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P1817 Carbapenemase-producing *Enterobacteriaceae* in a tertiary care hospital: incidence, risk factors and treatment

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Background: Emerging of carbapenemase-producing Enterobacteriaceae (CPE) represents a global public health threat. In this study we describe the incidence, risk factors, evolution and treatment of CPE infections in our institution from 2015 to date.

Materials/methods: Observational, prospective study in a 1550-bed tertiary hospital. From January 2015 to September 2018 all inpatients with a CPE isolate were evaluated. Identification and antimicrobial susceptibility testing was performed by the automated microdilution method (Microscan®). Carbapenemase production was confirmed by PCR (Xpert Carba®).

Results: There were 823 episodes of CPE colonization and 319 (27.9%) infections in 650 patients. The incidence of CPE was 6 cases/1000 patients in 2015, 9.8 in 2016, 6.7 in 2017 and 4.7 in 2018. Acquisition was nosocomial in 76% and health care-related in 22.4%. Median age was 69 years, and 62% were male. Median Charlson comorbidity index was 4 and solid organ tumour was the most common underlying disease (20.2%), followed by chronic liver disease (16.2%). Distribution of infections was as follows: urinary tract (UTI-50.8%); bacteremia of any origin (20.7%), skin and soft tissue infection (10%) and intraabdominal infection (8.5%). *K. pneumoniae* was the most frequent isolate in both colonizations (85.8%) and infections (88.7%). Rates of other CPE isolates in colonizations/infections were respectively: *Escherichia coli* (4.1% both), *Enterobacter cloacae* (3.3%/1.9%) and *Citrobacter freundii* (3.2%/1.9%). OXA-48-like carbapenemase was the most frequent (90.7%) followed by KPC (4.5%) and metallo-β-lactamases (4.4%). ESBL was present in 93% of OXA-48 producing isolates.

Risk factors for acquisition of CPE were: recent hospitalization (70%), previous antibiotic treatment (56.8%, of them 25% carbapenems, 19.5% other beta-lactams and 19% fluoroquinolones) and recent invasive procedures (28.1%). 70% of patients were treated with antimicrobial combinations (26.5% meropenem+aminoglucoside, 7.8% meropenem+colistin, 6.8% meropenem+tigecycline). Monotherapy was administered in 30% of the infections, mainly aminoglucosides in UTI. 30-day mortality of bacteremia was 14% (10/70) despite adequate treatment.

Conclusions: In our institution the most frequent CPE was OXA-48-like *K. pneumoniae* associated with ESBL in patients with severe underlying conditions. Nevertheless, the mortality was low due to rapid and adequate antibiotic treatment, including carbapenems, despite the still low use of of new antimicrobials.