



ANTIBIOTIC RESISTANCE OF *PSEUDOMONAS AERUGINOSA* STRAINS ISOLATED FROM PATIENTS

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Introduction. Antimicrobial resistance represents a global burden and crisis but also a significant threat to public health nowadays. Healthcare-associated infections with multi-drug resistant (MDR) bacteria lead to increased morbidity rates, with a continuous increasing incidence at global levels. The selective pressure created by the widespread use of antibiotics might be the main explanation of this burden. It is known that *P. aeruginosa* is one of the most frequent bacteria involved in the etiology of ventilator-associated pneumonia, with a relative high prevalence in patients admitted to intensive care units and a high mortality rate. Studies showed that the presence of MDR strains could be an important predictor of hospital death. The aim of this study was to evaluate antimicrobial resistance patterns of *P. aeruginosa* strains isolated from various clinical specimens of hospitalized patients

Material and methods. We conducted a retrospective study during January–December 2020. Isolation of *P. aeruginosa* strains was performed on selective media for Gram-negative. Identification of strains was done both by conventional methods and by automated methods using Vitek®2 Compact. Antibiotic susceptibility testing was done using the Vitek®2Compact, but also by Kirby-Bauer method. Interpretation susceptibility was performed according to the EUCAST (European Committee on Antimicrobial Susceptibility Testing).

Results. They were analyzed 118 isolates from patients hospitalized in surgical wards, 51.2% male, respectively 48.8% women. These strains were isolated from different pathological products: lower tract respirator (39.9%), pus (35.6%), urine (15.4%), central venous catheter insertion (2.7), blood (2.1%) and other secretions (4.3%).

P. aeruginosa strains showed the following levels of antibiotic resistance, respectively, 70.7% to ticarcillin, 58.7% to piperacillin, while resistance to the penicillins combined with beta-lactamase inhibitors, piperacillin with tazobactam was 43.5%. Resistance to antipseudomonal cephalosporins was 37.9% to ceftazidime and 50.8% to cefepime, while the level of resistance to carbapenems was 55.9% to imipenem and 27.1% to meropenem. Resistance to aminoglycosides was 51.9% to gentamicin, 58.4% to tobramycin and 34.4% to amikacin. 62.8% of strains showed resistance to fluoroquinolones (ciprofloxacin).

Conclusions. Multidrug resistance is common and increasing. Occurrence of these MDR strain in clinical care settings makes them difficult and expensive to treat because these drug resistant strain are exhibit resistance to essentially all reliable antipseudomonal antibiotics. The available clinical solution for antibiotic resistance *Pseudomonas aeruginosa* infections requires a precise diagnostic and combination antibiotic therapy based on diagnostics. Judicious administration of antibiotics in combination with nosocomial infection control measures need to be introduced in hospitals to prevent the circulation of these multidrugresistant strains.

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