

Urinary Complaints and Causative Organisms of Urinary Tract Infection among Pregnant Women

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ABSTRACT

Objective: To determine the frequency of urinary tract infection and common causative agents of UTI among symptomatic pregnant women and to determine the frequency of various presentation of urinary tract infection among pregnant women

Study design: Cross sectional study

Setting: Department of Obstetrics and Gynaecology for a period of six months from May 2011 to October 2011

Methods: This study included 230 patients who were evaluated for the presence of urinary tract infection and associated causative agents.

Results: Majority of the patients were between 20-25 years, i.e. 40.87%(n=94), mean±sd was recorded as 27.21±3.65 years, 19.13%(n=44) were with 0 para, 23.04%(n=53) were between para 1-2, 26.53%(n=61) were between para 3-4 and 31.30%(n=72) were recorded with para >4, 89.13%(n=205) with E.Coli, 4.78%(n=11) with staphylococcus and 2.17%(n=5) with Methicillin resistant staphylococcus aureus, 44.35%(n=102) with Stress urinary incontinence, 66.96%(n=154) were nocturia, 38.70%(n=89) with urgency and 32.17%(n=74) with dysuria.

Conclusion: The result of the study reveals that frequency of urinary tract infection and common causative agents and various presentation of UTI among symptomatic pregnant women are high in.

Key words: Urinary tract infection, pregnant women, presentation and causative agents of UTI

INTRODUCTION

Urinary tract infection is one of the most common diseases encountered in clinical practice today with high prevalence during pregnancy. If left untreated may lead to severe maternal and fetal complications. The urinary tract undergoes profound physiological changes during pregnancy, facilitating the development of both symptomatic and asymptomatic bacteria in women. About 10 percent of those with symptomatic bacteria develop urinary tract infection during pregnancy¹.

Symptomatic bacteria present itself in form of nocturia, stress incontinence, urgency, incomplete emptying and voiding difficulties. The frequency of nocturia was 60.2% stress incontinence 46.1%, urgency 34.1%, incomplete emptying 36% as reported in recent international studies².

Low urinary tract symptoms in pregnancy can be due to pregnancy induced changes as well as urinary infections³. Screening for bacteria must be considered as essential part of antenatal care and when results are positive, should undergo urine culture examination and should be treated with appropriate oral antibiotics for 3-7 days. The percentage of urinary tract infection in pregnancy is

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5-10 percent, and most common causative organism of bacteria in pregnancy is E.coli 84.99%, Staphylococcus Saprophyticus 5.66% and Methicillin resistant Staphylococcus Aureus (3.77%)⁴.

Once UTI infects the bladder and kidneys, a pregnant women is at risk of hypertension, preeclampsia, anemia (low red blood cells) and amnionitis. Bladder and kidney infections increase the chances of premature birth and low birth weight⁵.

As in our setup frequency of women coming in antenatal clinic with symptomatic bacteria is quite high so by assessing symptoms of urinary complaints and early diagnosis of causative agents of UTI, by urine culture and treatment with appropriate antibiotics there will be reduction in the maternal (renal dysfunction, sepsis) and fetal (prematurity, low birth weight) morbidity and patients will be benefited. In addition, we will come to know which organisms are more common that cause UTI in our local population. It will help to manage patients in a better way & establish our practice guidelines.

MATERIALS AND METHODS

This study was conducted in the department of Obstetrics and Gynaecology for six months from May

2011 to October 2011. In this study 230 women of any parity presenting with urinary complaints including stress incontinence (involuntary loss of urine on coughing and sneezing), dysuria (discomfort, pain and burning sensation on urination), nocturia (if patients wakes up for urination 3 or more times at night) and urgency (feeling of inability to hold urine) in antenatal clinics of Fatima Memorial Hospital were included. Women with pre existing renal pathology, on immunosuppressive agents, post renal transplant patients and those who had received antibiotic cover in previous two weeks were excluded from the study. The objective was to determine the frequency of urinary tract infection and common causative agents of UTI among symptomatic pregnant women and to determine the frequency of various presentation of urinary tract infection among pregnant women.

Data collection and analysis: 230 patients selected by non probability purposive sampling were included in the study after obtaining informed consent. The demographic history was obtained. All women were inquired about nocturia, stress incontinence, urgency and dysuria. They were made to undergo complete urine examination and in those with positive findings (urinary tract infection labeled as presence of 10-15 pus cells) urine culture and sensitivity was done to find out the causative agent. Tests were performed in laboratory of Fatima Memorial Hospital Lahore. The collected data was entered in the SPSS version 10 and analyzed through its statistical package. The quantitative variables including age were represented as mean and standard deviation. The qualitative variables including nocturia, stress incontinence, urgency, dysuria, and causative agent of urinary tract infection were presented as percentage and proportions. The collected information was analyzed to determine most common causative organism e-coli, staphylococcus, methicillin resistant (staphylococcus aureus), methicillin sensitive (staphylococcus aureus).

RESULTS

In this study, a total of 230 patients were recruited after fulfilling the inclusion/exclusion criteria to determine the frequency of urinary tract infection and common causative agents of UTI among symptomatic pregnant women and to determine the frequency of various presentation of urinary tract infection among pregnant women. Majority of the patients were between 20-25 years, i.e. 40.87%(n=94), 31.30%(n=72) were between 26-30 years of age, 27.83%(=64) were between 31-35 years, mean±sd was recorded as 27.21±3.65 years. (Table 1)

Table 1: Age distribution of the patients (n=230)

Age (in years)	=n	%age
20-25	94	40.87
26-30	72	31.30
31-35	64	27.83

Mean and S.D= 27.21±3.65

Distribution of the patients according to parity was calculated and presented in Table 2, where 19.13%(n=44) were with 0 para, 23.04%(n=53) were between para 1-2, 26.53%(n=61) were between para 3-4 and 31.30%(n=72) were recorded with para >4. (Table 2)

Table 2: Parity of the subjects (n=230)

Parity	=n	%age
Para 0	44	19.13
Para 1-2	53	23.04
Para 3-4	61	26.53
Para >4	72	31.30

Frequency of UTI and common causative agents of UTI among symptomatic pregnant women were 89.13%(n=205) with E.Coli, 4.78%(n=11) with staphylococcus and 2.17%(n=5) with Methicillin resistant (Table 3)

Table 3: Frequency of urinary tract infection and common causative agents of UTI among symptomatic pregnant women (n=230)

Causative agents	=n	%age
E-Coli	205	89.13
Staphylococcus	11	4.78
Methicillin resistant (staphylococcus aureus)	05	2.17

Frequency of presentation of UTI among pregnant women were 44.35%(n=102) with Stress urinary incontinence, 66.96%(n=154) were notcturia, 38.70%(n=89) with urgency and 32.17%(n=74) with dysuria. (Table 4)

Table 4: Frequency of presentation of urinary tract infection and pregnant women (n=230)

Presentation	=n	%age
Stress urinary incontinence	102	44.35
Nocturia	154	66.96
Urgency	89	38.70
Dysuria	74	32.17

DISCUSSION

Many women experience lower urinary tract symptoms during pregnancy, which they may find distressing and disabling. The prevalence of these symptoms varies widely depending on the

terminologies and definitions used in relation to lower urinary tract complaints as well as the study population and design⁶.

The effect of pregnancy on lower urinary symptoms in women has for a long time been of interest to researchers. The anatomical and physiological changes affecting the lower urinary tract in pregnancy as well as the hormonal milieu of pregnancy have been postulated to underlie the pathogenesis of lower urinary symptoms in pregnancy⁷⁻⁸.

In our setup frequency of women coming in antenatal clinic with symptomatic bacteriuria was quite high, so we decided that by assessing symptoms of urinary complaints and early diagnosis of causative agents of UTI, by urine culture and treatment with appropriate antibiotic may reduce the maternal (renal dysfunction, sepsis) and fetal (prematurity, low birth weight) morbidity and patients may be benefited.

We recorded majority of the patients were between 20-25 years, i.e. 40.87%(n=94) with mean±sd as 27.21±3.65 years, common causative agents of UTI among symptomatic pregnant women were 89.13%(n=205) with E.Coli, 4.78%(n=11) with staphylococcus and 2.17%(n=5) with Methicillin resistant staphylococcus aureus, while the frequency of presentation of UTI was 44.35%(n=102) with Stress urinary incontinence, 66.96%(n=154) were nocturia, 38.70%(n=89) with urgency and 32.17%(n=74) with dysuria.

These findings are in agreement with the study conducted by Levent T and workers⁴ who recorded E.col 84.99%, Staphylococcus Saprophyticus 5.66%, Methicillin resistant Staphylococcus Aureus (3.77%) while another study by Chengo M² who revealed nocturia in 60.2%, stress incontinence 46.1%, urgency 34.1% and incomplete emptying 36%. In a cohort of Brazilian pregnant women in their third trimester of pregnancy, Scarpa et al similarly reported a high prevalence of nocturia (80.6%) in pregnancy⁹. Defining nocturia as at least three night-time voids, Parboosingh and Doig reported a prevalence rate of nocturia of 66% among 873 apparently healthy antenatal women by the third trimester of pregnancy.¹⁰ Cutner's finding of a nocturia prevalence rate of 23% among women undergoing termination of pregnancy at 6-15 weeks gestational age,¹¹ shows that the prevalence rate of nocturia may not vary only with the definition adopted but with the gestational age of pregnancy. In this study the prevalence of nocturia varied from 29.9% in the first trimester of pregnancy to 66.96% in the third trimester. Urgency was also a frequent finding in this study being reported by 38.70% of study participants. Cutner et al reported an urgency prevalence of 62% in their study¹¹, while Chaliha et al reported a

prevalence of 22.9% of urgency in pregnancy.¹²The prevalence of urinary incontinence among this pregnant population was 44.35%, with stress urinary incontinence being responsible for it in these cases.

Kristiansson and colleagues conducted a longitudinal, observational and prospective study of 200 women attending antenatal clinic in early pregnancy and found that the prevalence of stress urinary incontinence stabilized at 25% in mid-pregnancy among the subjects in that study¹³. Burgio et al assessed urinary symptoms in a racially mixed sample and found that more white women reported incontinence as compared to black women to a statistically significant level, and also showed that the difference was likely attributable to the higher prevalence of stress incontinence among white women¹⁴.

The result of the study shows that a number of pregnant women in our setup suffer in silence from a variety of lower urinary tract symptoms and there is need to create awareness among health care providers on the lower urinary tract related morbidities in pregnancy and build their capacity to recognize, investigate and manage these symptoms. In addition, we determined the more common causes UTI in our local population which may also help to manage patients in a better way & establish our practice guidelines.

CONCLUSION

The result of the study reveals that frequency of urinary tract infection and common causative agents and various presentation of UTI among symptomatic pregnant women are high in. However, it is recommended that every patient who present with urinary complaints during pregnancy, should be sorted out for causative agents and presentation of urinary tract infection. However, it is also required that every setup should have their surveillance in order to know the frequency of the problem.

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