INTISARI

Latar Belakang:
Enterobacteriaceae merupakan penyebab penting infeksi klinis dan nosokomial. Meningkatnya prevalensi bakteri penghasil *Extended-Spectrum β-Lactamase* (ESBL) dan AmpC β-laktamase menimbulkan tantangan terapeutik karena kedua enzim tersebut berkontribusi terhadap resistensi β-laktam dan infeksi *multidrug-resistant*. Kondisi ini berdampak pada morbiditas, lama rawat, dan risiko disfungsi organ. Data mengenai prevalensi serta tingkat keparahan infeksi *Enterobacteriaceae* penghasil AmpC dan ESBL di Indonesia masih terbatas.

Tujuan:
Mengevaluasi prevalensi dan keparahan infeksi *Enterobacteriaceae* penghasil enzim AmpC β-laktamase dan ESBL.

Metode:
Penelitian merupakan penelitian potong lintang dilakukan pada pasien dengan infeksi *Enterobacteriaceae*. Deteksi AmpC β-laktamase menggunakan uji cakram fenil boronat, sedangkan ESBL ditentukan dengan sistem Vitek2. Keparahan infeksi dinilai menggunakan skor SOFA (> 7 sebagai infeksi berat). Analisis statistik meliputi uji *Kolmogorov–Smirnov* dan *Chi-square* ($p<0,05$).

Hasil:
Jumlah subjek penelitian sebanyak 93 pasien yang terdiri dari 53,8% laki-laki dan 46,3% perempuan. Prevalensi infeksi yang disebabkan oleh *E.coli* dan *K.pneumoniae* penghasil AmpC β-laktamase secara berturut-turut sebesar 27,3% (IK95%: 10,1-59,4), dan 72,7% (IK95%: 41,6-100). Diantara subjek penelitian tidak ditemukan infeksi *P.mirabilis* penghasil kedua enzim ini. Prevalensi infeksi *Enterobacteriaceae* penghasil AmpC β-laktamase dan ESBL sebesar 24% (IK 95%: 15,1-32,3) yang secara bermakna lebih tinggi dari 10%. Infeksi *Enterobacteriaceae* penghasil salah satu enzim (AmpC β-laktamase atau ESBL) maupun penghasil kedua enzim tidak berhubungan dengan timbulnya infeksi yang parah (skor SOFA > 7).

Simpulan:
Prevalensi infeksi *Enterobacteriaceae* penghasil AmpC β-laktamase dan ESBL secara bermakna jauh lebih tinggi dari yang diasumsikan. Infeksi *Enterobacteriaceae* penghasil AmpC β-laktamase dan/ atau ESBL tidak berhubungan dengan timbulnya infeksi yang parah.

Kata kunci: Infeksi, *Enterobacteriaceae*, AmpC β-laktamase, *Extended-spectrum beta-lactamase*, Prevalensi, skor SOFA.

ABSTRACT

Background:
Enterobacteriaceae are major pathogens associated with clinical and nosocomial infections. The rising prevalence of Extended-Spectrum β-Lactamase (ESBL)- and AmpC β-lactamase–producing strains presents significant therapeutic challenges, as these enzymes contribute to β-lactam resistance and multidrug-resistant infections. Such infections are correlated with increased morbidity, prolonged hospitalization, and worsening risk of organ dysfunction. However, data on the prevalence and clinical severity of infections caused by ESBL- and AmpC β-lactamase–producing Enterobacteriaceae in Indonesia remain limited.
Objective:
To evaluate the prevalence and clinical severity of infections caused by AmpC β-lactamase and ESBL-producing Enterobacteriaceae.
Methods:
A cross-sectional study was conducted on patients with confirmed Enterobacteriaceae infection. AmpC β-lactamase production was identified using the phenylboronic acid disk test, while ESBL production was detected using the Vitek2 automated system. Clinical severity was assessed using the Sequential Organ Failure Assessment (SOFA) score, with values >7 classified as severe infection. Statistical analyses included the Kolmogorov–Smirnov test and Chi-square test, with significance set at $p < 0.05$.
Results:
A total of 93 patients were included in this study, consisting of 53.8% males and 46.3% females. The prevalence of infections caused by AmpC β-lactamase–producing *Escherichia coli* and *Klebsiella pneumoniae* was 27.3% (95% CI: 10.1–59.4) and 72.7% (95% CI: 41.6–100), respectively. No cases of infection caused by *Proteus mirabilis* producing both enzymes were identified among the study subjects. The prevalence of infections caused by Enterobacteriaceae producing AmpC β-lactamase and ESBL was 24% (95% CI: 15.1–32.3), which was significantly higher than 10%. Infections caused by Enterobacteriaceae producing either enzyme (AmpC β-lactamase or ESBL) or both enzymes were not associated with the occurrence of severe infection (SOFA score > 7).
Conclusion:
The prevalence of infections caused by AmpC β-lactamase–and ESBL-producing Enterobacteriaceae was significantly higher than the assumed prevalence. However, infections caused by Enterobacteriaceae producing AmpC β-lactamase and/or ESBL were not associated with the occurrence of severe infection.

Keywords: Infection, Enterobacteriaceae, AmpC β-lactamase, Extended-spectrum β-lactamase, Prevalence