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Carbapenem-resistant respiratory-tract isolates of P. aeruginosa in Europe: comparative antibacterial activity (TEST 2013-2016)

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Background: *P. aeruginosa* (Pa) are virulent hospital pathogens that exhibit both intrinsic and increasingly acquired resistance to multiple classes of antibiotics. Pa isolated from the respiratory tract of at risk patients may display carbapenem resistance and frequently exhibit cross resistance to other first line therapeutic choices. The purpose of this study was to determine the *in vitro* activity of first line antibiotics against respiratory tract isolates of Pa routinely cultured from both community and hospitalized patients in European hospitals including those that exhibited carbapenem resistance.

Material/methods: From 2013-2016, 2445 Pa from respiratory tract specimens were isolated from European hospitals as part of the multi-year Tigecycline European Surveillance Trial (TEST). MICs were determined by the local laboratory using supplied microdilution panels and interpreted according to EUCAST guidelines.

Results: Percent susceptibility of comparative agents is shown below.

P. aeruginosa: % Susceptible

	2013		2014		2015		2016	
	ALL	CR	ALL	CR	ALL	CR	ALL	CR
n	793	126	686	123	589	92	377	69
Amikacin	90.7	70.6	86.6	61.0	90.8	69.6	92.3	72.5
Cefepime	76.7	37.3	73.9	28.5	76.9	25.0	73.5	24.6

Ceftazidime	78.0	45.7	77.0	41.5	81.3	30.4	75.0	50.0
Levofloxacin	59.5	14.3	56.3	7.3	62.0	8.7	63.4	21.7
Meropenem	67.3	0	67.4	0	68.9	0	68.7	0
Pip-Tazo	77.9	41.3	74.6	33.3	79.0	35.9	71.9	29.0

All: All isolates: CR: Carbapenem Resistant

Conclusions: Carbapenem resistant Pa demonstrate decreased susceptibility to cefepime, ceftazidime levofloxacin, amikacin and pip-tazo in each TEST study year. Carbapenem resistance in Pa is strongly associated with resistance to other first line agents used to treat *P. aeruginosa* infections. Only amikacin demonstrated % susceptible >60% against carbapenem resistant *P. aeruginosa* in each TEST study year.