INTISARI

Latar belakang: *Klebsiella pneumoniae* penghasil AmpC β-laktamase memiliki dampak multi-resistan antibiotik, morbiditas dan mortalitas yang tinggi. Antibiotik *cephalosporin* yang luas digunakan dalam mengobati berbagai macam infeksi telah dilaporkan oleh studi sebelumnya sebagai faktor risiko infeksi *Enterobacteriaceae* penghasil AmpC β-laktamase.
Tujuan: Mengevaluasi riwayat terapi antibiotik *cephalosporin* sebagai faktor risiko infeksi *K. pneumoniae* penghasil AmpC β-laktamase.
Metode: Penelitian observasional dengan desain *case-control matching* berdasarkan usia, jenis kelamin, dan ruang perawatan. Kriteria kasus adalah pasien terinfeksi *K. pneumoniae* penghasil enzim AmpC β-laktamase (monomikrobial). Kriteria kelompok kontrol adalah pasien terinfeksi *K. pneumoniae* bukan penghasil AmpC β-laktamase. Kelompok kasus dan kontrol selanjutnya ditelusuri ke belakang mengenai riwayat terapi *cephalosporin* dalam 3 bulan sebelumnya. Deteksi AmpC β-laktamase menggunakan uji AmpC *disc*. Statistika deskriptif dan analitik digunakan untuk menghitung *Odds Ratio* (OR) dan 95% *Confidence Interval* (CI). Variabel dengan nilai p <0,05 dianggap signifikan secara statistik.
Hasil: Dua puluh dari 36 subjek pada kelompok kasus (55,6%) memiliki riwayat terapi *cephalosporin* dalam 3 bulan sebelumnya, sedangkan pada kelompok kontrol proporsi riwayat terapi *cephalosporin* hanya dijumpai 22,2% (8/36). Hasil analisis menunjukkan bahwa pasien dengan riwayat terapi *cephalosporin* dalam 3 bulan sebelumnya memiliki risiko sebesar 4,38 kali (95% CI 1,571-12,187; *p-value* = 0,004) terinfeksi *K. pneumoniae* penghasil AmpC β-laktamase jika dibandingkan dengan mereka yang tidak ada riwayat terapi *cephalosporin*. Isolat *K. pneumoniae* penghasil AmpC β-laktamase resistan terhadap banyak golongan antibiotik, terutama *ampicillin, cefazolin, ciprofloxacin, aztreonam, ampicillin/sulbactam*, dan *trimethoprim/sulfamethoxazole*.
Simpulan: Riwayat terapi *cephalosporin* dalam 3 bulan sebelumnya meningkatkan risiko infeksi *K. pneumoniae* penghasil AmpC β-laktamase sebesar 4,38 kali dibandingkan yang tidak memiliki riwayat terapi *cephalosporin*. Isolat *K. pneumoniae* penghasil AmpC β-laktamase cenderung multi-resistan terhadap berbagai golongan antibiotik.

Kata kunci: *Klebsiella pneumoniae*, AmpC β-laktamase, faktor risiko, riwayat terapi *cephalosporin*

ABSTRACT

Background: AmpC β-lactamase-producing *K. pneumoniae* has the effect of multi-antibiotic resistance, high morbidity, and high mortality. Cephalosporin which are widely used in treating various infections have been reported by previous studies as a risk factor for infection with AmpC β-lactamase-producing *Enterobacteriaceae*.
Objective: To evaluate the history of cephalosporin antibiotic therapy as a risk factor for infection with AmpC β-lactamase-producing *K. pneumoniae*.
Methods: Observational study with a case-control matching design based on age, gender, and treatment room. Case criteria were patients infected with *K. pneumoniae* producing AmpC β-lactamase enzyme (monomicrobial). The criteria for the control group were patients infected with *K. pneumoniae* not producing AmpC β-lactamase. The case and control groups were further traced back to a history of cephalosporin therapy within 3 months. Detection of AmpC β-lactamase using an AmpC test disk. Descriptive and analytical statistics were used to calculate the odds ratio (OR) and 95% confidence interval (CI). Variables with p-value <0.05 were considered statistically significant.
Results: Twenty of 36 subjects in the case group (55.6%) had a history of cephalosporin therapy in the previous 3 months, while in the control group the proportion of history of cephalosporin therapy was only 22.2% (8/36). The analysis results showed that patients with a history of cephalosporin therapy within 3 months had a risk of 4.38 times (95% CI 1.571-12.187; p-value = 0.004) of being infected with *K. pneumoniae* producing AmpC β-lactamase when compared with those without a history of cephalosporin therapy. AmpC β-lactamase-producing *K. pneumoniae* isolate was a multi-resistant antibiotic. AmpC β-lactamase producing *K. pneumoniae* were resistant to many classes of antibiotics, especially ampicillin, cefazolin, ciprofloxacin, aztreonam, ampicillin/sulbactam, and trimethoprim/sulfamethoxazole.
Conclusion: A history of cephalosporin therapy within 3 months increased the risk of infection with AmpC β-lactamase-producing *K. pneumoniae* by 4.38 times compared to those without a history of cephalosporin therapy. AmpC β-lactamase-producing *K. pneumoniae* isolates tended to be multi-resistant to various classes of antibiotics.

Keywords: *Klebsiella pneumoniae*, AmpC β-lactamase, risk factors, history of cephalosporin therapy.