



INTISARI

Latar Belakang: Pneumonia sering berkembang menjadi pneumonia berat dan merupakan penyebab utama kematian anak secara global. Peningkatan resistensi antimikroba menyebabkan infeksi *multidrug-resistant organism* (MDRO) semakin berperan dalam memperburuk luaran klinis, terutama di unit perawatan intensif. Berbagai studi menunjukkan bahwa MDRO meningkatkan mortalitas dan lama rawat, namun data di Indonesia, khususnya pada pneumonia berat anak, masih terbatas.

Tujuan: Mengetahui pengaruh *multidrug-resistant organism* terhadap mortalitas dan lama rawat PICU pasien pneumonia berat anak.

Metode: Penelitian ini merupakan studi kohort retrospektif pada pasien pneumonia berat anak yang dirawat di PICU RS Sardjito periode Januari 2022 – Desember 2024. Subjek dipilih secara *convenience sampling* dan dikelompokkan menjadi MDRO dan non-MDRO berdasarkan kultur aspirat trakea, ETT dan/atau BAL dengan uji kepekaan VITEK®2 Compact. Kriteria inklusi meliputi usia 1 bulan – 18 tahun, penggunaan ventilator mekanik, dan kultur positif, sedangkan kriteria eksklusi mencakup data tidak lengkap, lama rawat < 24 jam, pulang paksa/dirujuk, kultur yang tumbuh teridentifikasi sebagai kontaminan, dilakukan manajemen *withhold/ withdrawal*. Analisis dilakukan menggunakan SPSS versi 25.0 dengan nilai $p < 0,05$ dianggap signifikan.

Hasil: Total 100 pasien memenuhi kriteria (50 MDRO dan 50 non-MDRO), dengan median usia 10 bulan dan angka mortalitas 46%. Infeksi MDRO didominasi gram negatif dengan organisme terbanyak *Klebsiella pneumoniae* dan *Acinetobacter baumannii*. MDRO berpengaruh independen terhadap mortalitas (OR 2,87; 95% CI 1,12–7,34; $p = 0,028$), namun tidak berpengaruh terhadap lama rawat PICU (19,9 vs 19,6 hari; Log rank $p = 0,569$).

Simpulan: Infeksi MDRO dapat berpengaruh terhadap mortalitas, meskipun tidak berpengaruh terhadap lama rawat PICU pada pneumonia berat anak.

Kata kunci: *pneumonia berat, MDRO, mortalitas, lama rawat PICU*



ABSTRACT

Background: Pneumonia often progresses to severe pneumonia and remains a leading cause of mortality among children worldwide. Increased antimicrobial resistance has led to multidrug-resistant organisms (MDRO) playing an increasingly significant role in worsening clinical outcomes, especially in intensive care units. Various studies have shown that MDRO increase mortality and length of stay, but data in Indonesia, particularly on severe pneumonia in children, is still limited.

Objective: To determine the effect of multidrug-resistant organisms on mortality and length of stay in the PICU of children with severe pneumonia.

Methods: A retrospective cohort study was conducted among children with severe pneumonia admitted to the PICU of RS Sardjito from January 2022 to December 2024. Subjects were selected using convenience sampling and classified into MDRO and non-MDRO groups based on positive cultures from tracheal aspirate, endotracheal tube (ETT), and/or bronchoalveolar lavage (BAL), with antimicrobial susceptibility testing using the VITEK®2 Compact system. Inclusion criteria were age 1 month–18 years, use of mechanical ventilation, and positive culture results. Exclusion criteria included incomplete medical records, length of stay <24 hours, discharge against medical advice or referral, cultures identified as contaminants, and withholding or withdrawal of care. Statistical analyses were performed using SPSS version 25.0, with $p < 0.05$ considered significant.

Results: A total of 100 patients were included (50 MDRO and 50 non-MDRO), with a median age of 10 months and an overall mortality rate of 46%. MDRO infections were predominantly caused by Gram-negative bacteria, mainly *Klebsiella pneumoniae* and *Acinetobacter baumannii*. MDRO infection independently affected mortality (OR 2.87; 95% CI 1.12–7.34; $p = 0.028$) but showed no effect on PICU length of stay (19.9 vs 19.6 days; log-rank $p = 0.569$).

Conclusion: MDRO infection exerts an effect on mortality but does not affect the length of PICU stay among children with severe pneumonia.

Keywords: *severe pneumonia, MDRO, mortality, PICU length of stay*