

Urinary Tract Infection as a Health Problem among Pregnant Women in Baghdad \ AL Sadder City

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Abstract- Urinary Tract Infections (UTIs) during pregnancy are among the most common health problems worldwide afflicting many women in their reproductive years especially in developing countries. Due to several anatomical and hormonal changes pregnant women are more susceptible to develop UTIs.

Objective of the study: To assess socio-demographic characteristics among pregnant women related to UTI, and identify the medical history, urine analysis and culture among pregnant women to developed UTI, and to find out the important associations between socio-demographic characteristics, obstetric history and practices of personal hygiene with UTI among pregnant women.

The study methodology: A cross-sectional study that was carried out on 170 pregnant women whom infected by the disease and referring to antenatal clinic at five primary health care centers in al-sadder City and the outpatient visitors to (Ibn AL-Baldi maternity and children's hospitals), started from 1st December 2015 to the 1st March 2016. Data were collected through a questionnaire, repeated urine analyses and recording of outcome of pregnancy.

Results: The study revealed that maternal age, education status, and occupation had been significantly associated with developing the UTI. More than Half of pregnant women (61.1%) were multiparous, (54.8%) were at 3rd trimester of gestational age, and this had significance differences with development of the disease. Personal hygienic practice of pregnant women with UTI showed that there is a high significant difference with development of the disease. About one third of pregnant women (37.1%) had previous UTI which considered with previous catheterization and diabetes mellitus as a risk factors and had a significance differences with development of the disease. As conclusion all pregnant women should be screened for UTI with a urine culture, treated with antibiotics if the culture is positive and then retested for cure. The goal of early diagnosis and treatment during pregnancy is to prevent complications with all the added benefits to the mother and the Fetus.

Conclusions: The study revealed that maternal age, education status, and occupation had been significantly associated with developing the UTI. More than Half of pregnant women were multiparous and at third trimester, and this had a significant association with development of UTI. More than half of pregnant women using materials other than cotton for underwear and they changing it once /day. Majority of them were washing and drying perineum after urination and defecation with no specific direction, and they had changing diaper once /daily during menstruation and this revealed a high significance

differences with development of UTI. About one third of pregnant women had previous UTI which considered with previous catheterization and diabetes mellitus as a risk factors and had a significance differences with development of UTI among them.

Recommendations: All pregnant women should be screened for UTI with a urine culture, treated with antibiotics if the culture is positive and then retested for cure. The goal of early diagnosis and treatment of UTI during pregnancy is to prevent complications with all the added benefits to the mother and the Fetus.

Index Terms- UTI, pregnant women, personal hygiene.

I. INTRODUCTION

Urinary tract infection(UTI) represents a serious health problem in pregnant women. It is one of the most common infections where one or more part of urinary system become infected usually after bacteria overcome the natural defense mechanism of urinary tract [1].

Although UTI could affect both sexes, but women are more frequently affected than men due to short urethra, loss of prostatic secretion, ease of urinary tract contamination by fecal flora and various other reasons. In women however, the incidence of UTI is more frequent in pregnant women as compared to non pregnant ones due to the pregnancy associated physiological changes, extended abdomen and difficulty of personal hygiene.[2]

UTIs in pregnancy globally ranges from 13%-33% with asymptomatic bacteriuria occurring in 2–10% during pregnancies while symptomatic has been found to account for 1-18% during pregnancies.[3]

Most acute lower urinary tract infections (also termed acute bacterial cystitis) are uncomplicated that is, they are not associated with signs or symptoms of upper urinary tract infection (fever, chills, or flank pain) or other characteristics suggesting a high risk of upper urinary tract or complicated infection (e.g., diabetes, pregnancy, immunosuppression).[4]

UTIs during pregnancy ranged between 22-35%.(2-4) Pregnant women are at increased risk for UTIs, beginning in week 6 and peaking during weeks 22 to 24.(1) Several physiological, anatomical and personal factors contribute to this problem during pregnancy, urethral dilatation, increased bladder volume and decreased bladder tone with increased urinary stasis.

Also physiologic increase in plasma volume decreases urine concentration with up to 70% of pregnant women develop glycosuria which encourages bacterial growth.[5]

The organisms that cause UTI during pregnancy are the same as those found in non pregnant women. Escherichia coli accounts for 80-90% of infections. Other Gram negative rods such as Proteus mirabilis and Klebsiella pneumoniae are also common. Gram-positive organisms such as group-B streptococci and Staphylococcus saprophyticus are less common causes of UTI, in addition to Gardenellavaginalis, Ureaplasma urealyticum and Mycoplasma hominis. [6]

Objectives of the study:

- 1-To assess socio-demographic characteristics among pregnant women related to UTI.
- 2-To identify the medical history, urine analysis and culture among pregnant women to developed UTI.
- 3-To find out the important associations between socio-demographic characteristics, obstetric history and practices of personal hygiene with UTI among pregnant women.

II. RESEARCH METHODOLOGY

Study design: Across-sectional study included all pregnant women with UTI who were seeking antenatal services from the 1st December 2015 to the 1st March 2016.

Sample and place of study: the researchers selected 170 pregnant women from five primary health care centers in al-sadder City and the outpatient visitors to (Ibn AL-Baldi maternity and children's hospitals) who consented to participate.

The Study Instrument: Instruments were constructed by the researchers for purposes of the study depend on: 1- Review of available literature.

- 2- Review of patients assessment recorded card.
- 3-Experiences of researchers.

Its also included two parts:

Part I:

Socio-Demographic Information Sheet

It consisted of four items which included: maternal age, level of education, and occupation.

Part II:

To collect information about the disease and its risk factors. The data collection phase took four months Data was collected by using two methods, which included:

- 1-Self report technique used by patients for socio-demographic Data items.
- 2- Interview between patients and researchers

Statistical methods: The researcher used the appropriate statistical methods in the data analysis which include the following:

- a. Frequencies (F)
- b. Percentage (%)
- c. T-test at P value ≤ 0.05 Probability values of < 0.05 were considered as statistically significant

Table 1: Socio-demographic characteristics of pregnant women with UTI

	No.	%	Total	P. value
1- Maternal age				
15-24	42	24.7%	170 100%	0.04
25-34	94	55.3%		
35-44	34	20%		
2- Education status				
Illiterate	7	4.2%	170 100%	0.01
Primary school	61	35.8%		
Secondary school	58	34.2%		
Higher education	44	25.8%		
3- Occupation				
Employed	74	43.5%	170 100%	0.004

Unemployed	96	56.5%		
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Table 1 showed the demographic characteristics of 170 pregnant women in which 55.3% of them at 25-34 years age,35.8% were primary school graduates ,56.5% were unemployed.

Table 2:Past and present Obstetric history of pregnant women with UTI

Item of obstetric history	No.	%	Total	P. value
1- Parity			170	0.9
Nulliparous	66	38.9%	100	
Multiparous	104	61.1%		
2 –Gestation			170	100
Ist trimester	25	14.7%		
2 nd trimester	52	30.5%		
3 rd trimester	93	54.8%		
3 -History of abortion	40	23.5%	170	100
4-History of intrauterine death	36	21.1%	170	100
5- Previous contraceptive	55	32.5%	170	100

Table 2 represent the past and present obstetric history of the study sample showing that(61.1%) were multiparous, (54.8%) were at 3rd trimester of gestational age, (23.5%) of them had previous history of abortion, (21.1%) had history of intrauterine death, and (32.5%) of them had previous history of contraceptive .

Items		No	%	Total	P. value
1-Type of underwear clothes	Cotton	65	38.3	170	100
	Others	105	61.7		
2-Frequency of changing underwear	Once	86	50.5	170	100
	Twice	50	29.4		
	More than twice	34	20		
3-Washing and drying perineum after urination and defecation	Yes	136	80	170	100
	No	34	20		
4-Direction of drying perineum after urination and defecation	Backward	12	7	170	100
	Forward	22	13		
	No specific direction	136	86		
5-No. of sexual intercourse per week	Less than three	62	37	170	100
	Three or more	108	63		
6-Frequency of diaper changing during menstruation	Once daily	128	75.5	170	100
	Twice daily	42	24.5		

The results of table (3) represent that 61.7% of study sample using materials other than cotton for underwear clothes, 50.5% were changing underwear once/ day, 80% were washing and drying perineum after urination and defecation, 86% of them had no specific direction during drying perineum after urination and defecation, 63% were had less than three sexual intercourse per week, and 75 .5% of them changing diaper once daily during menstruation.

Table 4: Medical history of pregnant women with UTI

	Items	No	%	P. value
1-	History of diabetes mellitus	12	7.1	0.05
2-	History of genitourinary tract Abnormality	8	4.7	0.4
3-	Previous catheterization	23	13.5	0.001
4-	Previous UTI	63	37.1	0.000
5-	History of other chronic disease	24	14.1	0.6

The results of table 4 showed that(37.1%) of infected pregnant women hah a previous UTI, (14.1%) of them had history of chronic disease,(13.5%) had history of previous catheterization.

Table (5):Distribution of urinalysis items among the infected pregnant women

	Items	No.	%
1-	Bacteria	124	73%
2-	Pus	54	31.7%
3-	Crystal	36	21.1%
4-	Protein	12	7%
5-	Red blood cells	23	13.5%

This results revealed that bacteria forming 73% of urine analysis items of infected women .31.7% was pus cells ,21.1% was crystal 7% was protein and red cells was 13.5% .

Table (6) Results of urine culture among the studied women

No.	Type of Bacteria	Positive Culture(N=122) NO. %	
1-	Escherichia coli	103	84%
2-	Staphylococcus aureus	8	6.5%
3-	Proteus mirabilis	6	5.5%
4-	Pseudomonas aeruginosa	5	4%
	Total	122	100%

Table (6) showed that the positive urine culture was (122), Escherichia coli found in (84%) of culture, while Pseudomonas aeruginosa found in (6.5%) of them.

III. DISCUSSION

Table (1) revealed the socio-demographic characteristic of pregnant women showing that half of them were at 25-34 years and more than half were unemployed. One third of them had primary school education The study revealed that maternal age, education status, and occupation had been significantly associated with developing the UTI , this result similar to a study

done in Iran 2013 byMarzieh.J this is may be due to the similarity between the two society.[7]

Table (2) showed that more than half of pregnant women were multiparous and at third trimester, This may be explained by a relatively small number who attend the clinic in 1st trimester, besides, most of them were newly married. On the other hand, the high rate during the 3rd trimester can be justified scientifically by more urinary stasis and more frequent follow-up

visits. Increased incidence of UTI in 3rd trimester was found concordant with a study done in 2005 by Al- Haddad AM in Yemen.[8]

More than half of pregnant women were multiparous and this had a significant association with development of UTI this may be due to the fact that many women within this age group are likely to have many children before the present pregnancy and it has been reported that multiparity is a risk factor for acquiring bacteriuria in pregnancy, Sharma J.B. et al [9] had similar observation regarding the risk of urinary incontinence and other urinary problem which according to them increases by (37.04%) with parity of > 3 as compared to (18.75%) in nulliparous but disagreement was evident with the findings of Onuh et al, who reported that there was no relationship to parity. These differences may be as a result of the different locations in which these studies were being carried out.[10]

Table (3) found that more than half of pregnant women using materials other than cotton for underwear and they changing it once /day .Majority of them were washing and drying perineum after urination and defecation with no specific direction, and they had changing diaper once /daily during menstruation .This results showed high significance differences with development of UTI among pregnant women. In this study sexual activity was also significant risk factor. About 63% women were sexually active during pregnancy this may be due to the anatomical relationship of female's urethra and the vagina makes it liable to trauma during sexual intercourse as well as bacteria been massaged up the urethra into the bladder during pregnancy/child birth. This is similar to the results of GulfareenHaider et al,which showed that the prevalence of UTI increases in women who are sexually active.[11]

Other factors like frequency of diaper changing during menstruation and washing genitals from back to front have observed as risk factors for UTI during pregnancy. The results similar to the results of a study done in Ethiopia 2013 by Tazebew. E, he found that the associated risk factors was highly significant differences with occurrence of UTI among pregnant women. [12]

Table (4) showed that previous UTI, previous catheterization and diabetes mellitus had a significance differences with development of UTI among pregnant women, and this is due to several physiological and hormonal changes during pregnancy which may increase the incidence of infection, this results similar to a study done by Fasalu R.et al in India 2015, he found that Urinary tract infection is one among the most common infectious disease which occurs during pregnancy.[13]

Table (5) showed that most of pregnant women had bacteriuria, while pyuria seen among one third of them, this results similar to the results of Zeighmi H'.2008 in Iran, he found that bacteriuria was seen among (76.7%) of the total infected participants, , while pyuria was found among only (49.3%) , of the sample study.[14]

Table (6) revealed that not all the study group of women had positive urine culture, only (71.7%) pregnant had positive results, and Escherichiacoli was the highest percent of content of culture ,this results similar to the results done in Saudi Arabia by Hanis .F,et al in 2013, he found that bacteriuria found in one third of the pregnant women and positive culture results present in (75%)of them.[1]

IV. CONCLUSION

The study revealed that maternal age, education status, and occupation had been significantly associated with developing the UTI. More than Half of pregnant women were multiparous and at third trimester, and this had a significant association with development of UTI. More than half of pregnant women using materials other than cotton for underwear and they changing it once /day. Majority of them were washing and drying perineum after urination and defecation with no specific direction, and they had changing diaper once /daily during menstruation and this revealed a high significance differences with development of UTI. About one third of pregnant women had previous UTI which considered with previous catheterization and diabetes mellitus as a risk factors and had a significance differences with development of UTI among them.

V. RECOMMENDATIONS

All pregnant women should be screened for UTI with a urine culture, treated with antibiotics if the culture is positive and then retested for cure. The goal of early diagnosis and treatment of UTI during pregnancy is to prevent complications with all the added benefits to the mother and the Fetus.

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