

Clinical outcome of empiric antimicrobial therapy of bacteremia due to extended-spectrum beta-lactamase producing *Escherichia coli* and *Klebsiella pneumoniae*.

Chaubey VP, Pitout JD, Dalton B, Ross T, Church DL, Gregson DB, Laupland KB.
Department of Medicine, University of Calgary, Calgary, Canada.
kevin.laupland@albertahealthservices.ca.

Abstract

BACKGROUND:

Prompt administration of adequate empiric antimicrobial therapy is a major determinant influencing the outcome of serious infections. The objective of this study was to describe empiric antimicrobial therapy employed and assess its effect on the outcome of patients bacteremic with extended-spectrum beta-lactamase (ESBL) producing *Escherichia coli* and *Klebsiella pneumoniae*.

FINDINGS:

A retrospective surveillance study of all patients with bacteremias caused by ESBL-producing *E. coli* and *K. pneumoniae* (EK-ESBL) from 2000-2007 in the Calgary Health Region was conducted. Data were available for 79 episodes of bacteremia among 76 patients. Forty-four (56%) were male, the median age was 70.0 yrs [interquartile range (IQR) 60.6-70.1 yrs], and 72 (91%) episodes were *E. coli*. Seventy-four episodes (94%) were treated with empiric therapy within the first 48 hours. A non-statistically significant increased mortality occurred in those treated empirically with a beta-lactam/beta-lactamase inhibitor combination (6/16; 38% vs. 10/53; 18%; $p = 0.063$) while empiric carbapenem therapy was associated with lower mortality (0/10 died vs. 16/53 (30%), $p = 0.089$). Only 42 (53%) episodes received adequate therapy within the first 48 hours. The median time to first adequate antibiotic therapy was 41.0 hours [IQR 5.8-59.5] ($n = 75$). The case-fatality rate was not different among those that received adequate compared to inadequate therapy by 48 hours as compared to inadequate empiric therapy (9/42; 21% vs. 7/37; 19%; $p = 1.0$).

CONCLUSION:

Inadequate empiric therapy is common among patients with EK-ESBL bacteremia in our region but was not associated with adverse mortality outcome.

PMID: 20423493