

Increasing Resistance To Antimicrobial Agents Of Urinary Pathogens In Kosovo

S Namani, E Q Bu, L A Berisha

Citation

S Namani, E Q Bu, L A Berisha. *Increasing Resistance To Antimicrobial Agents Of Urinary Pathogens In Kosovo*. The Internet Journal of Infectious Diseases. 2013 Volume 12 Number 2.

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*¹. 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 used². A large proportion of uncontrolled antibiotic usage has contributed to the emergence of resistant bacterial infections³. 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^{4,5,6,7}. 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^{4,8}.

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 (X^2 -test = 30.8, $p < 0.01$) (Figure 1). There were no statistical differences between female and male gender according to age groups (X^2

DISCUSSION

Escherichia coli remains the most predominant bacterial uropathogen, causing 80

ACKNOWLEDGMENTS

We thank the personnel of Infectious Diseases Clinic of Prishtina for their support during this study.

References

1. Nicolle LE. Uncomplicated urinary tract infection in adults including uncomplicated pyelonephritis. *Urol Clin North Am* 2008; 35(1):1–12, v.
2. Colgan R, Williams M. Diagnosis and treatment of acute uncomplicated cystitis. *Am Fam Physician* 2011; 84(7):771-6.
3. Salvatore S, Salvatore S, Cattoni E, Siesto G, Serati M, Sorice P, et al. Urinary tract infections in women. *Eur J Obstet Gynecol Reprod Biol* 2011; 156(2):131-6.
4. Abubakar El-Mahmood Muhammad. Antimicrobial susceptibility pattern of pathogenic bacteria causing urinary tract infections at the Specialist Hospital, Yola, Adamawa state. *Nigeria Journal of Clinical Medicine and Research* 2009; 1(1):001-008.
5. Tenever FC, McGowan JE Jr. Reasons for the emergence of antibiotic resistance. *Am J Med Sci* 1996; 311:9-16.
6. Hryniewicz K, Szczypa K, Sulikowska A, Jankowski K, Betlejewska K, Hryniewicz W. Antibiotic susceptibility of bacterial strains isolated from urinary tract infections in Poland. *J Antimicrob Chemother* 2001; 47(6):773-780.
7. Kurutepe S, Surucuoglu S, Sezgin C, Gazi H, Gulay M, Ozbakkaloglu B. Increasing antimicrobial resistance in *Escherichia coli* isolates from Community-Acquired Urinary Tract Infections during 1998-2003 in Minisa, Turkey. *Jpn J Infect Dis* 2005; 58:159-161.
8. El-Astal Z. Bacterial pathogens and their antimicrobial susceptibility in Gaza Strip, Palestine. *Pakistan J Med* 2005; 20(4):365-370.
9. Bhat RG, Katy TA, Place FC. Pediatric urinary tract infections. *Emerg Med Clin North Am* 2011; 29(3):637-53.
10. Foxman B, Barlow R, D'Arcy H, Gillespie B, Sobel JD. Urinary tract infection: self-reported incidence and associated costs. *Ann Epidemiol* 2000; 10:509-15.
11. Foxman B. Recurring urinary tract infection: incidence and risk factors. *Am J Public Health* 1990; 80:331-3.
12. Echols RM, Tosiello RL, Haverstock DC, Tice AD. Demographic, clinical, and treatment parameters influencing the outcome of acute cystitis. *Clin Infect Dis* 1999; 29(1):113-9.
13. Hooton TM. Recurrent urinary tract infection in women. *Int J Antimicrob Agents* 2001; 17:259-68.
14. Epp A, Larochelle A, Lovatsis D, Walter JE, Easton W, Farrell SA, et al. Recurrent urinary tract infection. *J Obstet Gynaecol Can* 2010; 32(11):1082-101.
15. Zalmanovici Trestioreanu A, Green H, Paul M, Yaphe J, Leibovici L. Antimicrobial agents for treating uncomplicated urinary tract infection in women. *Cochrane Database Syst Rev* 2010; (10):CD007182.
16. Raka L, Mulliqi-Osmani Gj, Begolli L, Omeragiq Sh, Parsons L, Salfinger M, et al. Etiology and susceptibility of urinary tract isolates in Kosova. *J Antimicrob Agents* 2004; 23 Suppl 1:S2-5.
17. Kolawale AS, Kolawale OM, Kandaki-Olukemi YT, Babatunde SK, Durowade KA, Kplawale CF. Prevalence of urinary tract infections among patients attending Dalhatu Araf Specialist Hospital, Lafia, Nasarawa State, Nigeria. *Int J Med Med Sci* 2009; 1(5):163-167.
18. Bladder Infection and Cancer Treatment". <http://www.bladdersistention.net/>. Retrieved 2010-06-25.
19. Nicolle LE. The chronic indwelling catheter and urinary infection in long-term-care facility residents. *Infect Control Hosp Epidemiol*. 2001; 22(5):316–21.
20. Jones RN, Kugler KC, Pfaller MA, Winokur PL. Characteristics of pathogens causing urinary tract infections in hospitals in North America: results from the SENTRY Antimicrobial Surveillance Program, 1997. *Diagnostic Microbiol Infect Dis*. 1999; 35:55–63.
21. Gruneberg RN. Changes in urinary pathogens and their antibiotic sensitivities 1971–1992. *J Antimicrob Chemother*. 1994; 33:1–8.
22. Hryniewicz K, Hrypa K, Szczypa K, Sulikowska A, Jankowski K, Bettejewska K, et al. Antibiotic susceptibility of bacterial strains isolated from urinary tract infections in Poland. *J Antimicrob Chemother*. 2001; 47:773–780.
23. Grude N, Tveten Y, Kristiansen B. Urinary tract infections in Norway: bacterial etiology and susceptibility. A retrospective study of clinical isolates. *Clin Microb Infect*. 2001; 7:543–547.
24. Hummers-Pradier E, Koch M, Ohse AM, Heizmann WR, Kochen MM. Antibiotic resistance of urinary pathogens in female general practice patients. *Scand J Infect Dis*. 2005; 37(4):256-61.
25. Gupta K, Hooton TM, Stamm WE. Increasing antimicrobial resistance and the management of uncomplicated community-acquired urinary tract infections. *Ann Intern Med*. 2001; 135(1):41-50.
26. Gupta K. Emerging antibiotic resistance in urinary tract pathogens. *Infect Dis Clin North Am*. 2003; 17(2):243-59.

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