

ABSTRAK

ANALISIS BERBAGAI FAKTOR RISIKO YANG BERPENGARUH TERHADAP KEJADIAN MORTALITAS PASIEN *HOSPITAL ACQUIRED PNEUMONIA* DI ICU (Tinjauan karakteristik klinis, biomarker, komorbiditas, patogen, dan antibiotik empiris di RS Dr. Kariadi)

Latar belakang: *Hospital Acquired Pneumonia* (HAP) merupakan infeksi nosokomial yang umum terjadi di ICU, dengan angka mortalitas tinggi antara 30–50%. Identifikasi faktor risiko mortalitas penting untuk meningkatkan luaran klinis.

Tujuan: Menganalisis berbagai faktor risiko yang berpengaruh terhadap kejadian mortalitas hari ke-28 pasien HAP di ICU.

Metode: Studi kohort retrospektif pasien HAP di ICU RSUP Dr. Kariadi periode 1 Januari 2023 – 31 Desember 2024. Sampel diambil secara *simple random sampling*. Data rekam medis dianalisis secara bivariat dan multivariat menggunakan regresi logistik serta uji *survival Kaplan-meier*.

Hasil: Terdapat 117 subjek, mayoritas laki-laki (58,1%), usia <60 tahun (64,1%) dengan rerata lama rawat inap $38,35 \pm 22,90$ hari. Subjek dengan komorbiditas 74,4%, yaitu: stroke (27,1%), hipertensi (25,3%), dan DM tipe 2 (21,1%). Infeksi penyebab dirawat RS karena ISK (37,6%), SSTI (19,7%), dan cIAI (2,6%). Patogen dominan bakteri gram negatif (82,9%) yaitu *Pseudomonas aeruginosa* (36,1%), *Acinetobacter baumannii* (26,5%), dan *Klebsiella pneumonia* (15,4%). Terapi empiris kombinasi diberikan pada 70,8% terutama karbapenem + aminoglikosida (33,33%) dan karbapenem + flurokuinolon (15,38%). Mortalitas mencapai 58,1%. Faktor risiko signifikan terhadap mortalitas hari ke-28 meliputi lama rawat inap ($p=0,006$), leukosit $\geq 13.350/\mu\text{L}$ ($p=0,040$), dan albumin $<3,5$ g/dL ($p=0,045$). Survival lebih baik pada pasien dengan lama rawat <14 hari, skor SOFA <10, dan leukosit $<13.350/\mu\text{L}$.

Simpulan: Lama rawat inap, leukositosis, dan hipoalbuminemia merupakan faktor risiko yang berpengaruh terhadap mortalitas hari ke-28 pasien HAP di ICU.

Kata kunci: *Hospital acquired pneumonia*, kejadian mortalitas hari ke-28, ruang rawat ICU.

ABSTRACT

ANALYSIS OF RISK FACTORS ASSOCIATED WITH MORTALITY IN PATIENTS WITH HOSPITAL ACQUIRED PNEUMONIA IN THE ICU

(A Review of Clinical Characteristics, Biomarkers, Comorbidities, Pathogens, and Empirical Antibiotics at Dr. Kariadi General Hospital)

Background: Hospital-acquired pneumonia (HAP) is a common nosocomial infection in intensive care units (ICU), with a high mortality rate (30–50%). Identifying mortality risk factors is essential to improve clinical outcomes.

Objective: To analyze risk factors associated with 28-day mortality in ICU patients diagnosed with HAP.

Method: This was a retrospective cohort study involving HAP patients admitted to the ICU of Dr. Kariadi General Hospital between January 1st, 2023, and December 31st, 2024. Subjects were selected using simple random sampling. Data from medical records were analyzed using bivariate and multivariate logistic regression, along with Kaplan–Meier survival analysis.

Results: Among 117 patients, 58.1% were male and 64.1% aged <60 years. The mean length of stay was 38.35±22.90 days. Comorbidities were present in 74.4% of patients, most commonly stroke (27.1%), hypertension (25.3%), and type 2 diabetes mellitus (21.1%). Pre-admission infections included urinary tract infections (37.6%), SSTIs (19.7%), and cIAI (2.6%). Gram-negative bacteria (82.9%) were the predominant pathogens, including *Pseudomonas aeruginosa* (36.1%) and *Acinetobacter baumannii* (26.5%). Empirical combination antibiotic therapy was given to 70.8%, primarily carbapenem + aminoglycoside (33.3%). The overall mortality rate was 58.1%. Significant risk factors for 28-day mortality included length of stay ($p=0.006$), leukocyte count $\geq 13,350/\mu\text{L}$ ($p=0.040$), and albumin <3.5 g/dL ($p=0.045$). Better survival was associated with length of stay <14 days, SOFA score <10 , and leukocyte count $<13,350/\mu\text{L}$.

Conclusion: Prolonged hospitalization, leukocytosis, and hypoalbuminemia are significant risk factors for 28-day mortality in ICU patients with HAP.

Keywords: Hospital-acquired pneumonia, 28-day mortality, intensive care unit.