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PREVALENCE OF URINARY TRACT INFECTION DURING PREGNANCY

[1]Dr. Rabia Niaz, [2]Dr. Attiya Rasool, [1]Dr. Samia Hafeez
[1]Nishtar Medical University, Multan
[2]THQs Hospital Mailsi, Distt Vehari

Abstract:
UTI (Urinary Tract Infections) considered widespread bacterial infections during pregnancy. It is also observed that unprocessed UTI may be linked with severe obstetric impediments. The cross-sectional research was conducted to analyze the prevalence of Urinary Tract Infections among pregnant females through the collection of an online database for two medical college hospitals.
The numbers of pregnant women were 250 and UTI was analyzed utilizing MSU mid-stream urine culture. Utilizing > 105 colonies developing unit per ml as a particular level of bacteriuria, there was 26.0% prevalence found. There was an increased incidence in the age group from 21-25 years females which is 44.61%. Accordingly, there was also an increased infection incidence in the pregnancy third trimester which was 78.46% as compared with 9.23% first trimester and 12.3% second trimester. Multiparty is linked with high UTI in pregnancy.
As per this research, the literacy rate in patients was 10% and 90% were illiterate. Bacteriuria prevalence was 94% in females who also had previously affected through UTI infection. Eighty percent of women were sexually active. Ecoli was a highly isolated pathogen, which was 88.15%. These discoveries highlight the significance of pregnant female screening for important bacteriuria so that all positive must be preserved consequently with multiple antibiotics to reduce the undesirable impacts on both fetal and maternal health.

Corresponding author:
Dr. Rabia Niaz,
Nishtar Medical University,
Multan

QR code

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INTRODUCTION:

UTI, Urinary Tract Infections, which are based by growth and presence of microorganisms, specifically, in UT are possibly mankind's single usual bacterial infections and in pregnancy, it can contain the lesser UT. Urinary Tract Infection has been stated among 20% of pregnant females and it is the very common base of registration in the hospital's obstetrical wards. Anatomically Urinary Tract Infection may further categorize into lesser UTI has the urethra, bladder and upper UTI relating the pelvis, kidney, and ureter (Anzaku, Mikah and Utoo, 2014).

In most of the cases, UTI occurs due to rising infection. The basic clinical manifestation of pregnancy urinary tract infection are acute cystitis, asymptomatic bacteriuria, and acute pyelonephritis urinary tract infection described as the occurrence of 100,000 organisms per ml, minimum of urine in suffered patient and more 100 ml of urine with pyuria accompanying (>5 WBC/mL) in sufferingpatiently. Specifically, in asymptomatic patients, UTI diagnosis must be reinforced by uropathogenic positive culture (BALIK et al., 2014).

Asymptomatic bacteriuria, in case there was no treatment, is basically high factor for pyelonephritis (25-30%) and cystitis (40%) in pregnancy. Asymptomatic and symptomatic bacteriuria has been stated in 13% and 17.9% pregnant female, respectively. Pregnancy always elevates the UTI risk, specifically at the sixth-week pregnancy, as per the physiological pregnancy alteration the ureters start to dilate. This is also famous as "pregnancy hydronephrosis" which summits at 22 to 25 weeks and lasts to remains until delivery (Anzaku, Mikah and Utoo, 2014).

Both estrogens and progesterone degrees elevate during pregnancy and also led to the bladder and ureteral decreased tone. Elevated plasma volume in the period of pregnancy leads to declines urine attention and highly elevated the volume of the bladder. This permutation of all mentioned factors leads to ureterovesical reflux and urinary stasis. Moreover, the ostensible decrease in immunity of pregnant females appears to inspire the development of both non-commensal and commensal micro-organism. The biological elevation in the volume of plasma during pregnancy declines urine concentration and more than 70% of pregnant females develop glucosuria, this inspires the growth of bacteria in the urine (DİNÇ, 2017).

Female gender, due to the short urethra, itself is a risk factor, its closeness to anus and vagina and incapability of females to vacant their bladder completely. An increased incidence is observed in the group of lower socioeconomic. Furthermore, certain contraceptive approaches and sexual activities are also causes of increased risk. The anatomical association of female's vagina and urethra generates it responsible for trauma during the sexual interaction, in addition to bacteria been massaged up to bladder from urethra during pregnancy or childbirth. Urinary tract infection in the time period of pregnancy underwrites importantly to perinatal and maternal morbidity. Small birth size, abortion, hypertension, maternal anemia, preterm labor, thrombosis,and chronic pyelonephritis and phlebitis are associated with UTI during pregnancy(Gardner, 2016).

MATERIAL AND METHODS:

This cross-sectional research was directed between Jan 2017 to Jan 2018, through the online medical record database (of two hospital's obstetrics and gynecology department). During the research period, those consecutive registered antenatal females recruited into this research, with informed consent, either without any symptoms or having and UTI symptoms. Consecutive 250 pregnant females without or with symptoms of urinary tract infection were the part of this research (Mashkoor et al., 2017).

Those women were excluded who have renal disease or have any 72 hours' antibiotic therapy to the study days that was done due to the fact that antibiotics have the capacity to destroy the pathogens. Authors managed verbal informed permission from every female before any commencement of the study. The data of socio-demographic like parity, occupation, age, and gestation duration also gathered from pregnant females using proper questionnaires and strictly kept it confidential during the period of research. According to an online database record, early morning clean-catch midstream urine has been gathered from every pregnant female, in the wide-mouthed sterile container (Rejali and Ahmadi, 2018).

With the help of CalobratedML, 0.001 milliliters of urine was cultured on to a MacConkey agar plate (used as an indicator) and a Blood agar. At the temperature of 37^{o} *C* in overnight incubation for 24 hours, bacterial growth count of ≥ 105 */ ml* was occupied as being important in both asymptomatic and symptomatic pregnant females. At high magnification about pus cells, epithelial cells, red

blood cells, casts, yeast-like cells and crystals through centrifuged urine microscopic accretion Pus cells >5 HPF were measured important for infection. On the basis of the income of the family, women were divided into low class and upper social class (Rejali and Ahmadi, 2018).

RESULTS:

Age Relation and Prevalence of UTI in Pregnant Women

Urine samples of 250 females were gathered and assessed during this research period, from 250, sixty-five samples represented important development which measured the prevalence of 26.0%. The infection prevalence in age relation shown in below mentioned table 1, where age group from 21-25 females had the highest infection incidence 44.61%. accordingly, the age group of 26-30 years (which were 27.69%), from 31-35 (16.92%) and from 16 to 20 years (6.15%) while finally, the age group of 36-40 years had observed the lowest infection incidence 4.61%(Winder, 2017).

Table 1: Prevalence of urinary tract infection in pregnant women in relation to age.

Age groups (Years)	Number examined	Number positive	% Positive
16-20	20	4	6.15
21-25	74	29	44.61
26-30	106	18	27.69
31-35	36	11	16.92
36-40	14	3	4.61

(Source: Winder, 2017)

Gestational Age Relation and Prevalence of UTI in Pregnant Women

Table 2: Prevalence of urinary tract infection in pregnant women in relation to gestational age.

Gestational age(weeks)	Number examined	Number positive	%Positive
1-12	30	6	9.23
13-25	47	8	12.30
26-40	173	51	78.46
Total	250	65	100.00

(Source: Winder, 2017)

According to Table 2, there was greater infection rate in the period of 3rd trimester (which was 78.46%) as compared with 2nd trimester which was only 12.30% and with 1st trimester only 9.23%.

Parity Relation and Prevalence of UTI in Pregnant Women

Table 3: Prevalence of urinary tract infection in pregnant women in relation to Parity.

Parity	Number examined	Number Infected	% Positive
0 – 1	96	12	18.46
1 – 2	85	21	32.30
> 4	69	32	49.23
Total	250	65	100.00

(Source: Winder, 2017)

In Table 3 above, the frequency of infection occurring is high having >4 children (which is 49.23%),

monitored by having 2 to 3 children (which is 32.3%) while the least infection occurring frequency was with 0 to 1 child (which is 18.46%) as shown.

Other UTI related Factors Frequency

Table 4: Frequency of other UTI related significant factors.

Factors		% of Bacteriuria
1.Status	Well	**25**
	Poor	**75**
2.Education	Educated	10
	Illiterate	90
3.Past history of UTI	Present	94
	Absent	6
4.Sexual activity	Active	80
	Not active	20

(Source: Winder, 2017)

Other urinary tract infection related prevalence important factors have been observed in above Table 4. In Well-positioned women, the bacteriuria prevalence found 25%, the educational importance has been shown its own significance that only 10% educated females suffering from bacteriuria, and while on the other hand, 90% are illiterate. While assessing the recurrence risk UTI past history was a very significant factor to analyze as 94% females among 65 overall cases had past UTI history. Similarly, the active sexual relationship also considered as a risk factor and 80% of females were sexually active and only 20% were not.

Isolation Percentage of Different Important Pathogens in Urine of Pregnant Females

Table 5: Percentage of Isolation of various significant pathogens in urine of pregnant women.

Pathogens	Number isolated	Percentage (%)
E. coli	36	86.15
Klebsiella spp	5	7.69
Proteus spp	4	4.61
Total	65	100.00

(Source: Winder, 2017)

Other isolated pathogens have been shown in above Table 5, there was no growth in 185 samples, while 65 samples seem positive for urinary pathogens. In important isolates,*E-coli* had considered greater isolation percentage (which was 86.15%, while the least was Proteus species (which was only 4.61%).

DISCUSSION:

In this specific study maternal age was not observed as an important risk factor. Throughout the literature, the only important risk of 1 to 2% is stated per age decade which also not became any evidence for the study, the highest size incidence was 20 to 25 years of age, it was may be due to small population size. The age groups which mentioned above, having the highest was pragmatic in past mentioned studies (Schneeberger et al., 2015).

The cause may be according to the fact that most of the females, specifically in this age group, want more children before present pregnancy and it is a risk factor in bacteriuria acquiring. Contraceptive methods and sexual activities are also observed to

elevate the risk in women. This study report is also identical to the Onuh et al. and Leigh, which also similar age group with the greatest incidence in growing UTI in pregnancy. Multiparity has elevated risk factor of growing bacteriuria in the pregnant women. Same observation about urinary incontinence risk and problems or urine as per the results, highly increase by 37.4% with >3 of parity versus 18.75% in nulliparous but divergence was obvious with previous research findings, according to time there was no parity relationship (Schneeberger et al., 2015).

These divergences may be due to different locales through which these researches were being carried out. According to the research sixty-five samples of urine provided important development amount to 26.0% prevalence. This research also not agreed that a bit higher prevalence found in previous studies. Moreover, the prevalence of the study does not approve with that previously reported prevalence of 12.7% in the study of Onyemelukweet. al. The difference was maybe according to both asymptomatic and symptomatic inclusion of pregnant females in this study and/or the output of these females' different socioeconomic status (Whalley, Martin and Pritchard, 2015).

According to this study, the UTI frequency was greater in the 3rd trimester as compared with 1st and 2nd trimester. This is also in agreement with the study of Onyemelukweet. al, who reported the elevated frequency of UTI in the 3rd trimester as compared to the 1st and 2nd pregnancy trimes ter. Therefore, this study did not approve the study of Onuh et al, who basically stated that a higher UTI prevalence was there in 2nd trimester as compared with 3rd one. This divergence may be according to the result in urinary stasis alteration and vesicoureteral reflux of decline in estrogens and urinary progesterone in different pregnancy trimester (Schneeberger et al., 2015).

As per this research, UTI previous history was the important risk factor. In this research, 94% of females had UTI past history. According to the study of DİNÇ (2017), bacteriuria prevalence was 100% in females who had past spells of urinary tract infection. Many different studies acknowledge the past sessions of UTI importance in causing the pregnancy relapse. As per this study, continuous sexual activities were also an important risk factor. Almost 80% of females were active sexually during their pregnancy and mostly are belonged to the 21 to 35 years of age group. Similar research also conducted by Patterson which represented that UTI increased prevalence in females who are active sexually during their pregnancy period (Schneeberger et al., 2015).

The anatomical females' vagina and urethra relationship also make it liable to trauma in the period of sexual intercourse, while doing so the bacteria been massaged up the urethra hooked on bladder in the period of pregnancy or birth of a child. Other small factors, such as not cleaning genitals after or before coitus, low socio-economic status, not voiding urine post-coitus, cleaning genitals from backside to front side also observed as UTI risk factors in the period of pregnancy. The low percentage of bacteriuria prevalence found in well-established females (which was 25%) (Anzaku, Mikah and Utoo, 2016).

CONCLUSION:

The physiological alteration of pregnancy predispose females to urinary tract infection so does many other factors like sexual activity, age, past UTI history, multiparity and conditions of socioeconomic. Urine culture was the basic method to screen all female patients for urinary tract infection in this specific study and if the culture is positive they are treated with antibiotics and rested for a cure. The basic objective of initial treatment and diagnosis of urinary tract infection during the time period of pregnancy is to avoid different complication with all the additional advantages to the fetus and mothers.

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