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Research Article

**STUDY OF UTI CAUSING ORGANISMS IN PATIENTS
VISITING TERTIARY CARE HOSPITALS OF LAHORE****Hafiz Muhammad Mudassar Aslam¹, Muhammad Tamour Danish², Ali Akash³,
Muhammad Imran⁴, Aamira Hashmi⁵**¹MBBS, Working at: General Hospital, Lahore² MBBS, Working at: Basic Health Unit, Awan Chak 39, District Kasur.³MCPS ENT Trainee at CMH Multan⁴Bachelors (Hons) Emergency & Intensive Care. MSPH, DHQ Hospital Layyah⁵Bachelors (Hons) Emergency & Intensive Care, MSPH, DHQ Hospital Muzafargarh.**Abstract:**

Objectives: To measure the frequency of UTI causing organisms and to measure the frequency of UTI causing organisms among male and female patients.

Materials and methods: It was a cross sectional study conducted at tertiary care hospitals of the Lahore. Duration of study was six months (August 2017 to Jan 2018). There were 300 patients included in this study. Patients coming at Urology department with urinary tract infections problems were included in the study through purposive sampling. Patients urine for culture was sent for examination. Data was collected through structured questionnaire.

Results: All the 300 patients with UTI with positive urine for culture were included in this study. There were 192 (64%) female patients with positive urine for culture and 108 (36%) were male patients having positive urine for culture. Patients included in the study were from 21 to 70 years of age group. Majority of the cases included in the study with positive urine for culture were from 21 to 35 years of age group. Microorganisms identified from urine culture were *Klebsiella pneumoniae*, *Escherichia Coli*, *Staphylococcus sp.*, *Proteus sp.*, *Candida* and *Pseudomonas*.

Conclusion: Urinary tract infections are more prevalent among women as compared to men and *E. coli* is the more prevalent microorganism both among males and females.

Keywords: Urinary tract infections, isolated microorganisms, Patients.

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INTRODUCTION:

Urinary tract infection is a condition which has multiple symptoms that are clinically positive that are ranging from presence of bacteria in the urine without symptoms to conditions leads towards kidney infections [1]. It is the second most common infection of the body that is affecting millions of people and serious public health issue. On average, 150 million people with urinary tract infections are diagnosed every year [2].

These are the most common bacterial infections encountered by clinicians in developing countries. UTI can occur anytime in an individual's life. Urinary tract infection occurs in all ages including males and females [3]. The clinical manifestations of UTI usually include urination showing urinary pain or burning sensation, vivid pink or cola color and blood signs More frequently also urgently urinate in the urine If the bladder is still full of urine, a strong smell of cloudiness, a pain on the pubic bone, a male rectal pain, a female pelvic pain, even after the softness of urine disease, the bladder is still full Emotional feeling [4]. In young children, the only symptom of the urinary tract Infections may be fever. Infants may show signs of malnutrition, vomiting, more sleep or jaundice. Newly occurring urinary incontinence (loss of bladder control) may occur in elderly children [5].

Ordinary microbial flora is a creature that creates a home in part of the body or part of it. Normal plants are also found in the vagina and urethra. In healthy people, such microorganisms rarely cause disease. After birth, the periurethral area will settle with normal microbial flora. These organisms act as defensive barriers against UTI pathogens. When respiratory infections are treated with a wide range of antibiotics, the normal flora may be destroyed. Flora of major normal microorganisms of healthy people is those of the genus *Lactobacillus* such as *Lactobacillus acidophilus* and *Lactobacillus doderlein*. They produce lactic acid (some species produce hydrogen peroxide or antibiotics) in combination with fluids secreted during sexual arousal and are responsible for the characteristic odor associated with the vaginal area. During the period of menstruation, the concentration of intravaginal microflora decreases and the risk of UTI is high [6]. About 95% of UTI cases are caused by bacteria which normally grow in the opening of the urethra and migrate to the bladder. Most infections are caused by a retrograde rise in bacteria from the faecal plexus through the urethra into the bladder and kidney, especially in women with a shorter and wider urethra than men. Almost all UTIs are rising in origin

and are caused by bacteria in the gastrointestinal tract which occupied the periurethral region [7].

The higher the prevalence of females compared to males, the more severe pollution during sexual intercourse, urethral massage, and even chronic pathogens present in perennial perennial skin. In males, the organisms are often come under the capsule. Infants born with physical problems (congenital abnormalities) in men who have prostate problems such as prostate inflammation causing the bladder to partially empty are particularly susceptible to UTIs [8].

It is very necessary to treat them as soon as possible to identify organisms causing urinary tract infections, avoid long-term complications and reduce the risk of serious morbidity and doubt. Understanding the prevalence of urinary tract infections in different populations will help to guide the appropriate degree of doubt and proper treatment of urological infections [9]. The treatment of urinary tract infections requires the understanding of the etiology of UTI and the role of host and bacterial factors. With insight into this process, you can find patients at risk. Careful diagnosis and treatment will in most cases succeed in resolving the infection. With insight into this process, you can increase the ability to identify risky patients [10].

OBJECTIVES

- To measure the frequency of UTI causing organisms.
- To measure the frequency of UTI causing organisms among male and female patients.

MATERIALS AND METHODS:

It was a cross sectional study conducted at tertiary care hospitals of the Lahore. Duration of study was six months (August 2017 to Jan 2018). There were 300 patients included in this study. Patients coming at Urology department with urinary tract infections problems were included in the study through purposive sampling. Patient's urine for culture was sent for examination. Data was collected through structured questionnaire. Data was saved in soft as well as in hard copy in file folder, proper coding was done. Data was managed by properly keeping filled questionnaires and all relevant documents in lockers and entering the data on daily basis in SPSS for statistical analysis. Data cleaning was done to check for any missing data or improperly filled questionnaires during data collection. Data analysis was done through SPSS version 21.

RESULTS:

All the 300 patients with UTI with positive urine for culture were included in this study. There were 192 (64%) female patients with positive urine for culture and 108 (36%) were male patients having positive urine for culture. Patients included in the study were from 21 to 70 years of age group. Majority of the cases included in the study with positive urine for culture were from 21 to 35 years of age group. Microorganisms identified from urine culture were

Klebsiella pneumoniae, *Escherichia Coli*, *Staphylococcus sp.*, *Proteus sp.*, *Candida* and *Pseudomonas*. Frequency and percentage of microorganisms is given in the table no. 1. The highest percentage of the microorganisms was of *E. coli* and the least percentage was of *Candida*. The highest percentage of the microorganism among females was of *E. coli* (26%) and also highest among males (12%).

Table 1: Percentage of microorganisms with sex distribution

Microorganism	Frequency (Percentage)	Sex	
		Female	Male
<i>Klebsiella pneumoniae</i>	60 (20%)	26 (8.6%)	34 (11.3%)
<i>Escherichia Coli</i>	114 (38%)	78 (26%)	36 (12%)
<i>Staphylococcus sp.</i>	20 (6.7%)	11 (3.6%)	9 (3%)
<i>Proteus sp.</i>	15 (5%)	9 (3%)	6 (2%)
<i>Candida</i>	7 (2.3%)	2 (0.67%)	5 (1.6%)
<i>Pseudomonas</i>	84 (28%)	66 (22%)	18 (6%)

DISCUSSION:

Urinary tract infections are the common challenge for hospitals and community as well. According to epidemiological surveys, UTIs are the most common bacterial disease among emergency and OPD patients. Due to UTIs, hundred thousand hospitalizations every year, 1 million emergency patients and 7 million OPD. There is 1.6 billion US dollar cost paid due to UTIs and that is huge financial burden every year [11]. There is difference in the prevalence of UTI according to age and sex of the patients [12]. Urinary tract infections are very common among females as compared to males and among all women, 1/3 women suffer from UTIs at any stage of their life [13].

In our study, the most prevalent age for UTIs was from 21-35 years of age. There were more female patients as compared to male patients among study group. There were 300 patients included in the study and 192 were female patients and 108 male patients. The frequency is close to the incidence reported by Ahmed and Avasarala was 12.7% [14] but is higher than the study of Singh MM *et al.* who reported 4.2% UTI in a community based study [15]. Patients in Bangladesh usually see a doctor after experiencing severe health complications for a particular disease condition. Therefore, Bashar *et al.* and Rahman *et al.* reported higher frequency of UTI i.e., 27% and 24.14% respectively in hospital or clinic based study [16,17].

In this study, the most frequent age group was 21 to 35 years. This result is almost in line with other studies. The prevalence of urinary tract infections (growth-positive cases) was higher in women than in men. Women were predominant in UTI, with 90.10% of the urine culture being positive, but male subjects showed only 9.90% of the culture positive. Of the 182 strains received, 164 strains were female and only 18 strains were male. Similar observations have been made by Astal *et al.* [26], Khalifa *et al.* [18], Bangladesh (Begum *et al.*, 16.4% of female urinary tract infections in Dhaka). Bacteriological studies usually show the involvement of Gram-negative intestinal bacteria, which frequently cause urinary tract infections, such as *E. coli*, *Klebsiella spp.* and *Proteus species* [19]. The most common organisms involved in UTI (80-85%) are *E. coli*. 30

In this study *Escherichia coli* constituted the largest group with a prevalence of 38%, then *Pseudomonas sp* 28% *Klebsiella sp* 20% and *Staphylococcus sp*, *Proteus* and *Candida* were less than 10%. Other investigators (Basar *et al.* and Saber *et al.* also reported higher association of *E. coli* (66.67% and 77.8% cases respectively) in UTI patients^{20,21}. The study conducted in 2014 in Lahore; Pakistan shows the prevalence of UTI with the highest prevalence of *E-coli* (80%) followed by *Staphylococcus aureus* (9.4%), *Proteus species* (5.4%) and *Pseudomonas species* (5.2%). In most of the studies *Escherichia coli* was the prevalent organism in UTI²².

CONCLUSION:

Urinary tract infections are more prevalent among women as compared to men and *E. coli* is the more prevalent microorganism both among males and females. Identification of microorganisms is very helpful for clinicians to decide and choose the antibiotics for successful treatment of their patients.

REFERENCES:

1. Tanagho, Emil A, Mcaninch, Jack W. Smith's General Urology: United States of America. McGraw Hill companies Inc; Bacterial Infections of the genitourinary tract, 2004, 203-227 (2).
2. Owa JA. Urinary tract infections in children, Paediatrics and child health in tropical region, 2(2), 2007 (3).
3. Tessema B, Kassu A, Mulu A, Yismaw G. Predominant isolates of urinary tract pathogens and their antimicrobial susceptibility patterns in Gondar University Teaching Hospital North West Ethiopia. *Ethiop. Med. J.*, (1), 2007, 61-67 (4).
4. Car J. Urinary tract infections in women: diagnosis and management in primary care. *BMJ*, (332), 2006, 94-97 (5).
5. Bhat RG, Katy, TA, Place FC. Pediatric urinary tract infections. *Emergency medicine clinics of North America.*, 29 (3), 2011, 637–653 (6).
6. Vasquez A, Jakobsson T, Ahrne S, Forsum U, Molin G. Vaginal Lactobacillus Flora of Healthy Swedish Women. *J. of Clin. Micro*, 40 (8), 2002, 2746–2749 (7).
7. John ED and Michel L. Urinary tract infections during pregnancy. *J. Am. Fam. Physiian.*, 61(3), 2006, 713-720 (8).
8. Starr C, Taggart RC. *Biology the unit and diversity of life.* Wards worth publishing Co. Belmont co, (3), 2002, 509-533 (9).
9. Quigley. *Diagnosis of Urinary Tract Infections in children.* *Curr. Opin. Pediatr*, 21(2), 2009, 124-128 (10).
10. Masson P, Matheson S, Webster AC, Craig J C. Meta-analyses in prevention and treatment of urinary tract infections. *Infect. Dis. Clin. North Am*, (23), 2009, 355-385.
11. Joseph TD. Urinary Tract Infections and Prostatitis. In Wells BG, Schwinharmmer TL, Hamilton CW, editors. *Pharmacotherapy Handbook.* 7th ed. New York: McGraw-Hill; 2008; 493-503.
12. Kosokai N Y, Kumaoto T, Hirose N, TankaY, Ltikichi S, Sigeta Y et al. Comparative studies on activities of antimicrobial gaunt against causative organisms isolated from urinary tract infection of 1987.11 Background of patients. *Japan J. Antiriot*, 1990.43:954-67.
13. Palac DM. Urinary tract infection in women. A physician's perspective, 1986. p. 17-25.
14. Ahmed SM, Avasarala AK. Urinary tract infections (UTI) among adolescent girls in rural Karimnagar district, AP - K.A.P. STUDY. *Indian J Prev Soc Med.* 2008;39(1 2):67–70.
15. Singh MM, Devi R, Garg S, Mehra M. Effectiveness of syndromic approach in management of reproductive tract infections in women. *Indian J Med Sci.* 2001;55(4):209–214. [PubMed]
16. Bashar MA, Ahmed MF, Rahman SR, Gomes DJ. Distribution and Resistance Trends of Escherichia coli from Urinary Tract Infections Isolated in Dhaka City. *Ban J Med Sci.* 2009;15(2):93–98.
17. Rahman F, Chowdhury S, Rahman MM, Ahmed D, Hossain A. Antimicrobial Resistance Pattern of Gram-negative Bacteria Causing Urinary Tract Infection. *S J Pharm Sci.* 2009;2(1):44–50.
18. Bhowmick B K, Rashid H. Prevalence and antibiotic susceptibility of E coli Isolated from Urinary tract infections (UTI) in Bangladesh. *Pak. J. Biol. Sci.* 2004, 7 (5):717-720
19. Astal Z, Sharif F, Manama A. Antibiotic resistance of bacteria associated with community-acquired urinary tract infections in the southern area of the Gaza Strip. *J Chemother* 2002;14:259-64
20. Khalifa BHA, Khedher M. Epidemiological study of Klebsiella spp. uropathogenic strains producing extended-spectrum betalactamase in a Tunisian University Hospital, 2009. *Pathol Biol (Paris)* 2012;60:e1-5
21. Begum N, Mamoon ABA, Hossain M, Begum N, Chowdhury SA, Rahman MF. UTI among female workers in a selected garment industry of Dhaka city: A cross sectional study. *The ORION Medical Journal.* 2006;23:325–327
22. Bova JG, Potter JL, Arealos E, Hopens T, Goldstein HM, Radwin HM. Renal and perirenal infection: to the role of computerized tomography. *J Urol.* 1985;133:375–8. [PubMed]
23. Nicolle LE. Resistant pathogens in urinary tract infections. *J Am Geriatr Soc* 2002;50:S230-5