Research Article

It Medical Team
https://www.itmedicalteam.pl/

Journal of Biomedical Sciences
2254-609X

2022
Vol. 11 No. 8: 77

Urinary Tract Infection Prevalence among Patients who Visited Dr. Lal Path Lab Clinical and Research Laboratory

Yawar Amin Shah[1]*, Seema Rani[2], Aabid Ahmad Khanday[1]

1 Teaching Assistant, Desh Bhagat University, Mandi Gobindgarh, India
2 Assistant Professor, Desh Bhagat University, Mandi Gobindgarh, India

Corresponding author: Yawar Amin Shah

sajadashan18@gmail.com

Tel: 7889845501

Teaching Assistant, Desh Bhagat University, Mandi Gobindgarh, India

Citation: Shah YA, Rani S, Khanday AA (2022) Urinary Tract Infection Prevalence among Patients who Visited Dr. Lal Path Lab Clinical and Research Laboratory. J Biomed Sci, Vol. 11 No. 8: 77

Abstract

Urinary tract infection (UTI) is a general bacterial infection that affects various parts of the urinary tract system, and it affects both men and women. Urinary tract infection is one of the most common infections among Indians. The purpose of this study was to determine the prevalence, distribution, and antimicrobial susceptibility of uro pathogens in patients who visited Dr. Lal Path Clinical and Research Laboratory.

Keywords: Urinary tract infection; Uro-pathogen; Colony-forming units

Received: 29-July-2022, Manuscript No. IPJBS-22-12918; **Editor assigned:** 01-Aug-2022, PreQC No. IPJBS-22-12918(PQ); **Reviewed:** 15-Aug-2022, QC No. IPJBS-22-12918 **Revised:** 22-Aug-2022, Manuscript No. IPJBS-22-12918(R); **Published:** 29-Aug-2022, DOI: 10.36648/2254-609X.11.8.77

Introduction

Urinary tract infection (UTI) is the most common bacterial infection in the community, with a high morbidity and financial loss rate. Given that urinary tract infections (UTIs) are among the most prevalent bacterial illnesses in adult women, they are significant clinically. The notion that the urine bladder is sterile, which has since been disproved, remains at the core of the present understanding of UTI. As a result, the present guidelines for diagnosing UTIs have serious shortcomings that may limit the chance to enhance patient care. The language of UTI, UTI diagnostic testing, the Escherichia coli-centric concept of UTI, and colony-forming units (CFU) threshold-based diagnosis were the four primary shortcomings we observed to the current UTI definition using data from our work and numerous other peer-reviewed publications. These restrictions can be overcome using modern techniques and technology as well as ongoing, rigorous clinical research. It is estimated that approximately 150 million people worldwide are infected with UTI each year, costing more than $6 billion USD [1]. Urinary tract infection has been shown to be the leading cause of morbidity in the general population and the second leading cause of hospitalization [2, 3]. UTI occurrence is strongly linked to social class, patient age, birth rank, and family size. UTI affects people differently depending on their age and gender. Boys are usually more at risk before the age of three months, but girls become more at risk after that. According to studies, 3% of prepubescent girls and 1% of prepubescent boys are diagnosed with a UTI. Circumcision is associated with a lower rate of UTI in male infants [4, 5]. When all age groups are considered, women are more likely than men to develop a UTI. The situation is different in older men due to increased prostatic hypertrophy, which may affect urine flow and thus increase the risk of developing UTI. When UTI occurs in the elderly, it is asymptomatic although both genders are susceptible to infection, women are more vulnerable due to the anatomy and physiology of their reproductive system. Urinary tract infection is one of the most common bacterial infections in women, with 50-60% of mature women experiencing a UTI at some point in their lives. The infection is named after the affected organ and is known as cystitis (bladder infection) and pyelonephritis (kidney infection). UTI is more common in females than in males because the female urethra is structurally less effective at preventing bacterial entry. It could be due to the proximity of the genital tract and urethra, as well as urothelial mucosa adherence to the mucopolysaccharide lining. Pregnancy and sexual activity are two other major risk factors for UTI in women. Significant bacteriuria is used to distinguish infected and contaminated urine specimens from asymptomatic patients. Patients who do not have symptoms and have bacterial counts in their urine that are greater than 104/ml of urine specimen do not have UTI. Mehvish and Betty explained this. Significant bacteriuria was used in their study to explain the presence of urinary tract infections in symptomatic

patients. According to their findings, such patients have bacterial counts greater than 105 organisms per milliliter. In symptomatic patients with UTI, the count may drop to 104 organisms per milliliter, and in the absence of chemotherapy, the count may be even lower. According to studies, patients with UTI have only one bacterial species, whereas the presence of two or more growths in UTI can be caused by contamination. UTI accounts for a significant portion of the work load in clinical microbiology laboratories, with enteric bacteria dominating. Even though the distribution of pathogens that cause UTI is changing, *Escherichia coli* remain the most common cause of UTI. According to previous research, *E.coli* is the most common organism isolated from most urine specimens. It is a non-harmful flora in the human intestine.

Methodology

Study Population

All patients referred to the clinical laboratory for urine culture by clinicians were included in the study population. This study included 1953 patients who were not clinically diagnosed with UTI.

Collection of Urine Samples

Midstream urine samples were collected in the early morning using sterile, wide mouthed containers with screw cap tops. Urine sample containers were properly labelled with the patient's name, age, gender, and time of collection, as well as requisition forms. Cefuroxime, followed by Imipenem, Tigecycline, and Colistin, was the most effective drug, while Nitrofurantine was the least effective.

Sample Processing

Culture

Using the methods, the samples were examined for bacterial growth. For plating, a calibrated sterile Nichrome wire loop with a diameter of 4.0 mm and a holding capacity of 0.01ml urine was used for the semi-quantitative method. A well-mixed urine sample was inoculated into triplicate Blood, CPS, and Mac-Conkeyagar plates. After that, all plates were incubated aerobically at 370°C for 24 hours. Bacterial growth was then examined macroscopically and microscopically on the plates. The number of bacteria present per millilitre of urine was estimated by counting the bacterial colonies and multiplying the number by 100. Any bacterial count equal to or greater than 10,000cfu/ml was considered significant.

Identification

Traditional methods and VITEK-2 (Bio-Meriux) systems were used to identify bacterial species based on cultural characteristics.

Antibiotic Susceptibility testing

The agar diffusion method was used to standardize the size of the inoculums. We used the standardized single-disc diffusion method.

Table1. Sex wise Distribution of the Cases.

S. No.	Sex	Total Cases	Positive Cases
1.	Female	1280(65.54%)	320(25%)
2.	Male	673(34.45%)	78(11.58%)
3.	Total	1953	398(36.58%)

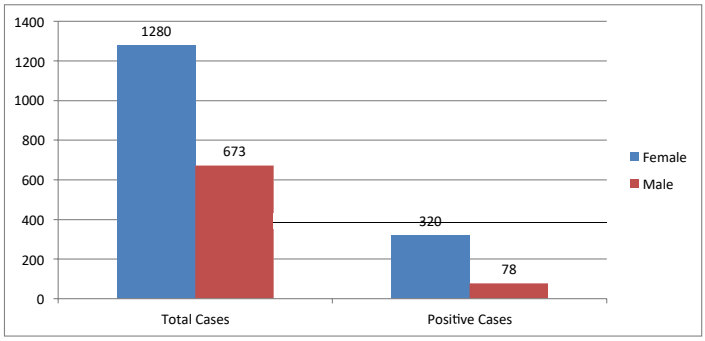

Figure 1. Sex wise Distribution of the Cases.

Statistical Analysis

Epi Info software was used for data entry and analysis (version6.04) (**Table 1 and Figure 1**).

Results

A total of 1953 urine samples were randomly collected from people who visited the diagnostic centre for urine culture. There were 1280 females (65.54%) and 673 males (34.45%) among the 1953 people. After being processed in the clinical microbiology lab, 1555 (63.42%) of the urine samples were sterile, while 398 (36.58 percent) of the urine samples showed growth of various pathogenic bacteria. Among the 398 positive subjects, 320 (25%) were females, while only 78 (11.58%) were males. The most common age groups were found to be 30-45 years old in females and 50-60 years old in males. E. coli was found in 302 (75.87%) of the specimens, followed by K.pneumonia32, Ibadan, Nigeria. 4(2):105-109 Middle-East Journal of Scientific Research.

Conclusion

These findings support the need for regular monitoring of specific Uro-pathogen susceptibility to commonly used antibiotics in different populations. Should we approach UTI differently? Absolutely in terms of UTI diagnosis and therapy, a new era is beginning. We can no longer describe a UTI as uropathogens entering a sterile environment. We must now accept that communities of bacteria that were once disregarded affect urinary health in both favorable and harmful ways. It remains to be seen how these discoveries will ultimately alter our precise definition of UTI, but the impact will undoubtedly be significant. It is obvious that a shift in the status quo is necessary for patients to gain from this new knowledge about UTI. Improved treatment algorithms should be able to provide a range of treatments with specific objectives that lower the likelihood of dangerous infections and systemic sickness as well as unfavorable side effects of UTI medication. Patients should benefit from more accurate diagnoses and focused treatments with fewer harmful side effects if evidence-based research is properly adopted. Our

understanding of the function of the urinary microbiota in the context of both health and disease, as well as among women of different demographics, should be furthered by future research.

Old habits are reluctant to disappear, and changes will be necessary as we usher in this new era of UTI care, as with every significant change in clinical care. Clinicians should become familiar with novel techniques for interpreting UTI tests, such as EQUC. Clinical judgement will continue to be an important tool in patient treatment because no single study can provide guidance for all clinical circumstances. It may take some time to break free from ingrained clinical care habits, but our patients deserve better, and it is time to enhance their treatment.

References

1 Kibret M, Abera B (2014) Prevalence and antibiogram of urinary tract infection bacterial isolates at Dessie Health Research Laboratory in Ethiopia. Asian Pac J Trop Biomed 4: 164-168.

2 Swetha VV, Rao US, Prakash PH, Subbarayudu S (2014) Aerobic bacteriological profile of urinary tract infections in a tertiary care hospital. Int J Curr Microbiol App Sci 3: 120-125.

3 Prakasam AKC, Kumar KD, Vijayan M (2012) A cross sectional study on distribution of urinary tract infection and their antibiotic utilisation pattern in Kerala. Int J Res Pharm Biomed Sci 3: 1125-1130.

4 Kolawole AS, Kolawole OM, Kandaki-Olukemi YT, Babatunde SK, Durowade KA et al. (2009) Prevalence of urinary tract infections (UTI) among patients attending Dalhatu Araf Specialist Hospital, Lafia, Nasarawa state, Nigeria. Int J Med Med Sci 1: 163-167.

5 Okonko IO, Donbraye-Emmanuel OB, Ijandipe LA, Ogun AA, Adedeji AO et al. (2009) Antibiotics sensitivity and resistance patterns of uropathogens to nitrofurantoin and nalidixic acid in pregnant women with urinary tract infections in Ibadan. Middle-East J Sci Res 4: 105-109.