18. COMPARATIVE RESISTANCE TRENDS OF COMMON URINARY PATHOGENS AT 2 YEARS DISTANCE IN THE SAME POPULATION

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Introduction. Urinary tract infections are some of the most common infections in human medicine, affecting a large patient population (around 150 million cases/year) to various extents, irrespective of age and gender. Among the reasons underlying this increased mortality associated with antimicrobial resistance, it should be mentioned that the high levels of antibiotic resistance strongly contribute to initial inappropriate empiric antibiotic treatments and the subsequent delay in the implementation of adequate treatments. The assessment of local data on the prevalence and resistance is essential to evaluate trends over time and to make adjustments to the empirical treatment protocol.

Aim of study. Empirical treatment and prophylaxis of urinary tract infections at this stage is based on old principles that guide us to the use of first-line antibiotics and second-line, third-line antibiotics, etc. Due to the long and uncontrolled use of antibiotics according to these principles, the use of first-line antibiotics often has a statistical efficacy of less than 30%. Regular evaluation of antimicrobial resistance trends should be done in order to adjust the first-line preparations according to the highest rate of efficacy.

Methods and materials. A retrospective record review of data collected from laboratory results of 1299 patients admitted to the Urology Department of Republican Clinical Hospital in 2019 vs 1250 patients in 2021 was done. It was selected and compared the highest incidence bacteria commonly found in bought groups: Escherichia Coli, Klebsiella pneumonia, Proteus Mirabilis and Pseudomonas aeruginosa. The isolates were analyzed for susceptibility and resistance to main antimicrobial groups and agents used for urinary tract infection treatment.

Results. A total of 221 (17%) vs 154 (12.32%) of 4 selected bacteria was found in the 2019 group and in the 2021 group. From selected bacteria, Escherichia Coli were reported in 43.43% vs 39.61%, Klebsiella pneumonia 33,48% vs 37.01%, Proteus Mirabilis 12.66% vs 12.34% and Pseudomonas aeruginosa 5.88% vs 11.04%. In the 2019 group the Escherichia Coli, Klebsiella pneumonia and Proteus Mirabilis susceptibility to Fosfomycin was 92.7%, 63.51% and 89.28 respectively. In the 2021 group was found significant reduced susceptibility to Fosfomycin in Escherichia Coli (62.9%) and Klebsiella pneumonia (43.1%) but significant increase in Pseudomonas aeruginosa (94.5%). Pseudomonas aeruginosa sensitivity changed in time for Amikacin, Carbapenems and Cephalosporins with 76.92% vs 86.6%, 61.53% vs 33.3% and 53.84% vs 46.6%, respectively. Klebsiella pneumonia with the lowest susceptibility to Cephalosporins (29.72% vs 13.7%), Fluoroquinolones (27.02% vs 25.4%) and Nitrofurantoin (18.91% vs 31.3%) – those antibiotics that are most commonly used as prophylaxis and empirical treatment. The highest sensitivity of selected bacteria was found to Amikacin in bought groups with 75% and 80.53% respectively.

Conclusion. Comparative data showed statistically significant changes over time in bacterial susceptibility to commonly used antibiotics. Two analyzed groups from the same population at two years distance showed low efficacy of empirically used antibiotics as treatment and prophylaxis (Cephalosporins, Fluroquinolones and Nitrofurantoin). In this respect, we consider that the choice of empiric antibiotic therapy should be selected based on local susceptibility profiles. From this specific study, we can conclude that Amikacin should be considered as the first chosen antibiotic for empirical and prevention treatment in this specific population.