

ANTIMICROBIAL RESISTANCE OF UROPATHOGENS AFTER KIDNEY TRANSPLANTATION

Babcinetchi Victoria¹, Caracas Anastasia², Gutu Ina², Bacinschi Nicolae²

¹Timofei Mosneaga Republican Clinical Hospital, Chisinau, Republic of Moldova.

²Department of Pharmacology and Clinical Pharmacology, Nicolae Testemitanu State University of Medicine and Pharmacy, Chisinau, Republic of Moldova.

Introduction. Antibiotic resistance, particularly among gram-negative pathogens, has become a growing challenge in clinical practice. In kidney transplant recipients, the management of infections is particularly complex due to immunosuppression, increased morbidity and mortality, and the necessity of using nephrotoxic antibiotics. The concomitant administration of calcineurin inhibitors further heightens the risk of nephrotoxicity, limiting therapeutic options. This study aims to assess the antimicrobial resistance patterns of bacterial uropathogens isolated from kidney transplant recipients, providing evidence to guide the rational selection of antibacterial therapy in this vulnerable population.

Materials and methods. This retrospective study was performed based on reviewing electronic medical records of renal transplant recipients from Republican Clinical Hospital T. Mosneaga, between January 1, 2020 and January 1, 2025. Urine bacteriologic examination data on the sensitivity of urinary bacteria to antibiotics were analyzed. Antimicrobial susceptibility testing was performed using the disk diffusion method according to the EUCAST guidelines.

Results. According to electronic databases (SIA AMS) 71 hospital admissions among patients who receive kidney transplant were identified, with 59 episodes of culture-proven urinary tract infection. The uropathogens were *Klebsiella pneumoniae* (25), *Escherichia coli* (15), followed by *Enterococcus* sp. (6), *Enterobacter cloacae* (6), *Acinetobacter* sp. (3) *Proteus* sp. (3), and *Pseudomonas aeruginosa* (1). Among the 59 isolates, extended-spectrum β -lactamase (ESBL) *K. pneumoniae* and, *E.coli* showed a high resistance to third-generation cephalosporins, extended-spectrum penicillins, and fluoroquinolones. Most bacteria were sensitive to amikacin (44), meropenem (40), imipenem (36), nitrofurantoin (28), piperacillin/tazobactam (21) fosfomicin (15).

Conclusions. The rising prevalence of multidrug-resistant uropathogens, particularly ESBL-producing *Enterobacterales*, underscores the urgent need for tailored antibiotic selection in kidney transplant recipients. While aminoglycosides, carbapenems, piperacillin/tazobactam, and nitrofurantoin remain viable therapeutic options, their nephrotoxic potential requires close monitoring, especially in the context of concurrent immunosuppressive therapy. Regular monitoring of antibiotic susceptibility patterns and a focused approach to antimicrobial stewardship are key to mitigating the risk of antibiotic resistance in this vulnerable patient population. **Keywords.** Antimicrobial resistance, kidney transplant, nephrotoxicity