

# Increasing Resistance To Antimicrobial Agents Of Urinary Pathogens In Kosovo

S Namani, E Q Bu, L A Berisha

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## Abstract

### Aim

To evaluate the prevalence of bacterial pathogens and the antibiotic susceptibilities of urinary pathogens.

### Methods

The study represents a retrospective analysis of 137 patients treated for urinary tract infection at the Infectious Diseases Clinic in Prishtinë, during years 2002-2007. Bacterial susceptibility testing was performed by disk diffusion method and was used in the selection of antibiotic treatment.

### Results

The highest incidence of urinary tract infection occurred in children under 10 years of age ( $p < 0.01$ ). Structural or functional abnormalities of the urinary tract were present in 16 patients (11.6%) and recurrence of infection was present in 13 patients (9.5%). In the ultrasonography of the kidneys and urinary pathways, abnormalities were found in 44 patients (32%), most often pyelonephritis and nephrolithiasis. *Escherichia coli* was the most common etiologic agent isolated in 41 cases (80.4%) followed by *Proteus* spp. 5 cases (9.8%), *Klebsiella* spp. 3 cases (5.9%), and single cases *Enterococcus* and *S. aureus* (1.9%). An increasing tendency of resistance to ampicillin (81%), TMP-SMX (71%) and ciprofloxacin (36%) has been observed compared to previous studies in our country.

### Conclusion

There is a concerning elevated resistance of bacterial uropathogens to ampicillin and TMP – SMX which should influence prescribing decisions.

## INTRODUCTION

Urinary tract infections (UTIs) are a common health care problem affecting people of all ages, from the neonate to the geriatric age group. Extremes of age, female gender, pregnancy, instrumentation, urinary tract infection and renal disease are known as predisposing factors for the development of UTIs. The usual uropathogens include *Escherichia coli*, *Staphylococcus saprophyticus*, *Klebsiella pneumoniae* and *Proteus mirabilis*<sup>1</sup>. Although they cause discomfort, urinary tract infections can usually be easily treated with a short course of antibiotics with no significant difference between the classes of antibiotics commonly used<sup>2</sup>. A large proportion of uncontrolled antibiotic usage has contributed to the emergence of resistant bacterial infections<sup>3</sup>. In the last three decades, there have been a lot of reports in the scientific literature on the inappropriate use of antimicrobial agents and the spread of bacterial resistance among microorganisms causing UTIs<sup>4,5,6,7</sup>. Knowledge of etiological agents of UTIs and their sensitivities to available

drugs is of immense value to the rational selection and use of antimicrobial agents and to the development of appropriate prescribing policies<sup>4,8</sup>.

The aim of the study was to determine the prevalence of bacterial pathogens and the antibiotic susceptibilities of urinary pathogens of the inpatients treated for UTIs. Also are analyzed epidemiologic, clinical and laboratory features of urinary infections.

## PATIENTS AND METHODS

This is an retrospective study of 137 patients treated for urinary infections during years 2002-2007 at the Infectious diseases clinic, in Prishtin

## STATISTICAL ANALYSIS

Data were analyzed using computer program Stata 9.0. The statistical parameters analyzed were the structure index, mean, standard deviation and range. The statistical tests used were X

## RESULTS

During a six year study period (2002-2007), 137 patients have received treatment for UTIs; 101 females (74%) and 36 males (26%) (Figure 1).

Of the 137 patients with UTIs, females dominated (n=101) compared to males (n=36) with significant difference ( $\chi^2$ -test = 30.8,  $p < 0.01$ ) (Figure 1). There were no statistical differences between female and male gender according to age groups ( $\chi^2$

## DISCUSSION

*Escherichia coli* remains the most predominant bacterial uropathogen, causing 80

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**Author Information**

**Sadie Namani, PhD**

Infectious Diseases Clinic, University Clinical Center of Kosovo, Medical Faculty, University of Prishtina  
Prishtin

sadie\_namani@yahoo.com

**Emine Qehaja Bu**

Infectious Diseases Clinic, Prishtin  
Prishtin

**Lindita Ajazaj Berisha**

Infectious Diseases Clinic, Prishtin  
Prishtin