Urinary tract infection in pregnancy and its correlates

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Abstract

Background: Urinary tract infection (UTI) is one of the major health problems in pregnancy throughout the world. Prevalence of UTI during pregnancy is also very common in Bangladesh. **Objective:** To find out the proportion of the pregnant mothers having UTI and its correlates attending at Antenatal Clinic of Rajshahi Medical College Hospital. **Methods:** This was a cross-sectional study conducted among the pregnant mothers attending at Antenatal Clinic of Rajshahi Medical College Hospital (RMCH), Rajshahi, Bangladesh. Total 300 pregnant mothers were selected by random sampling with the view to find out the proportion of urinary tract infection (UTI) among the pregnant mothers and its correlates. Data were collected by a pretested semi structured interview schedule. The interview schedule was designed to record the health and socio-demographic status, and the symptoms of UTI if present. Data were analysed in computer using SPSS programe. Descriptive analytical techniques involving frequency distribution, computation of percentage, mean, SD etc. were applied. Association between variables were conducted applying Chi-square and Fisher's Exact test. **Results:** A total of 300 pregnant mothers, 26 (8.7%) were found to have urinary tract infection. UTI was common among the older and illiterate pregnant mothers . Dysuria and frequent micturation were the main symptoms of UTI among the pregnant mothers. **Conclusion:** The pregnant mothers and health care providers of the urban Rajshahi should be aware and motivated to take care about this problem..

Key wards: urinary tract infection, correlates, pregnancy, Bangladesh.

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Introduction

Urinary tract infection (UTI) is one of the major health problems all over the world.[1] The incidence of UTI among school girls is 1-2% and is only 0.03% in boys of the same age.[2] Twenty to 50 % of all the females experience at least one episode of UTI sometimes in their lives.[2,3] Not surprisingly infections of the urinary tract are the most common bacterial infections encountered during pregnancy also, with a prevalence ranging from 2% to 20%.[4-8] The urinary tract undergoes profound physiological and anatomical changes during pregnancy facilitating the development of UTI both symptomatic and asymptomatic in women.[9]

Prevalence of bacteriuria (both symptomatic and asymptomatic) during pregnancy is also very common in Bangladesh. Begum in her study found that 10% of pregnant women attended in antenatal clinic of Mymensingh Medical College had symptomatic urinary tract infection.[10] Khatun *et al.* in their study, observed that 30% of clinically healthy pregnant women attending at the institute of Post-graduate Medicine and Research had asymptomatic bacteriuria.[11] In rural and urban Rajshahi, the prevalence of asymptomatic bacteriuria were 12% and 14. 5% respectively.[12,13]

UTI during pregnancy depends upon some socio demographic, behavioural and biological risk factors like age, parity, socio-economic status, race, diabetes etc. The higher prevalence rates (11%) have been seen in socially indigent multiparas, as compared with about 2% in pregnant patients in private practice[14]. In a study among the pregnant women by Orrett FA *et al.*, it was more common in the 30-39 year age group, among parous women, among Negroes, and in patients with a low family income and overcrowded living conditions.[15]

The present study was undertaken to find out the proportion of the pregnant mothers having UTI and Justify its correlates attending at Antenatal Clinic of Rajshahi Medical College Hospital.

Methods

This was a cross-sectional descriptive type of study conducted at Antenatal Clinic of Rajshahi Medical College Hospital (RMCH), Rajshahi, Bangladesh. All the pregnant mothers attending at this clinic for their routine antenatal care constituted the study population. Total 300 pregnant mothers were selected by random sampling. Data were collected by a pretested semi structured interview schedule. The interview schedule was designed to record the socio-demographic characteristics, UTI status and the symptoms of UTI if present. Information were collected by face to face interview and antenatal check up card of the pregnant mothers, and or the attended doctor if needed after the end of their antenatal check up. When a mother was identified having UTI on the basis of routine urine analysis during the antenatal care, then the UTI related complaint(s) like turbid urine, frequent micturition, burning sensation during micturition , fever or pain in lumber region / lower abdomen was or were recorded

in the interview schedule. Pus cells > 5 per high power field were considered significant for infection. Before selecting the women, informed written consent was taken from each of them. Data were entered in the computer and processed using SPSS for windows. Descriptive analytical techniques involving frequency distribution, computation of percentage, mean, SD etc. were applied . However, association between variables were conducted applying Chi-square and Fisher's Exact test.

Results

A total no. of 300 pregnant mothers were included in the present study. Among them 26 mothers (8.7%) were found to have urinary tract infection (UTI) (Figure. 1).

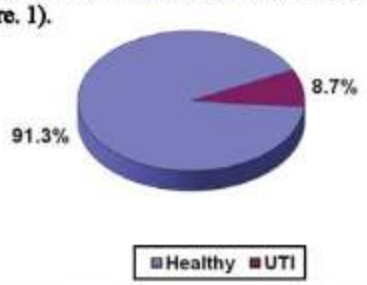

Figure. 1. Urinary tract infection(UTI) among the pregnant mothers attending at Antenatal Clinic of Rajshahi Medical College Hospital.

UTI among the illiterate pregnant mothers was 22.7% while it was found to be 6.6% and 7.8% among the pregnant mothers educated up to primary and high school or above level respectively. The differences of UTI among the pregnant mothers of different levels of educational status were statistically significant (p=0.049). UTI among the pregnant mothers aged >30 years was remarkably high than the other groups of pregnant mothers aged up to 20 years and 21-30 years. The association between UTI and mothers' age was close to statistical significance (p=0.057). Gestational age, monthly family income and parity were not significantly associated with UTI (Table 1).

Table 1 Correlates of Urinary tract infection. n = 300

Correlates	Health status		p-value
	Healthy n (%)	Urinary tract infection n (%)	
Gestational Age			
First trimester (n=29)	26 (89.7)	3 (10.3)	0.936*
Second trimester (n=62)	57 (91.9)	5 (8.1)	
Third trimester (n=209)	191 (91.4)	18 (8.6)	
Age (years)			
Up to 20 (n=111)	102 (91.9)	9 (8.1)	0.057*
21 – 30 (n=173)	160 (92.5)	13 (7.5)	
> 30 (n=16)	12 (75.0)	4 (25.0)	
Educational Status			
Illiterate (n=22)	17 (77.3)	5 (22.7)	0.049*
Primary (n=61)	57 (93.4)	4 (6.6)	
High school and above (n=217)	200 (92.2)	17 (7.8)	
Monthly family income			
Up to 10000/= (n=258)	236 (91.5)	22 (8.5)	0.50**
>10000/= (n=42)	38 (90.5)	4 (9.5)	
Parity			
Primipara (n=142)	131 (92.3)	11 (7.7)	0.571*
Multipara (n=151)	136 (90.1)	15 (9.9)	
Grandmultipara (n=7)	7 (100.0)	00(0.0)	

*Chi-square test applied, **Fisher's Exact test

A total 26 pregnant mothers having UTI, all of them had complain of frequent micturition and burning sensation during micturition. Twenty three percent of them complained about fever. Only 3.9% of the pregnant mothers having UTI had a complain of pain in lumber region/lower abdomen (Table 2).

Table 2 Symptoms of urinary tract infection. n = 26

Symptoms	Frequency N (%)
Frequent micturation	26 (100.0)
Burning sensation during micturation	26 (100.0)
Fever	6 (23.1)
Pain in lumber region/lower abdomen	1 (3.9)

Discussion

The prevalence of symptomatic bacteriuria in pregnancy varied from 2% - 28.5% in the different parts of the world. In developed countries, it was estimated that 2 to 10% of pregnant women suffer from any form of UTIs.[16-20] In Pakistan[18] and Egypt[19] it was 28.5% and 31.3% respectively. In a study by Selimuzzaman et al., it was found that 14.5% of the Metropolitan mothers of Rajshahi district have been suffering from asymptomatic bacteriuria.[13] The results of the present study and the previous studies in Rajshahi suggested that UTI is a health problem among the both rural and urban pregnant mothers of Rajshahi. It should take care both symptomatic as well as asymptomatic UTI. Because symptomatic UTI is a iceberg of asymptomatic UTI.[14]

There is still some controversy regarding the association of gestational age and UTI. Many studies have reported that pyelonephritis is more common during the second half of pregnancy, with an incidence peak during the last two trimesters of pregnancy.[21,22] Because it is estimated that 20% to 40% of pregnant women with asymptomatic bacteriuria in first trimester will develop symptoms in later period of gestation.[23] The susceptibility of UTI in later period of gestation is due to urethral dilatation which started as early as 6 week and reaching the maximum during 22-24 weeks.[24] On the other hand, many studies suggest that gestational age were not associated with UTI.[25,26] The present study findings agreed with the later group.

Advanced maternal age (≥ 35 years) was reported as risk factor for asymptomatic bacteriuria in pregnancy.[27] In the present study, it was also observed that the proportion of UTI among the mothers aged >30 markedly high than the lower age groups. This

difference was nearly significant. It suggests that symptomatic UTI also is associated with age as like as asymptomatic UTI.

A follow-up study on 249 pregnant women attending the antenatal care clinic at Zagazig,university hospital,Egypt, it was found that UTI was significantly more common among the illiterate mothers. Low educational level was identified as an important risk factor of UTI.[19] In this present study, it was also found that occurrence of UTI was more common among the mothers having low educational status.

The present study findings suggest that monthly family income and parity of the mothers were not associated with the occurrence of UTI among the pregnant mothers. It is consistent with the other studies.[5,6,12]

Burning with urination (dysuria) is the most significant symptom in pregnant women with symptomatic cystitis. Other symptoms include frequency, urgency, suprapubic pain, and hematuria in the absence of systemic symptoms. Fever (>38°C), shaking chills, costovertebral angle tenderness, anorexia, nausea, and vomiting are the common symptoms in Pyelonephritis.[28] In this present study, all of the pregnant mothers having UTI had complains of burning sensation during micturition (dysuria) and frequent micturition. Only 6 (23%) and 1 (3.9%) of them complained about fever and pain in lumber region/lower abdomen. These findings suggest that most of the UTI were lower urinary tract infections (cystitis) and less than one fourth of them were upper urinary tract infections (pyelonephritis).

The pregnant mothers specially the older and illiterate, and health care providers of the urban Rajshahi should be aware of this problem and motivate them to take care about it.

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