

Prevalence of urinary tract infection in terms of various risk factors, urinary pathogenic bacteria profile and antibiogram of isolates among pregnant women in tertiary care hospital in Chattogram Metropolitan Area



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June 2022

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This is to certify that we have examined the above Master's thesis and have found that is complete and satisfactory in all respects, and that all revisions required by the thesis examination committee have been made

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List of abbreviation

%	: percent
ANC	: Ante natal care
ASB	: Asymptomatic bacteriuria
BBMH	: Bangabandhu memorial hospital
HIC	: High income country
LMIC	: low middle income countries
MUAC	: middle upper arm circumference
SB	: symptomatic bacteriuria
SEC	: socioeconomic condition
USTC	: University of science and technology, Chittagong
UTI	: Urinary tract infection
WHO	: World health organization

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Abstract

Background

Urinary tract infection (UTI) is the most common infectious disease that affecting half of the population at least once during their lifetime and can lead to significant health problems.

Urinary tract infections (UTIs) are frequently encountered in pregnant women. The most significant factor predisposing women to UTI in pregnancy is asymptomatic bacteriuria (ASB). Incidence of ASB in pregnancy is very common in Bangladesh. About 30% of women with untreated asymptomatic bacteriuria during pregnancy develop pyelonephritis, which may lead to delivery of premature or low-birth-weight infants. This risk is reduced by 70 to 80 percent if bacteriuria is eradicated. So, they must routinely be screened for and treated accordingly if ASB is found to be present. But it is not a common practice in Bangladesh and screening for ASB in pregnancy is not considered as an essential part of antenatal care (ANC) like routine checkup for albumin and sugar in urine. The aims of this study were to identify the prevalence of UTI, associated risk factors, causative organisms and their antibiogram.

Methods

A cross-sectional study was conducted at Bangabandhu Memorial Hospital, USTC from January 2021 to June 2021. A total of 104 pregnant women with or without the symptoms of UTI, attending in the hospital for antenatal visit was enrolled in the study. Demographic data including maternal age and gestational age were collected using questionnaires. Clean catch mid-stream urine samples were collected from all participants using wide-mouthed sterile capped container. The specimen was promptly transported to the microbiology laboratory and cultured within one hour of collection. Culture reports of all patients were analyzed. Participation was fully voluntary and consent was obtained from all participants.

Results

Among 104 pregnant mother, 31(29.81%, 95CI: 21.23-39.56) women were reported with UTI after having their urine samples positive for bacteriological culture testing. Furthermore, 9 (18.75 %, 95 % CI: 8.94-32.62) of the 104 participants were diagnosed with UTI without any symptoms, which were categorized as asymptomatic cases and 22 (39.29%, 95 % CI: 26.5-53.2) respondents were symptomatic UTI patients.

Among the 104 samples of the participants, 13.4% (14, 95% CI: 7.5-21.5) were positive to *Escherichia coli*, 7.6% (8, 95% CI: 3.3-14.5) were positive for *Klebsiella spp.* , both *Staphylococcus aureus* and *Enterococcus* were found in 3.8% (4, 95% CI: 1.05-9.5) of samples, and *Pseudomonas spp.* was found in 0.9% (1, 95% CI: 0.02-5.2) of pregnant women.

Among the 14 *E. coli* samples, highest number of isolates were sensitive to both imipenam (93%) and amikacin (93%). On the other hand, highest number of *Klebsiella spp.* were sensitive to amikacin (87.5%), gentamycin (87.5%) and imipenam (87.5%). In case of *S. aureus*, all the isolates were sensitive to amikacin (100%), cefuroxime (100%), ciprofloxacin (100%) and nitrofurantoin (100%). Similarly, all *Enterococcus* showed sensitivity to imipenam (100%). Furthermore, the single *Pseudomonas spp.* isolate was sensitive to amikacin, ceftriaxone, co-amoxiclave, imipenam and nitrofurantoin.

In this study ,we found that, 28.6% *E. coli* were resistant to ciprofloxacin, co-amoxiclave, and Gentamycin, respectively. In case of *Klebsiella spp.*, one fourth were resistant to ceftriaxone, cefuroxime and ciprofloxacin. Meanwhile, the single *Pseudomonas spp.* isolate was resistant to ciprofloxacin and gentamycin.

Key words Asymptomatic bacteriuria, Multy drug resistant, Pregnancy, UTI