

Urinary Symptoms & Urinary Tract Infections During Pregnancy

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ABSTRACT

Objectives: To find out the frequency of urinary complaints and actual percentage of urinary tract infection (UTI), and to identify the type of microorganisms causing UTI among pregnant women attending antenatal clinic of Nishtar Hospital Multan.

Study Design: Cross-sectional, descriptive study.

Place & duration: Department of Pathology, Nishtar Medical College, Multan in collaboration with the antenatal clinic of Nishtar Hospital, Multan, during month of March 2014.

Material & Methods: 150 consecutive pregnant women attending the antenatal clinic, falling in the inclusion criteria, were included. All data were entered on a self designed proforma. A clean-catch, midstream urine sample was collected from each woman in to a sterile screw-capped container containing few crystals of boric acid as preservative. The specimen was mixed, labeled and stored for further processing, the centrifuged deposit was checked under microscope for the detection of pus cells. All the samples were cultured and the microorganisms were identified with the help of cultural characteristics, Gram's staining, and biochemical reactions.

Result: Out of 150 pregnant women, 82 (54.7%) had urinary symptoms while 68 (45.3%) did not have these symptoms, only 13.3% (n=20) showed positive urine microscopy and positive culture results while in 86.7% (n=130) of participants, both of these tests were negative, from these 20 cases 18(90%) have urinary complains and 2(10%) cases have positive culture but no urinary complains. From these 20 cases, 14 (70%) showed growth of Escherichia Coli (E Coli), 04 (20%) showed growth of S. Aureus and each 01(5%) showed growth of Proteus and Klebsiella. Regarding age of these 20 cases 12 (60%) were between the age range of 21-30 years and 8 (40%) were between 31-40 years of age. 90% (n=18) were illiterate and 10% (n=2) were literate. 80% (n=16) were from the lower income group and 20% (n=04) were from high income group.

Conclusion: The frequency of urinary complains was 54.7%, but the urinary tract infection was diagnosed in 13.3% of cases. Escherichia Coli was detected the commonest organism causing infection.

Key Words: Pregnancy, Urinary Symptoms, Urinary Tract Infections, Escherichia Coli.

INTRODUCTION:

Pregnancy-associated urinary tract infection is defined as either a lower urinary tract infection (acute cystitis & urethritis) or an upper urinary tract infection (acute pyelonephritis)¹. Urogenital symptoms occur in almost all women during pregnancy.

Lower urinary tract symptoms are universal in antenatal period and are usually transient. These symptoms may reflect pregnancy induced changes in urinary bladder and urethra or may be a manifestation of cystitis and urethritis². Infections particularly in pregnancy and in the elderly, can be asymptomatic, but symptomatic bacteriuria is associated with an increased risk of intrauterine growth retardation and low birth weight³. Furthermore, untreated asymptomatic bacteriuria leads to the development of cystitis in approximately 30% of cases and can lead to the development of pyelonephritis in about 50% of cases⁴. It is therefore essential to screen for urinary tract infection in pregnancy so that timely treatment could be offered⁵⁻⁷.

Urinary tract infection (UTI) is a common clinical problem which can involve the urethra,

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bladder and kidney². UTI affects all age groups but women are more susceptible than men due to short urethra, absence of prostatic secretions, pregnancy and easy contamination of the urinary tract with fecal flora⁸.

The present study was undertaken to find out the frequency of urinary complaints and actual percentage of UTI among these pregnant women attending antenatal clinic of Nishtar Hospital Multan. This study also explored about the risk factors of UTI and identified the type of microorganisms causing UTI among pregnant women studied.

MATERIAL & METHODS:

This study was carried out in the Department of Pathology, Nishtar Medical College, Multan in collaboration with the antenatal clinic of Nishtar Hospital, Multan. This was a cross-sectional, descriptive study in which 150 consecutive pregnant women were included from the antenatal clinic of Nishtar Hospital, Multan. Convenience sampling technique was used to select the participants. All pregnant women attending the antenatal clinic were included irrespective of age, parity and gestational age of the participants. Women with known underlying renal pathology, chronic renal disease, renal transplant, diabetes mellitus and women taking immunosuppressive therapy were excluded from the study. All data were entered on a self designed proforma which recorded the demographic information, history of urinary symptoms, past history of UTI, economic status and the gestational age of the participants.

A clean-catch, midstream urine sample was collected from each woman in to a sterile screw-capped container containing few crystals of boric acid as preservative. The specimen was mixed, labeled and stored for further processing. The centrifuged deposit was checked under microscope for the detection of pus cells. All the samples were cultured and the microorganisms were identified with the help of cultural characteristics, Gram's staining, and biochemical reactions.

RESULTS:

As shown in Table 1, 82 (54.7%) pregnant women had urinary symptoms while 68 (45.3%) did not have these symptoms. Among all (N=150) participants, only 13.3% (n=20) showed positive urine microscopy and positive culture results while in 86.7% (n=130) of participants, both of these tests were negative, from these 20 cases 18(90%) have urinary complains and 2(10%) cases have positive culture but no urinary complains.

Of all the women (n=20) whose urine specimen showed a positive culture result, 14 (70%) showed growth of Escherichia Coli (E.Coli), 04 (20%) showed growth of S. Aureus and each 01(5%) showed growth of Proteus and Klebsiella. (Table-2)

Among all the pregnant women who had UTI (n=20), twelve (60%) were between the age range of 21-30 years and eight (40%) were between 31-40 years of age. Ninety percent (n=18) were illiterate and 10% (n=2) were literate. Eighty percent (n=16) were from the lower income group and 20% (n=04) were from high income group. Income groups were arbitrarily defined as low income group if the total family income was less than Rs. 10000/= per month and high income group as total family income more than Rs. 10000/= per month. Among women having UTI, 90% (n=18) reported at least two previous episodes of UTI in the past, only 10% (n=2) did not have UTI in the past (Table-3).

Table-1: Characteristics of Participants (n=150)

Characteristics	No. of Cases n=150	No. of +ve Culture n=20	No. of -ve Culture n=130
Pregnant Women with Urinary Complaints	82(54.7%)	18(90%)	64(49.25)
Pregnant Women without Urinary complaints	68(45.3%)	2(10%)	66(50.8)

Table-2: Causative Agents for UTI in Pregnant Women (n=20)

Microorganism	Number of Cases (%)
E. Coli	14 (70)
Staph aureus	04 (20)
Proteus	01 (5)
Klebsiella	01 (5)

Table-3: Characteristics of Pregnant Women with UTI (n=20)

Characteristics		No. of Cases %
Age	21-30 years	11(55)
	31-40 years	09(45)
Litracy	Illiterate	18(90)
	Literate	02(10)
Socioeconomic Status	Lower Income Group(<Rs. 10000/month)	16(80)
	High Income Group (>10000/month)	04(20)
Past H/O UTI (at least two episodes)	Present	18(90)
	Not Present	02(10)

DISCUSSION:

The pregnant women are more prone of getting urinary tract infections due to multiple factors; ureteral dilatation occurs in about 90% of cases and will remain up to delivery, known as hydronephrosis of pregnancy. The bladder volume is increased with decreased bladder and ureteral tone, leading to increased urinary stasis and there is ureterovesical reflux. The concentration of urine is decreased during pregnancy as there is increased in the plasma volume physiologically. It has been documented that about 70% of pregnant women has glycosuria, encouraging the bacterial infection. Another important factor is the increase in the urinary estrogen and progesterone results in decreased ability of lower urinary tract to resist invading bacteria⁹. Maternal complications are commonly encountered and the risk of preterm birth is higher than the baseline obstetric population¹⁰. The main cause of worldwide neonatal mortality and morbidity is preterm delivery, and it is supposed that uterine contraction may results from the endotoxins released by bacteria¹¹. In the present study, 54.7% (n=82) pregnant women complained urinary symptoms and 45.3% did not have any urinary complaints. Among pregnant women complaining about urinary symptoms only 18(22%) found to have UTI. The majority 64(78%) had symptoms because of the pregnancy related changes in the urinary system. Our findings are comparable with the findings of other workers who reported that

majority (92%)cases of urinary symptoms were due to pregnancy associated changes and 8% were due to infection¹². In Netherlands, 35% of the pregnant women reported urinary symptoms¹³. In our study, 22% of pregnant women having symptoms related to urinary system were having UTI. A worker from Nigeria reported that 23.9% of the symptomatic pregnant women had UTI¹⁴.

In our study, 70% of UTI in pregnant women were caused by *Escherichia coli*, 20% cases were because of *Staphylococcus aureus* and 5% each by *Proteus* and *Klebsiella*. Studies from Iran and Nigeria showed that 60-90% cases were due to *E. coli*, 16.11% due to *Proteus* and 13.43% due to *Staph. aureus*¹⁵⁻¹⁶, the slight variation in results may be because of small number of cases in our study. Maternal age was not found to be a risk factor of UTI in our study. Only 1-2% increase in risk per decade after age 20 was reported in literature¹⁷. In our study, lower income group had more UTI. Higher living standard may be associated to lower incidence of UTI¹⁸. We found that past history of UTI was the strongest risk factor for UTI in pregnant women, confirming the findings of Sheikh et al¹² and Pastore et al¹⁹. Asymptomatic bacteriuria during pregnancy if left untreated, may lead to acute pyelonephritis, preterm labour, and low birth weight foetus. In current study we detect 10% cases of symptomatic bacteriuria which confirm the results of other studies with slight variations because of low sample size²⁰⁻²¹

CONCLUSION:

In current study the frequency of urinary complains was 54.7%, but the urinary tract infection was diagnosed in 13.3% of cases. *Escherichia Coli* was detected the commonest organism causing infection. The majority of the cases were illiterate belonging to lower income group.

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