

**EV0336**

**ePoster Viewing**

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

**Risk factors associated with the acquisition of *Pseudomonas aeruginosa* resistant to carbapenems in a university hospital in Zaragoza, Spain**

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**Background:** *P. aeruginosa* is a clinically significant and opportunistic pathogen, usually associated with nosocomial infections, causing high morbidity and mortality. Carbapenem resistance in *P. aeruginosa* has become a serious health threat worldwide due to the limited options available for its treatment.

The aim of this study was to analyze the risk factors associated with the acquisition of carbapenem-resistant *P. aeruginosa* in a tertiary care hospital.

**Material/methods:** We performed a retrospective review of the clinical, demographic, microbiological and antibiotic susceptibility data of 140 clinical isolates of *P. aeruginosa*, including one isolate per patient in the first trimester of 2013.

For the statistical analysis we used the chi-square test (Yates-corrected) to compare categorical data. A multivariate logistic regression model was used to determine independent risk factors for variables that were associated at an univariate analysis level with *P* values less than 0.10 (SPSS program for Windows, version 18; SPSS Inc, Chicago IL).

**Results:** Of the total of 140 isolates, the 69.35% (97) showed resistance to at least one of the antibiotics (or groups of antibiotics) tested. A total of 25 isolates were MDR (17.8%), 31 isolates were XDR (22.1%), and 54 isolates (38.5%) were resistant to carbapenems.

After the bivariate analysis, variables with statistical significance were: days in hospital ( $p < 0.001$ ); patients with carbapenem-resistant *P. aeruginosa* isolates spend more days in hospital (average 50.22) compared to the group without resistance (average 27.42). Days between admission and isolation ( $p < 0.001$ ), admission service ( $p = 0.046$ ), respiratory sample ( $p = 0.001$ ), death ( $p = 0.014$ ), hematologic neoplasia ( $p = 0.008$ ) and prior treatment with carbapenems ( $p = 0.002$ ) and

aminoglycosides (p=0.008). Of the 140 patients studied, 110 (78.6%) received prior antibiotic treatment, of these, 48 patients (43%) had carbapenem-resistant *P.aeruginosa*.

The independent risk factors associated with the acquisition of carbapenem-resistant *P.aeruginosa* after the multivariate analysis are shown in table 1.

VARIABLES	Odds-ratio 95%	Confidence interval	P-value ( $\leq 0,05$ )
Days between admission and isolation	1,038	1,009 – 1,068	0.011
Neoplasia	10,492	3,067 - 35,884	<0,001
Prior treatment with aminoglycosides	4,246	1,253 - 14,386	0.020

Table1. Independent risk factors associated with the acquisition of carbapenem-resistant *P. aeruginosa*

**Conclusions:** In our hospital, there is a high rate of *P. aeruginosa* resistance, with a high percentage of carbapenem-resistant isolates. Antibiotic treatment prior to isolation evidences high antibiotic pressure that favors the selection of resistances.

The days between admission and isolation, neoplasia and prior treatment with aminoglycosides are the risk factors associated with the acquisition of carbapenem-resistant *P. aeruginosa* in our hospital.

The identification of the risk factors will allow defining the local epidemiology, implementing interventions and guiding the most efficient empiric therapy.