ values.

Keywords: Blood gas analysis, COVID-19, mortality