



ANTIBIOTIC SUSCEPTIBILITIES OF GRAM-NEGATIVE BACTERIA AS INFECTIOUS AGENTS ISOLATED FROM COMMUNITY-ACQUIRED URINARY TRACT INFECTIONS IN DIABETIC AND NON-DIABETIC PATIENTS



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Introduction

Diabetes mellitus is a metabolic disease which causes acute and chronic complications including insulin deficiency and ineffectiveness or both its incidence is increasing every day. Urinary tract infections are more frequently seen and can lead a more aggressive course in diabetic patients when compared with the population in general. The aim of this study is to determine antibacterial susceptibilities of Gram-negative bacteria isolated from diabetic and non-diabetic patients as infectious agents of community-acquired urinary tract infections and to compare their rates of resistance to the antibiotics frequently used in empirical treatment.

Material and Methods

Ninety-six diabetic and 68 non-diabetic patients whose urine cultures demonstrated Gram-negative bacteria were included in the study. For microbiological examination urine samples were seeded on culture media containing 5% sheep blood agar and eosin-methylene blue agar and incubated at 37 °C for 24 hours. Gram-negative bacteria grown at a concentration of $\geq 10^5$ cfu/mL were identified using Vitek 2 automated system. Antibiotic susceptibilities of the isolated bacteria were again determined using Vitek 2 automated system and the results were evaluated as sensitive and resistant.

Results

Urinary system infections were more frequently seen in women. In both diabetic and non-diabetic patient groups, most frequently *Escherichia coli* (88.5% in diabetic and 85.3% in non-diabetic groups) were isolated. According to antibacterial susceptibilities of isolated microorganisms, the most effective antibiotics

in both groups were carbapenems, nitrofurantoin, amikacin and piperacillin-tazobactam. In the diabetic group, microorganisms mostly demonstrated the highest rates of resistance against ampicillin, cephalosporins, ciprofloxacin, amoxicillin-clavulanic acid and in the non-diabetic group ampicillin, amoxicillin-clavulanic acid, cefuroxime and trimethoprim-sulfamethoxazole.

Conclusion

Resistance to ciprofloxacin which is used frequently in the empirical treatment of community-acquired urinary system infections was at a significantly higher rate in the diabetic group. In diabetic patients, it will be more appropriate to give antibiotherapy in urinary system infections based on the antibacterial susceptibility test results.

Key words: Diabetes mellitus, urinary tract infection, antibiotic, susceptibility

