Antimicrobial susceptibilities of *Pseudomonas aeruginosa* strains recovered from outpatient and inpatients: Five year surveillance; 2009-2013

Tulin Demir[1], Fikriye Milletli Sezgin[2], Meral Turan[3]
[1]Ahi Evran University Research and Training Hospital- Microbiology Department, Kirsehir, Turkey
[2]Ahi Evran University Research and Training Hospital- Microbiology Department, Kirsehir, Turkey
[3]Public Health Center, Ankara, Turkey.
Corresponding author: drtulin@yahoo.com

Objectives

P.aeruginosa strains pose an important healthcare problem especially among inpatients due to the excessive resistance patterns to various infectious agents. In this study we aimed to evaluate antimicrobial susceptibility rates of *P.aeruginosa* strains recovered from ambulatory and nosocomial patients to selected antimicrobials.

Methods

A total of 390 *P.aeruginosa* strains recovered from outpatients (n=166) and inpatients (n=224) admitted to Ahi Evran University Research and Training Hospital, Kirsehir, Turkey between the study period of 2009-2013. The strains were recovered from sputum and tracheal aspirate (194; 50%), urine (105; 26.9%), skin and soft tissue infections (55; 14.1%), external auditory canal swab (20; 5.1%), blood (11; 2.8%), sterile body fluid such as peritoneal fluid, synovial fluid (4; 1%). Strain identification and antimicrobial susceptibilities of the strains were performed by VITEK-2 Compact automated system (bioMerieux, France). Metallo-beta-lactamase production of the strains were tested by imipenem and imipenem-EDTA E-test (bioMerieux, France) for strains intermediate susceptible or resistant to any of carbapenems.

Table. Distribution of antimicrobial resistance rates of the *P.aeruginosa* (n=390) strains by outpatient and inpatients.

Antimicrobial	(%) Resistance		
	Ambulatory	Nosocomial	Total
GEN	15.1	18.3	16.9
AK	6.7	7.2	6.9
CAZ	42.8	53.1	48.7
TPZ	6.6	13.4	10.5
CIP	24.1	14.7	18.7
SXT	66.9	71.4	69.5
IMP	4.2	11.6	8.5
MEM	17.5	27.2	23.1

Results

The most active agents against strains were amikacin and imipenem, respectively. Strains recovered from intensive care unit (ICU) were more likely resistant to all antimicrobials tested except ciprofloxacin compared to strains recovered from other than ICU. Among all isolates tested 95 (24.4%) were MBL producer. Antimicrobial resistance rates of the strains except ciprofloxacin showed increase especially for imipenem, meropenem, piperacillin-tazobactam and ceftazidime over the years. Antimicrobial resistance rates of the strains by isolation type were shown on Table.

Conclusion

It is clear that third generation cephalosporins should be used cautiously for empirical treatment as resistance rate for ceftazidime is very high in this study reaching up to 50%. Besides implementing effective infection control procedures, it is necessary to limit the use of CAZ, TPZ and carbapenems in the empirical treatment for the avoiding from spread of MBL and MDR-*P.aeruginosa* related infections.