

ABSTRACT

Background:

Infections caused by Enterobacteriaceae, such as *Escherichia coli*, *Klebsiella pneumoniae*, and *Proteus mirabilis*, have a significant impact on global morbidity and mortality. The emergence of antibiotic resistance due to the production of AmpC β -lactamase enzymes poses a major challenge in therapy, as these enzymes can inactivate various β -lactam antibiotics and are not inhibited by conventional β -lactamase inhibitors. The prevalence and clinical impact of infections caused by AmpC-producing bacteria vary, but data in Indonesia, including at Dr. Sardjito General Hospital, remain very limited.

Objective:

To evaluate the prevalence and risk of intensive care admission in infections caused by AmpC β -lactamase-producing Enterobacteriaceae at Dr. Sardjito General Hospital, Yogyakarta.

Method:

This study was a cross-sectional study involving patients with Enterobacteriaceae isolates obtained from various clinical specimens. Detection of AmpC β -lactamase was performed using a phenotypic test with a phenylboronic acid buffer solution. Statistical analysis was conducted using the Chi-square test for categorical variables. A p-value < 0.05 was considered statistically significant. All analyses were performed using SPSS version 25.0.

Results:

Of a total of 146 Enterobacteriaceae isolates, 56 (38.4%) were identified as AmpC β -lactamase producers. The highest distribution of AmpC-producing isolates was found in *Klebsiella pneumoniae* (58.8%), followed by *Proteus mirabilis* (46.4%) and *Escherichia coli* (19.4%). The proportion of patients with AmpC β -lactamase-producing Enterobacteriaceae isolates who required intensive care was higher compared to those with non-AmpC isolates (51.8%). However, this difference was not statistically significant (PR = 1.18; 95% CI: 0.83 - 1.64; p = 0.39).

Conclusion:

The prevalence of Enterobacteriaceae producing AmpC β -lactamase was 38.4%. The risk of intensive care admission did not differ statistically between patients with Enterobacteriaceae isolates producing AmpC β -lactamase and those with non-AmpC-producing isolates.

Keywords: Enterobacteriaceae, infections, AmpC β -lactamase, prevalence