

**ANALISIS KETAHANAN HIDUP PASIEN COVID-19 YANG DIRAWAT
DI RSUP Dr. M. DJAMIL PADANG BERDASARKAN KADAR
GLUKOSA DAN INTERLEUKIN 6 DENGAN STRATIFIKASI
MENURUT JUMLAH KOMORBID**



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ABSTRAK

Latar Belakang: Identifikasi dini faktor risiko untuk progresivitas penyakit atau kematian merupakan dasar penatalaksanaan COVID-19. Pemeriksaan kadar glukosa penting karena infeksi SARS-CoV-2 dapat mengganggu homeostasis dan metabolisme glukosa. Kadar IL-6 yang tinggi pada pasien COVID-19 merupakan penanda objektif badai sitokin. Pasien COVID-19 dengan komorbid diketahui memiliki potensi berkembang menjadi manifestasi lebih berat. Penelitian ini bertujuan untuk mengetahui analisis *outcome* dan ketahanan hidup pasien COVID-19 yang dirawat di RSUP. Dr. M. Djamil Padang berdasarkan kadar glukosa, interleukin 6 dengan stratifikasi menurut jumlah komorbid.

Metode: Penelitian analitik dengan pendekatan kohort retrospektif dilakukan terhadap 196 pasien COVID-19 yang dirawat di RSUP Dr. M Djamil Padang. Penelitian dilakukan di Instalasi Rekam Medis dan Instalasi Laboratorium Sentral RSUP Dr. M. Djamil Padang mulai bulan Mei 2021 sampai Februari 2022. Pengumpulan data kadar glukosa darah sewaktu dan IL-6 diambil dari data *Laboratory Information System* (LIS). Data komorbid, lama rawatan dan *outcome* dari rekam medis. Uji Chi-square digunakan untuk melihat hubungan kadar glukosa dengan mortalitas. Uji Mann-whitney melihat hubungan kadar IL-6 dengan mortalitas. Analisis survival menggunakan metode Kaplan-meier, dan penilaian risiko dengan menggunakan uji Cox regression.

Hasil: Subjek penelitian berjenis kelamin laki-laki (62,8%) dengan rerata usia yaitu 56,27 tahun. Komorbid terbanyak adalah diabetes melitus. Jumlah subjek meninggal sebanyak 90 orang (45,9%). *Hazard Ratio* (HR) kadar glukosa >200 mg/dL dibandingkan kadar glukosa ≤200 mg/dL pada severitas sedang adalah 3,07 (IK 95%; 2,29-12,92; 0,01), sedangkan untuk severitas berat-kritis adalah 3,54 (IK 95%; 1,21-10,36; 0,03). Median IL-6 lebih tinggi pada pasien yang meninggal dibandingkan sembuh, 106,00 (48,70-268,20) pg/mL vs 15,20 (1,7-88,60) pg/mL ($p < 0,05$) pada severitas sedang, 104,00 (11,20-2.136,00) pg/mL vs 14,95 (5,20-87,20) pg/mL ($p < 0,05$) pada severitas berat-kritis. *Median survival* pasien severitas berat kritis yang memiliki kadar glukosa >200 mg/dL dengan komorbid >1 dibandingkan komorbid 1 adalah sama yaitu 7 hari. *Median survival* pasien severitas berat kritis yang memiliki kadar IL-6 >80 pg/mL dengan komorbid >1 lebih rendah dibandingkan komorbid 1 yaitu 6 hari vs 7 hari,

Simpulan: Terdapat hubungan kadar glukosa dan IL-6 dengan mortalitas pasien COVID-19 yang dirawat di RSUP Dr. M. Djamil Padang, Tidak terdapat hubungan kadar glukosa pada severitas berat-kritis terhadap ketahanan hidup pasien COVID-19 setelah distratifikasi menurut jumlah komorbid, namun terdapat hubungan severitas berat kritis yang memiliki kadar IL-6 > 80 pg/mL dan jumlah komorbid >1 dengan HR 1,80

Kata Kunci: Glukosa darah, IL-6, komorbid, COVID-19

SURVIVAL ANALYSIS OF COVID-19 PATIENTS AT Dr. M. DJAMIL PADANG BASED ON GLUCOSE LEVELS AND INTERLEUKIN 6 ACCORDING TO COMORBID NUMBER STRATIFICATION

ABSTRACT

Background: Early identification of risk factors for disease progression or death is the basis for the management of COVID-19. Checking glucose levels is important because SARS-CoV-2 infection can disrupt glucose homeostasis and metabolism. High levels of IL-6 in COVID-19 patients are an objective marker of cytokine storm. COVID-19 patients who have comorbidity known to have the potential to develop into more severe manifestations. This study aims to determine survival analysis of COVID-19 patients at RSUP. Dr. M. Djamil Padang based on glucose levels and interleukin 6 according to number of comorbidity.

Method: An analytical study with a retrospective cohort approach was conducted on 196 patients who were treated at RSUP Dr. M Djamil Padang. The research was conducted at the Medical Record and Central Laboratory at Dr. RSUP. M. Djamil Padang from May 2021 to February 2022. Data collection on random blood glucose levels and IL-6 were taken from data Laboratory Information System (LIS). Comorbidity status, length of stay and outcome taken from medical records. Chi-square test was used to see the relationship between glucose levels and mortality. The Mann-Whitney test was used to analyze the relationship between IL-6 levels and mortality. Survival analysis using the Kaplan-Meier method, and risk assessment using the Cox regression test.

Results: More than half of the research subjects were male (62.8%) with mean age of 56.27 years. The most comorbid is diabetes mellitus. The number of subjects died is 90 people (45.9%). *Hazard Ratio* (HR) glucose levels > 200 mg/dL compared to glucose levels \leq 200 mg/dL in moderate severity was 3.07 (95% CI; 2.29-12.92; 0,01), while for severe-critical severity was 3.54 (CI 95%; 1.21-10.36; 0,03). Median IL-6 was higher in patients who died than recovered, 106.00 (48,70-268,20) pg/mL vs 15.20 (1,7-88,60) pg/mL, respectively ($p < 0.05$) at moderate severity, 104.00 (11,20-2.136,00) pg/mL vs. 14.95 (5,20-87,20) pg/mL ($p < 0.05$) in severe-critical severity. The median survival of critically ill patients with glucose levels >200 mg/dL with comorbid \geq 1 compared to comorbid 1 was the same, namely 7 days. Median survival in critically ill patients with IL-6 levels >80 pg/mL with comorbid \geq 1 was lower than comorbid 1, which was 6 days vs. 7 days.

Conclusion: There is a relationship between glucose and IL-6 levels with mortality of COVID-19 patients treated at Dr. M. Djamil Padang. There is no relationship between glucose levels in critically severe severity and the survival of COVID-19 patients after stratification according to the number of comorbidities, but there is a relationship between critical severity severity with IL-6 levels > 80 pg/mL and the number of comorbidities > 1 with HR 1.80

Keywords: Blood Glucose, IL-6, comorbidity, COVID-19