



Study of UTI Infection among Females Patients during Covid-19 Pandemic Period in Rural Area, Jaipur

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ABSTRACT:

Urinary Tract Infection (UTI), disease caused by invasion of the genitourinary tract that extends from the renal cortex of the kidneys to the urethral meatus. UTI is common both in men and women with all ages. However, some groups of people are more prone to UTI than others, such as women are in a greater risk compared with men because of their shorter urethra which is continually contaminated from pathogens from vagina and rectum. The present study include 292 clinically diagnosed case of UTI infected patients of young and adult aged group out of 542 individuals were selected. The collection of samples taken from OPD and IPD, of various departments including Gynaecology, Medicine and Surgery, National Institute of Medical Science & Research (NIIMS), Jaipur. All the tests were performed in Department of Pathology, National Institute of Medical Science & Research, Jaipur (Rajasthan). 46% were non-UTI patients and 54% females have UTI infection. So, the prevalence of female patients was 54%, which was almost high in number in total population. UTI infection among females was high in older aged group patients i.e., between 61-71 years and the calculation was 18. 18 patients have UTI infection due to fever. 12 each patients have UTI infection due to Dysuria and Nocturia. 14 pregnant patients have UTI infection. Also, in case of DM same number of female patients have UTI infection as in case of Pregnancy. In case of Cystitis condition, 16 UTI patients were found. The prevalence of microorganism responsible for UTI infection was E.coli (56%), Klebsiella pneumonia (18%), Yeast (14%), Enterococcus Faecalis (8%) and S epidermidis (4%). Females were more prominent in case of UTI infection. The prevalence of UTI infection in females was 54%. 61-70 aged grouped were most common group in UTI infection. So, older aged group were most effected by UTI infection. The most common symptoms in UTI infection were fever, Dysuria, Previous UTI, Diabetes Mellitus and Cystitis. E.coli (56%), K pneumonia (18%), Yeast (14%), Enterococcus faecalis (8%) and S epidermidis (4%) was the prevalence of microorganisms in UTI infection. UTI infection is the most common infection in females, general awareness is necessary not for the females

KEYWORDS: UTI Infection, Burn, Cystitis, Dysuria, Diabetes Mellitus

Introduction:

During the pandemic time of Covid in india, it's reported that during to increase in the stress level among females various infections are seen. Among all the infections, UTI infection is common in females. Urinary Tract Infection (UTI) is defined as a disease caused by invasion of the genitourinary tract that extends from the renal cortex of the kidneys to the urethral meatus. UTI is common both in men and women with all ages. However, some groups of people are more prone to UTI than others, such as women are in a greater risk compared with men because of their shorter urethra which is continually contaminated from pathogens from vagina and rectum.⁽¹⁾

Women with lower tract urinary infection may experience pelvic pain. This is an addition to the other common symptoms. Symptoms of upper tract infection among both men and women are similar.⁽²⁾ In the presence of risk factors such as female sex, diabetes, obstructive uropathy, previous instrumentation, and chronic kidney disease (CKD), the treatment become even more challenging. Urinalysis is a powerful tool in diagnosis of the urine with unusual symptoms. For screening of a various diseases Urinary tract diseases should be regularly monitored for routine urinalysis.

UTI is usually caused by *Escherichia coli* (*E. coli*), a type of bacteria commonly found in the gastrointestinal (GI) tract. However, sometimes other bacteria are responsible. Bacteria such as Organisms responsible for causing UTI is *proteus*, *Pseudomonas*, *Klebsiella*, *Enterobacter* etc. The present study was to determine the prevalence, various risk factors and the pathogens infected the UTI infection in female patients.

Materials & Methods:

The present study include 292 clinically diagnosed case of UTI infections patients of young and adult age group out of 542 individuals were selected. The collection of samples taken from OPD and IPD, of various departments including Gynaecology, Medicine and Surgery, National Institute of Medical Science & Research, Jaipur (Rajasthan). All the tests are perform in Department of Pathology, National Institute of Medical Science &

Research, Jaipur (Rajasthan). The facility based study was conducted in NIMS Hospital, Jaipur from February 2021 to May 2021. Females who visited NIMS hospital for disorder related to Urinary tract infection are requested to fill the consent form and informed to give urine specimen to rule out the infection. Urine specimens collected for analysis of OPD and IPD patients. The urine was collected in a Sterile container according to the recommended timings accordingly. The equipment used for the examination of the samples included optical microscope (40X), disposable gloves, Test tubes, Centrifuge and other necessary equipment. Physical, Chemical and Microscopic studies of urine was done.

Direct Examination:

Screening test done are as follows :

- Wet mount examination for pus cells in urine.
- Nitrate reduction test – to detect nitrate reducing bacteria
- Catalase test – to detect catalase producing bacteria.
- Gram staining of urine

Culture : Urine sample should be inoculated onto MacConkey agar and blood agar or CLED (cysteine lactose electrolyte deficient) agar. Organisms grows on ordinary culture media at optimum temperature of 37°C (range 10 - 40 °C) in 18 – 24 hours.

Antimicrobial Susceptibility testing : It is necessary to administer proper antibiotics. It is done on Mueller Hinton agar by using disk diffusion method

Observations & Results:

Table 1: Distribution of UTI Infection

	Non-UTI Patient (%)	Female(%)
No. of Patients	46 (46%)	54 (54%)

In the above Table no. 1.46% were non-UTI patients and 54% females have UTI infection. So, the prevalence of female patients was 54%, which was almost high in number in total population.

Table 2: UTI Infection According to Age Distribution

Age Distribution (in year)	Female
21-30	6
31-40	10
41-50	14
51-60	2
61-70	18
71-80	0
81-90	4
Total	54

In table no. 2, it's seem that UTI infection among females was high in older aged group patients i.e., between 61-71 years and the calculation was 18. After that middle aged group was infected i.e., 41-50 year and the number was 14. 10 females patients belongs between 31-40 years aged group. Less UTI infection found in case between 21-30 year, the no. was 6. Between 51-60 year, the number was 2. And between 81-90 year aged group, only 4 UTI infection females were placed. Although, no patients were found between 61-70 year aged group patients.

Table 3: Factors of UTI Infections and distribution in Female Patients

Factor	Female UTI patients
Burn	6
Fever	18
Pain	6
Dysuria	12
Hematuria	10
Nocturia	12
Pregnancy	14
Previous UTI	24
DM	14
U- Cath	0
Dur Cath	0
Cystitis	16
Pyelonephritis	8

In the above table, various risk factors of UTI infection among Females patients was shown and it's showed that 6 patients belongs from Burn factor.18 patients have UTI infection due to fever.Due to pain, 6 patients were in the group.12 each patients have UTI infection due to Dysuria and Nocturia.In case of Hematuria, 12 patients have UTI infection.Whereas, 14 pregnant patients have UTI infection.Also, in case of DM same number of female patients have UTI infection as in case of Pregnancy.In case of Cystitis condition, 16 UTI patients were found and 8 UTI patients belongs to Pyelonephritis. U- Cath and Dur Cath don't have any UTI female patients.

Table 4: Percentage of various Pathogens in UTI infection in Female Patients.

Culture	Percentage of UTI Patients
<i>E.coli</i>	56
<i>Klebsiella pneumonia</i>	18
<i>Budding Yeast</i>	14
<i>Enterococcus faecalis</i>	8
<i>S.epidermidis</i>	4
Total	

The prevalence of microorganism responsible for UTI infection was E.coli (56%),Klebsiella pneumonia (18%), Yeast (14%), Enterococcus Faecalis (8%) and S epidermidis (4%).

Discussion:

In table no.1 which shows that the prevalence of female patients suffering from UTI infection was 54%.So, in our study we found out that prevalence of female patients is higher than the male patients. Our study resemble with the study of **May Sewify et al. (2015)**⁽³⁾ as they found that the females showed much higher prevalence of UTI than males as 223 (88.5%) of UTIs of the total study population were in females versus only 29 (11.5%) in males. Also, According to **Martha Medina & Edgardo Castillo-Pino (2019)**⁽⁴⁾, the prevalence of UTI increases with age, and in women aged over 65 is approximately double the rate seen in the female population overall.So, female were more prominent against male in case of UTI infection. According to **Santhosh John Thattil & Sumitha Santhosh (2018)**⁽⁵⁾ found out that the prevalence of female UTI patients are higher value than male.No. of male patients was 198 and that of female was 304, which also resemble and justify our study.

The prevalence of UTI infection according to different aged group patients from table no. 2, showed that between 61 to 70 years patients, the no. of UTI patients was 18 which was much higher from other group.Also, according to **May Sewify et al. (2015)**⁽³⁾, older aged patients i.e., above 70 year, the prevalence was 78 patients which slightly resemble with the current study.

In the present study, the most common risk factor in case of UTI infection were fever,Dysuria,Previous UTI Infection and Diabetes Mellitus,Cystitis in female patients.According to **Orna Nitzan et al., (2015)**⁽⁶⁾, all types of UTI are more frequent in patients with type 2 diabetes. Various studies have reported the overall incidence of UTI among these patients. The diagnosis of UTI should be suspected in any diabetic patient with symptoms consistent with UTI. These symptoms are: frequency, urgency, dysuria, and suprapubic pain for lower UTI; and costovertebral angle pain/tenderness, fever, and chills, with or without lower urinary tract symptoms for upper UTI.

In the present study, the UTI infection caused due to *E.coli*, *K.pneumonia*,*Yeast*,*Enterococcus faeculis* and *S. epidermitis*. The prevalence was 56% *E.coli*, *K.pneumonia* 18%, Yeast 14%, *Enterococcus faecalis* 8% and *S.epidermidis* 4%. According to **May Sewify et al., (2015)**⁽³⁾, *Escherichia coli* was the predominant uropathogen followed by *Klebsiella pneumoniae* and they were together involved in 76.2% of UTI cases.Also, **Martha Medina & Edgardo Castillo-Pino (2019)**⁽⁴⁾, The dominant pathogen in all conditions was UPEC (39.7%), although it made up a lower proportion than in UTIs in general; *Enterococcus spp.* (11.5%), *Klebsiella spp.* (11.1%), and *Pseudomonas aeruginosa (P. aeruginosa)* (10.8%) comprised approximately one-third of infections.All the above studies, resemble with our study and finally we said that E.Coli was most common cause of UTI infection.

Summary & Conclusion:

Females were more prominent in case of UTI infection. The prevalence of UTI infection in females was 54%.61-70 aged grouped were most common group in UTI infection.So, older aged group were most effected by UTI infection.The most common symptoms in UTI infection were fever, Dysuria,Previous UTI,Diabetes Mellitus and Cystitis.*E.coli* (56%), *K pneumonia* (18%), *Yeast* (14%), *Enterococcus faecalis* (8%) and *S epidermidis* (4%) was the prevalence of microorganisms in UTI infection.

UTI infection is the most common infection in females, general awareness is necessary not for the females but also for males. Government must take appropriate steps to prevent the UTI infection. Government of India and State Governments should start awareness programs both in urban and in rural areas in the local language.

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