

INTISARI

Latar Belakang: Infeksi nosokomial di Indonesia angka kejadiannya cukup tinggi, yaitu 6-16% dengan rerata 9,8%. Infeksi yang muncul sebagai ancaman adalah MDRO (*Multidrug-Resistance Organisms*) akibat resistensi antibiotik yang meningkatkan mortalitas dan morbiditas serta biaya kesehatan. MDRO sendiri banyak terjadi pada pasien yang berada di bangsal ICU. Upaya untuk pengendalian infeksi ini dilakukan dengan penilaian penggunaan antibiotik secara rasional melalui metode *Gyssens*.

Tujuan: Mengetahui pola bakteri infeksi dan hubungan rasionalitas penggunaan antibiotik pada infeksi *Multidrug-Resistant Organisms* (MDRO) dengan luaran klinik dan lama rawat inap di bangsal ICU RS Akademik UGM Yogyakarta.

Metode Penelitian: Penelitian ini menggunakan desain observasional analitik dengan pendekatan *cross sectional* retrospektif, menganalisa data sekunder pada EHR (*Electronic Health Record*) pasien ICU di bulan Januari-Desember 2023. Penilaian evaluasi penggunaan antibiotik definitif menggunakan alur *Gyssens* dan melakukan pengukuran hubungan antara rasionalitas penggunaan antibiotik dengan luaran klinik berupa perbaikan kondisi pasien dan length of stay (LOS) menggunakan analisis bivariat yaitu Chi-Square ($p = 0,05$).

Hasil : Pola infeksi MDRO di Rumah Sakit UGM Yogyakarta periode Januari – Desember 2023 adalah ESBL *producing Escherichia coli* 37,29%, PDR *Acinetobacter baumannii* 6,93% untuk bakteri gram negative dan *Methicilin Resistant Staphylococcus epidermidis* (MRSE) 50,00% untuk bakteri gram positif. Hasil evaluasi rasionalitas penggunaan antibiotik definitif pada pasien MDRO di Rumah Sakit Akademik UGM berdasarkan kategori *Gyssens* sebesar 220 (83,01%) antibiotik yang rasional dan 45 (16,99%) tidak rasional. Tidak terdapat hubungan antara rasionalitas penggunaan antibiotik dengan luaran klinik berupa perbaikan kondisi pasien (perbaikan/perburukan) ($p=0,387$) namun terdapat hubungan dengan LOS ($p=0,000$). Hasil Multivarian memperlihatkan adanya hubungan antara rasionalitas penggunaan antibiotik dengan lamara waktu rawat inap ($p = 0,000$; OR = 6,083 ; CI 95% = 2,406-15,376).

Kesimpulan : Isolat tertinggi ESBL *producing Escherichia coli* 37,29%. Penggunaan antibiotik definitif untuk infeksi MDRO tidak mempengaruhi hasil luaran klinik tetapi memberi pengaruh terhadap lama rawat inap di ICU.

Kata Kunci: MDRO, antibiotik, *gyssens*, luaran klinik dan lama rawat Inap

ABSTRACT

Background: Nosocomial infections in Indonesia have a relatively high incidence rate, ranging from 6% to 16%, with an average of 9,8%. A significant threat is the emergence of MDROs (Multidrug-Resistant Organisms) due to antibiotic resistance, which increases both mortality and morbidity as well as healthcare costs. MDROs are particularly prevalent among patients in ICU wards. Efforts to control these infections involve the rational assessment of antibiotic use through the *Gyssens* method.

Objective: To assess MDRO infection patterns and correlation between the rational use of antibiotics for Multidrug-Resistant Organism (MDRO) infections and clinical outcomes and length of stay (LOS) in the ICU at the UGM Academic Hospital in Yogyakarta.

Research Method: This study employs an analytical observational design with a retrospective cross sectional approach, analyzing secondary data from Electronic Health Records (EHR) in ICU period January-December 2023. The evaluation of definitive antibiotic use was conducted using the *Gyssens* framework, and the relationship between appropriate antibiotic use and clinical outcomes, including patient condition improvement and LOS, was measured using bivariate analysis (Chi-Square, $p = 0,05$).

Results: The MDRO infection patterns at the UGM Hospital in Yogyakarta from January to December 2023 were as follows Gram-negative bacteria:ESBL-producing *Escherichia coli* 37,29% and PDR *Acinetobacter baumannii* 6,93%. Gram-positive bacteria: Methicillin-resistant *Staphylococcus epidermidis* (MRSE) 50,00%. Evaluation of the definitive antibiotic use appropriateness based on the *Gyssens* categories showed that 220 (83,01%) antibiotics were appropriate, and 45 (16,99%) were not. No significant relationship was found between appropriate antibiotic use and clinical outcomes (improvement/worsening of condition, $p = 0,387$), but a significant relationship was found with LOS ($p = 0,000$). Multivariate analysis indicated a significant association between the rationality of antibiotic use and the duration of hospitalization ($p = 0.000$; OR = 6.083; 95% CI = 2.406–15.376).

Conclusion: The highest prevalence of MDROs was found in ESBL-producing *Escherichia coli* (37,29%). The use of definitive antibiotics for MDRO infections no significant for clinical outcomes but influenced the length of stay in the ICU.

Keywords: MDRO, antibiotics, *Gyssens*, clinical outcomes, length of stay