

A Hospital Based Prospective Study to Evaluate the Urinary Tract Infections Among Women in Reproductive Age Groups

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Abstract

Background: Urinary tract infection (UTIs) are one of the most common problems among women especially during pregnancy. Many researchers have regarded UTI as the most common bacterial infection encountered by human beings and have attempted to investigate the antimicrobial pattern exhibited by these pathogens responsible for the infection. The aim of this study is to assess the prevalence of UTI among pregnant women, married and unmarried women. **Material & Methods:** A prospective study done on 100 women of the reproductive age group 18-44 years who were attend with complain of lower urinary tract symptoms with fever or without fever in urology OPD/ obstetrics & gynaecology OPD of SMS hospital, Jaipur for 6 months period. Each woman was interviewed using a Questionnaire containing personal information such as age, occupation, Gravidity, months of pregnancy and educational level. Data were calculated and presented as numbers and percentages. **Results:** The study showed that 60% belonged to 21-30-year age group followed by 25% who belonged to 31-40-year age group. Almost 66% of females were married and 34% were unmarried. 34.85% of them were pregnant and more than half of them were in the 3rd trimester. The total prevalence rate of UTI was 28%. The higher percentage of UTIs was found among pregnant women 50%, in their 3rd trimester 42.85%, aged between 21-30 years, 41.5%. The majority of women with UTIs were housewives 64.28%, from rural areas 71.42%, and illiterate 60.71%. **Conclusion:** The study concluded that a significant association was found between the prevalence of UTIs among women and their age, educational level, marital status, gravity and residency.

Keywords: UTIs, Prevalence, Pregnancy, Education Level, Residence.

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Introduction

Urinary tract infection is a common contagion among men and women but the incidence is quite high among women due to their physiology. Urinary tract infection can be a consequence of poor diagnosis and is regarded as the common hospital acquired infection [1,2]. The infection encompasses a diverse group of clinical syndromes and diseases that differ in epidemiology, etiology, location severity of the condition [3]. A urinary tract infection (UTI) is characterized by the presence of more than 100,000 microscopic cells in 1 mL of urine and accompanied by clinical symptoms of cystitis, pyelonephritis and asymptomatic bacteria [4]. UTIs are one of the most common problems among women especially during pregnancy. It is estimated that about 10-20% of women suffer from UTIs [5]. Most cases of UTIs are caused by bacteria, especially gastrointestinal bacteria, which infects the urethra through contaminating the area that surrounds the rectum and spreading to the bladder [6]. Women within the age group of 15-32 were prone to the infection and pregnancy has in turn enhanced the susceptibility rate among women. UTI is considered as the most common hospital acquired

infection constituting up to 35% of nosocomial infection and is regarded as a vital factor for the outbreak of bacteremia among hospitalized patients. UTIs are more common during pregnancy due to changes in the urinary tract. Since the uterus sits directly on the top of the bladder, the increased weight of the uterus, as it grows, can block the drainage of urine from the bladder which results in an infection [7]. However, other factors include upper extremities and increased urinary urethral recurrence as well as reduced bladder size due to uterine contraception which increases the filtration rate thus stressing on the kidneys [8]. In addition to the factor of pregnancy, there are other factors pertaining to the host that increases the rate of infection of the urinary tract including sexual factors, urine factors, osmolality of urine, introital factors, vaginal pH, and secretor state [7]. Many researchers have regarded UTI as the most common bacterial infection encountered by human beings and have attempted to investigate the antimicrobial pattern exhibited by these pathogens responsible for the infection. The significance of this study is that UTIs can be particularly dangerous in pregnant women among whom it has been shown that up to 50% of those with Asymptomatic Bacteriuria (ABU) go on to develop pyelonephritis. In addition, pregnant women experience higher rates of intrauterine growth restriction and low birth-weight infants. The presence of a UTI has also been shown to increase the risk of preterm labor, preterm birth, pregnancy-induced hypertension, preeclampsia, amnionitis and anemia [7]. The aim of this study is to assess the prevalence of UTI among pregnant women, married and unmarried women.

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Materials & Methods

A prospective study done on 100 women of the reproductive age group 18-44 years who were attend with complain of lower urinary tract symptoms with fever or without fever in urology OPD/obstetrics & gynaecology OPD of SMS hospital, Jaipur for 6 months period.

Inclusion Criteria

- Females of the reproductive age group 18-44 years who live in urban and rural areas they were apparently healthy.
- Those females included in this study who will give written consent.

Exclusion Criteria

- Females on any antibiotic therapy
- Females on menstruation phase of the menstrual cycle
- Females with known urinary tract anomalies.

Methods

A standardized, structured questionnaire was utilized to be conducted in the study. The questionnaire consisted of the socio-demographic particulars such as age, occupation, months of pregnancy, and clinical history for the symptoms of UTI. Data are prepared, organized and entered into a computer; Statistical Package for The Social Science (SPSS, version 24) was used for data analysis.

Prevalence of UTI was calculated using percentages. Quantitative data were presented by mean and SD, whereas qualitative data was presented as number and percentages. Chi-Square test was used to compare qualitative variables between groups such as age group, educational level, residency, etc. P value > 0.05 is considered insignificant, $P < 0.05$ is significant (*) & $P < 0.01$ is highly significant (**).

Results

Our study showed that 60% belonged to 21-30-year age group followed by 25% who belonged to 31-40-year age group. 48% of the study subjects were illiterate, 27% had secondary school graduates and 25% had a diploma or bachelor degree in school education. Almost 66% of females were married and 34% were unmarried. 34% of them were pregnant and more than half of them were in the 3rd trimester. In relation to their occupation, the majority of the women 70% were housewives (table 1). The overall prevalence rate of UTI was 28% with complain of lower abdominal pain in 100 women. The higher percentage of UTIs was found among pregnant women 50%, in their 3rd trimester 42.85%, aged between 21-30 years, 41.5%. The majority of women with UTIs were housewives 64.28%, from rural areas 71.42%, and illiterate 60.71% (table 1).

Table 1: Distribution of cases according to some risk factors

Risk factors	No. of patients (N=100)	Percentage	UTIs (N=28)	Percentage	Chi-square
Age					
18-20 yrs	15	15%	6	21.42%	<0.05*
21-30 yrs	60	60%	12	42.85%	
31-40 yrs	25	25%	10	35.71%	
Marital Status					
Married	66	66%	21	75%	<0.05*
Unmarried	34	34%	7	25%	
Gravida(N66)					
1	29	43.94%	6	21.42%	0.049*
2	14	21.22%	8	28.57%	
3 & more	23	34.85%	14	50%	
Gestational Age (N=34)					
I st	7	20.58%	3	10.72%	>0.05
2 nd	8	23.52%	4	14.28%	
3 rd	19	55.90%	5	17.85%	
Residence					
Rural	52	52%	20	71.42%	0.042*
Urban	48	48%	8	28.58%	
Education Level					
Illiterate	48	48%	17	60.71%	<0.05*
High school level	27	27%	8	28.57%	
Diploma or college level	25	25%	3	10.72%	
Occupation					
Housewife	70	70%	18	64.28%	>0.05
Employer	30	30%	10	35.71%	

Discussion

UTI can be defined as the presence of an infection in any part of our urinary system-kidneys, ureters, urinary bladder and urethra. Majority of the infections involve the lower urinary tract – the urinary bladder and the urethra. Women of reproductive age group (15-44 years) are the most vulnerable of developing UTI than men. The early treatment of infection reduces the probability of complications which may be very dangerous to mother and the fetus[9]. The total prevalence rate of UTI was 28%. The higher percentage of UTIs was found among pregnant women 50%, in their 3rd trimester 42.85%, aged between 21-30 years, 41.5%. The majority of women with UTIs were housewives 64.28%, from rural areas 71.42%, and illiterate 60.71%. These results were like the study of Imade et al[10] and more than other studies Neupane et al[11], Rohini et al[12], Sujatha et al[13] and Rajaratnam et al[14]. This

inconsistency and difference in results may be due to variances in the environmental background and social habits of the communities, in addition to the economic situation, awareness and knowledge of the client's hygiene standards. Parity and gestational age significantly affected the prevalence of urinary tract infection. These have been previously reported[15-17]. Pregnant women in the 3rd trimester of current pregnancy and those having more than one child were mostly at risk of acquiring urinary tract infection. Several anatomical and hormonal changes in pregnant women lead to urethral dilation and urinary stasis which contribute to increased risk of developing UTI[18]. Concerning the residence of the women, this study shows that a significant association was found between women's UTIs and their residency. Our study showed that 60% belonged to 21-30-year age group followed by 25% who belonged to 31-40-year age group. 48% of the study subjects were illiterate, 27% had secondary school

graduates and 25% had a diploma or bachelor degree in school education. Almost 66% of females were married and 34% were unmarried. 34.85% of them were pregnant and more than half of them were in the 3rd trimester. In relation to their occupation, the majority of the women 70% were housewives. With regard to the level of education variable, the results found that there is a significant association between women's UTIs and their educational level. In contrast, Sheikh et al[19] found no significant effect of education on the incidence rate of UTIs in their study conducted in Pakistan. On the other hand, Gunes et al[20] found that UTI was significantly high among women who had less than secondary level education in their study conducted in Turkey Dimetry et al[21] found that the highest percentage of UTIs among pregnant women was among those who were illiterate 61.5%. Regarding the occupation of women, although there is no association between women's UTIs and their occupation, our study showed that the highest proportion of UTIs was found among housewives. One possible cause is that employed women cannot visit the health unit for antenatal care as often because of work conflicts. This finding contradicts to the finding of Okonko et al[22] in Nigeria, who found that the highest percentage of UTI among pregnant women 77.8% were among civil workers, followed by teachers 70% and businesswomen 53.8%, and the lower percentages were among students 30.4% and housewives 36.4%.

Conclusion

The study concluded that a significant association was found between the prevalence of UTIs among women and their age, educational level, marital status, gravity and residency.

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