

**EV0369**

**ePoster Viewing**

**Resistance surveillance & epidemiology: Gram-negatives**

**Trends in mortality of critically ill patients with infection / colonization due to carbapenem-resistant *Enterobacteriaceae* in a public hospital of Rio de Janeiro: the impact of antimicrobial stewardship of carbapenems**

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**Background:** Infections caused by Multidrug-Resistant Gram-negative bacilli (MDR-GNB) are increasing in many hospitals and Carbapenem-Resistant *Enterobacteriaceae* (CRE) are now endemic in many parts of the world. The infections due to CREs increase mortality, length of hospital stay and costs to the health care system. The objective of this study was to establish the trends in mortality and prevalence of patients colonized / infected by *Enterobacteriaceae* (both, CRE and Carbapenem-Susceptible-Enterobacteria - CSE), in two critical settings of a public hospital (Intermediate Care Unit - Red Room, and the General Intensive Care Unit - ICU) and to evaluate the impact of an antimicrobial stewardship program on the prevalence of these microorganisms.

**Material/methods:** A retrospective study was done to determine the prevalence of CSE and CRE recovered from critical ill patients of the Salgado Filho State Hospital (urban tertiary teaching public hospital of the city of Rio de Janeiro) from a four-year period (2012 through 2015). All patients having positive cultures for *Enterobacteriaceae* of any specime were selected, but only one culture for patient. Microbiological and clinical information were obtained from daily reports, infection control committee databases and medical charts. The data of the antibiotics consumption were calculated by defined daily dose (DDD) for each month. Trends in CRE prevalence, antibiotic consumption and all-causes-mortality were analyzed with the Stata® program (version 9.2 StataCorp®). The effects of potential trends in management on survival were estimated using Cox proportional hazards models. This study was approved by Brazilian ethics committee (Brazil Platform) under protocol number 47885515.8.0000.5279

**Results:** In total, we found 333 positive cultures of *Enterobacteriaceae* recovered from 258 patients with a CRE prevalence of 168 isolates (50.4%). The species most frequently isolated were *Klebsiella* spp, *Enterobacter* spp and *Escherichia coli* (10,3%, 21% and 12.6%, respectively). These bacteria were more frequently recovered from tracheal secretion (44.4%), urine (21%) and blood (16.5%). The all-causes-mortality in the CRE group was higher (73.8% vs 61.8% in the CSE group;  $p < 0,05$ ) and this group shown high prevalence in the general ICU (67, 8% versus 55.7% in the red room,  $p = 0.02$ ). Worryingly, there was a constant high mortality in the CRE group in all-time study period and the trends on prevalence of the CRE remain high, despite the carbapenem rate declined significantly over this time (meropenem DDD: 44,8 [2012] to 25,5 [2015];  $p = 0.04$ ).

**Conclusions:** The mortality of patients colonized / infected by CRE in our hospital remained high and did not observe a trend to decrease, despite the reduction in the use of carbapenems verified in the critical settings.