

INTISARI

Latar Belakang: Infeksi saluran kemih (ISK) merupakan salah satu infeksi bakteri tersering di komunitas maupun rumah sakit. Terapi antibiotik empiris diberikan sebelum hasil kultur tersedia, namun pemilihan yang tidak tepat berisiko meningkatkan resistansi antimikroba dan memperpanjang lama rawat inap. Data lokal mengenai hubungan dengan luaran klinis masih terbatas.

Tujuan: Menilai hubungan ketepatan terapi antibiotik empirik dengan perbaikan urinalisis pasien ISK.

Metode: Penelitian observasional analitik menggunakan data sekunder periode Januari – Oktober 2023 dengan desain kohort retrospektif pada pasien ISK di RSUP Dr. Sardjito. Kriteria inklusi adalah pasien usia ≥ 18 tahun yang menerima terapi antibiotik empiris. Kriteria eksklusi adalah tidak tersedia data evaluasi urinalisis dalam maksimal 5 hari pasca dimulainya terapi antibiotik empiris. Evaluasi ketepatannya berdasarkan panduan nasional ISK oleh Ikatan Ahli Urologi Indonesia (IAUI). Luaran klinis adalah dinilai melalui respon perbaikan pada minimal 2 dari 3 parameter urinalisis. Profil antibiotik dianalisis secara deskriptif. Uji beda variabel kontinu menggunakan analisis *Mann Whitney test*, variabel kategorik menggunakan *chi-Square*. Hubungan ketepatan antibiotik empiris dengan luaran klinis dianalisis menggunakan uji beda dan perhitungan *Relative Risk* (RR). Analisis data menggunakan perangkat lunak SPSS versi 25, dengan signifikansi statistik ditetapkan pada $p < 0,05$.

Hasil: Sebanyak 154 dari 191 pasien memenuhi kriteria inklusi, mayoritas perempuan (55,8%) dengan rerata usia 55,5 tahun. Kasus ISK komplikata ditemukan pada 63% subjek dan infeksi nosokomial pada 57,1%. Antibiotik empiris terbanyak adalah golongan *Watch* (79,9%), terutama ceftriaxone (31,8%). Ketepatan terapi empiris ditemukan pada 50% kasus, sementara ketidaktepatan terbanyak pada kategori Gyssens IV (31,8%). Perbaikan urinalisis dalam ≤ 5 hari terjadi pada 44,8% pasien. Pasien yang menerima terapi empiris tepat memiliki peluang perbaikan urinalisis 3,22 kali lebih tinggi dibandingkan pasien dengan terapi tidak tepat ($aRR = 3,22$; 95% CI: 1,63–6,34; $p = 0,001$). Faktor usia, jenis kelamin, jenis ISK, sumber infeksi, komorbiditas, dan kateterisasi tidak berhubungan signifikan dengan perbaikan luaran klinis.

Simpulan: Ketepatan terapi empiris berhubungan signifikan dengan perbaikan urinalisis pada pasien ISK. Pasien yang menerima terapi empiris tepat memiliki peluang perbaikan urinalisis 3,22 kali lebih tinggi dibandingkan pasien dengan terapi tidak tepat.

Kata kunci: infeksi saluran kemih, ketepatan terapi antibiotik empiris, perbaikan urinalisis.

ABSTRACT

Background: Urinary tract infection (UTI) is one of the most common bacterial infections in both community and hospital settings. Empirical antibiotic therapy is often administered before culture results are available; however, inappropriate selection may increase antimicrobial resistance and prolong hospital stay. Local data on its association with clinical outcomes remains limited.

Objective: To evaluate the association between the appropriateness of empirical antibiotic therapy and urinalysis improvement in patients with UTI.

Methods: This was an analytical observational study using secondary data from January to October 2023 with a retrospective cohort design involving UTI patients at Dr. Sardjito General Hospital. Inclusion criteria included patients aged ≥ 18 years who received empirical antibiotic therapy. Exclusion criteria were the absence of urinalysis evaluation data within 5 days after initiation of empirical therapy. The appropriateness of therapy was assessed based on the National UTI Guidelines issued by the Indonesian Urological Association (IAUI). Clinical outcomes were determined based on improvement in at least two out of three urinalysis parameters. Antibiotic profiles were analyzed descriptively. Continuous variables were compared using the Mann–Whitney test, and categorical variables were analyzed using the Chi-square test. The association between appropriateness of empirical therapy and clinical outcomes was assessed using bivariate tests and relative risk (RR) analysis. Data were analyzed using SPSS version 25, with statistical significance set at $p < 0.05$.

Results: A total of 154 out of 191 patients met the inclusion criteria, with the majority being female (55.8%) and a mean age of 55.5 years. Complicated UTI accounted for 63% of cases, and nosocomial infection for 57.1%. The most commonly used empirical antibiotics belonged to the Watch group (79.9%), primarily ceftriaxone (31.8%). Appropriate empirical therapy was found in 50% of cases, with the most common inappropriateness falling under Gyssens category IV (31.8%). Urinalysis improvement within ≤ 5 days occurred in 44.8% of patients. Patients receiving appropriate empirical therapy had a 3.22-fold higher likelihood of urinalysis improvement compared to those receiving inappropriate therapy (aRR = 3.22; 95% CI: 1.63–6.34; $p = 0.001$). Age, sex, UTI type, infection source, comorbidities, and catheterization status were not significantly associated with urinalysis improvement.

Conclusion: The appropriateness of empirical antibiotic therapy is significantly associated with urinalysis improvement in UTI patients. Those who received appropriate empirical therapy were 3.22 times more likely to experience urinalysis improvement compared to those receiving inappropriate therapy.

Keywords: urinary tract infection, appropriates empirical antibiotic therapy, clinical outcomes.