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Original Research Article

Prevalence of the urinary tract infections among pregnant women

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Abstract: Urinary tract infection (UTI) is one of the most frequently seen medical complications in pregnancy. UTI in pregnancy poses risk of complications such as premature birth, low birth weight, still birth and pyelonephritis. The present study was done to assess the prevalence of the urinary tract infections among pregnant women. This cross sectional study was conducted on the pregnant women attending to the gynecology department over a period of 6 months. Total 187 pregnant women were participated in the study. The midstream urine of the women with or without symptoms was collected using labelled disposable universal containers. The samples were transported to the microbiology department for the analysis. The colony count yielding bacterial growth of $>10^5$ / ml was taken as being significant. One hundred and eighty seven samples were collected and analyzed during the period of study. Out of these, 51 (27.27%) samples have shown significant growth. Age group of 26 to 30 years showed the maximum number of pregnant women and also shown maximum positive patients of UTI (30.48%), while the group 41 to 45 years had shown lowest percentage positive of UTI. There was higher rate of infection in the third trimester (28.57%) than in the second and first trimester. Prevalence of UTI in "well" status women is found to be 36.93 %. The significance of education has been evidenced by the fact that only 17.08 % of the patients suffering from UTI are educated while 82.75 % are illiterate. All pregnant women should be screened for UTI with a urine culture to prevent complications with all the added benefits to the mother and the Fetus.
Keywords: Urinary tract infection, pregnant women, Bacteriuria

INTRODUCTION:

The presence and growth of microorganisms in the urinary tract causes the urinary tract infections and it is perhaps the single commonest bacterial infections of mankind and in pregnancy [1]. Urinary tract infection is a common infection and can affect all females, predominantly the aged and pregnant female. UTI has an estimated annual global incidence of 250 million. UTI is commonly seen in women due to various factors such as short urethra, pregnancy and proximity to anal orifice [2].

Urinary tract infection in pregnancy is common and it is a serious cause of maternal and perinatal morbidity and mortality. Pregnant women should be screened for asymptomatic urinary tract infection and treated with suitable antimicrobials to avoid complications [2, 3]. While asymptomatic bacteriuria in non-pregnant women is generally benign, pregnant women with bacteriuria have more vulnerability to pyelonephritis [4]. About 3% of all women in the world visit a doctor at least once each year for UTI and at least 50% of women report at least one UTI in a lifetime [2]. The present study was done to assess the prevalence of the urinary tract infections among pregnant women.

MATERIALS AND METHODS:

This cross sectional study was conducted on the pregnant women attending to the gynecology department over a period of 6 months. Total 187 pregnant women were participated in the study. The midstream urine of the women with or without symptoms was collected using labelled disposable universal containers. Pregnant women having renal disease or on antibiotic therapy were excluded from the study. Informed consent was taken from all the women participating in the study. The samples were transported

to the microbiology department for the analysis. The colony count yielding bacterial growth of $>10^5$ / ml was taken as being significant in both symptomatic and asymptomatic pregnant women. Pus cells >5 / HPF were also considered significant for the infection.

RESULTS:

One hundred and eighty seven samples were collected and analyzed during the period of study. Out of these, 51 (27.27%) samples have shown significant growth. The prevalence of the UTI according to age has shown in table 1. Age group of 26 to 30 years showed the maximum number of pregnant women and also shown maximum positive patients of UTI (30.48%). While the group 41 to 45 years had shown lowest percentage positive of UTI.

There was higher rate of infection in the third trimester (28.57%) than in the second and first trimester (Table 2). Prevalence of other UTI related significant factors is shown in table 3. Prevalence of UTI in "well" status women is found to be 36.93 %. The significance of education has been evidenced by the fact that only 17.08 % of the patients suffering from UTI are educated while 82.75 % are illiterate. Assessing the risk of recurrence, past history of urinary tract infection was important risk factor as 71.84 % cases had past history of urinary tract infection. Sexual activity as a risk factor of UTI, was also significant in this study as 76.34% women were sexually active.

Table 1: Table showing the distribution of the pregnant women according to the age

Age groups (Years)	Number examined	Number positive	% Positive
20-25	62	18	29.03
26-30	82	25	30.48
31-35	22	05	22.72
36-40	15	02	13.33
41-45	06	01	16.66
Total	187	51	27.27

Table 2: Table showing the distribution of the pregnant women according to the gestation period

Gestational age (weeks)	Number examined	Number positive	% positive
1-12	20	5	25.00
13-25	27	6	22.22
26-40	140	40	28.57
Total	187	51	27.27

Table 3: Frequency of the other significant factors in relation to UTI

Factors	Sub-factors	Number examined	% positive
Status	Well	122	36.93
	Poor	65	63.07
Education	Educated	158	17.08
	Illiterate	29	82.75
Past history of UTI	Absent	111	28.16
	Present	76	71.84
Sexual activity	Active	98	76.34
	Not active	89	23.66

DISCUSSION:

The urinary tract system is a excretory system in the body which produces, stores and eliminates urine which comprises a diversity of fluids, salts and no bacteria in the absence of contaminations. Urine made in the kidney is a sterile fluid that serves as a good culture medium for the multiplying of bacteria [5-7]. UTI is defined as the presence of at least 100,000 organisms per milliliter of urine in an asymptomatic patient, or as more than 100 organisms/ml of urine with accompanying pyuria (> 7 white blood cells [WBCs]/ml) in a symptomatic patient [2].

Urinary tract infections in pregnancy are categorized as either asymptomatic or symptomatic. Asymptomatic bacteriuria is demarcated as the presence of significant bacteriuria without the symptoms of an acute urinary tract infection. Symptomatic urinary tract infections are classified into lower tract (acute cystitis) or upper tract (acute pyelonephritis) infections. Cystitis is defined as significant bacteriuria with concomitant

bladder mucosal invasion, while pyelonephritis is defined as significant bacteriuria with accompanying inflammation of the renal parenchyma, calices and pelvis [5].

In about 8th week of pregnancy, the renal pelvis and ureters begin to dilate[6] and the bladder itself can be displaced superiorly and anteriorly. Mechanical compression from the expanding uterus is the chief cause of hydroureter and hydronephrosis, but smooth muscle relaxation prompted by progesterone may also play a role. Smooth muscle relaxation results in decreased peristalsis of the ureters, increased bladder capacity and urinary stasis. Differences in urine pH and osmolality and pregnancy-induced glycosuria and aminoaciduria may facilitate bacterial growth [2, 5, 8]. Also hormonal and immunological changes can be responsible [8-10].

Bacterial organisms causing UTI include Escherichia coli, Acinetobacter, Klebsiella pneumonia, Proteus, Saprophyticus Staphylococcus, Pseudomonas aeruginosa and Streptococcus Group B [11-15]. In the present study it was found that the pregnancy increases the prevalence of the urinary tract infections. Therefore all the pregnant women should undergo screening for the UTI to avoid the complications.

CONCLUSION:

The biological alterations of pregnancy can influence women to UTI. All pregnant women should be screened for UTI with a urine culture to prevent complications with all the added benefits to the mother and the Fetus.

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