

Session: P023 Reducing MDR Gram-negatives - myths and facts

**Category: 8d. Nosocomial infection surveillance & epidemiology**

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## **Incidence of infection by carbapenem-resistant Enterobacteria in patients with positive surveillance culture in the intensive care unit**

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**Background** some intensive care units (ICU) perform an active search of carbapenem resistant Enterobacteria (CRE) with epidemiological surveillance cultures. Nonetheless, the incidence of infection by this colonizing microorganisms and whether it is necessary to initiate empirical therapies directed to CRE in case of active infection is not clear yet.

**Material/methods:** From January 1, 2014 through December 31, 2015, we conducted a retrospective

cohort study in three ICUs in Medellin, Colombia. Patients with a positive surveillance culture for CRE during ICU hospitalization were included. The main objective was to describe the incidence of infection by CRE, phenotypically identical to the colonizing microorganism.

**Results:** A total of 177 patients had a positive epidemiological surveillance culture for CRE. The majority of patients were men (62,1%), with a median age of 59 years (48-72). The isolated microorganisms were *Klebsiella pneumoniae* 143 (80,7%), *Enterobacter cloacae* 18 (10,1%), *Escherichia coli* 10 (5,6%), and others 6 (3,3%). The most frequent comorbidities were diabetes mellitus 51 (28,8%) and chronic kidney disease 46 (25%).

53 (29,9%) of colonized patients got infected; of these, 39 patients (73,5%) got infected by a gram negative rod (GNR) different to the colonizing strain and 14 patients (26,4%) got infected by the same colonizing CRE. The global incidence of infection by CRE was 7,9% and the density of incidence of infection was 3,1/1000 days of ICU admission. Of the 14 patients infected with CRE, 11 patients (78,5%) died vs. 19 (48,7%) of patients infected with GNR different from the colonizing strain and 36 (29%) of colonized patients that did not get infected.

Variables associated with infection by CRE in bivariate analysis were included in a logistic regression model constructed in order to identify independent factors associated with infection (Table 1).

In the multivariate analysis, controlling for age, gender and APACHE-II score at ICU admission, independent predictor of infection by the same colonizing CRE was solid organ cancer (RR 7,3; 95% CI 1,52-35,6).

**Conclusions:** In this cohort of critically ill patients colonized by CRE, the infection rate was higher than expected, with solid organ cancer being a predictor of infection. This could be explained by a higher incidence of gastrointestinal tract cancer in this cohort of patients.

**Table 1.** Bivariate analysis of characteristics associated with infection by CRE

	Infection by CRE	No infection by CRE	p

	n (%)	n (%)	
> 65 years old	11 (78,5)	77 (47,2)	0,02
APACHE II score > 20	10 (71,4)	70 (42,9)	0,03
Solid organ cancer	5 (37,1)	12 (7,36)	0,0052
Dialysis	9 (64,29)	70 (42,9)	0,01
Peripherally inserted central venous catheter	2 (21,4)	9 (5,5%)	0,05
Tracheostomy requirement	7 (50)	41 (25,1)	0,005
Endoscopic procedures	3 (21,4)	8 (4,9)	0,004
Total parenteral nutrition	4 (28,5)	14 (8,58)	0,03