



STUDY ON THE BACTERIOLOGICAL CAUSES OF UTI IN THE PREGNANT WOMEN

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ABSTRACT

Background: UTI is amongst most prevalent medical problems in pregnancy. Infection of the urinary system during pregnancy is linked to significant morbidity in the foetus and mother. Gram negative organisms cause UTI much more frequently than gram positive organisms E.coli(50-60%), Klebsiella(0-10%), Proteus(0-10%), Pseudomonas (0-5%) are the gram negative organism and gram positive organism includes Staphylococcus species, Streptococcus species and Enterococcus species. **Aim:** To isolate the bacteria causing UTI in pregnant women. **Material and Methods:** The study was carried out from September 2021 to February 2022 in peripheral health institutes in our sub Himalyan region in CH Bhawarna. **Results:** During the study period total 110 urine sample from ANC clinic were processed out of which 30 isolates were found to be positive. Gram negative organism was predominant isolates. E. coli was the major isolate. **Conclusion:** The current study also compares the existing resistance pattern of the treatment prescribed to pregnant women with bacterial UTI. Bacteria are usual suspects for infections in expecting women. Sometime this could also lead to complication like pyelonephritis, cystitis, pre term birth, biofilm formation, decreased mean gestational age and many more.

INTRODUCTION

UTI is one of the most prevalent medical problems of pregnancy.^[1] This is, result of the morphological as well as physiological changes that occur in the genitourinary tract.^[2] Infection of urinary system during the pregnancy is linked to much significant morbidity in foetus and mother.^[3] During pregnancy there are hormonal, mechanical and physiological changes.^[4] UTI during pregnancy can cause pyelonephritis, hypertensive anemia, sickness, chronic renal failure, low birth weight of fetus and early delivery or death. Treatment of asymptomatic and symptomatic bacteriuria at any stage of pregnancy can reduce the risk of this above said problems.^[5] Due to adverse sequelae of UTI in pregnant women, maximum number of hospitals perform routine urine analysis of midstream urine specimen at some stage during their stay at antenatal health center.^[6]

UTI can be asymptomatic or symptomatic. Asymptomatic bacteriuria is defined as presence of microorganisms in midstream urine (MSU) sample that gives positive (>10⁵cfu/ml) of the same uropathogens in a patient who does not have any conventional UTI symptoms.^[7]

Dysuria, cramps or pains in the lower abdomen, urgency, mucus, blood or in the urine, pain during sexual intercourse are the symptoms and signs and of UTI.^[8,9]

Gram negative organisms cause UTI much more frequently than gram positive organisms. E.coli (50-

60%), Klebsiella (0-10%), Proteus (0-10%), Pseudomonas (2-5%) were the gram negative organism isolated and gram positive organism included Streptococcus species, Staphylococcus species and Enterococcus species.^[10-12]

At present, antibiotic resistance can be observed all around the world, especially in relation to the E.coli which is most common causative agent of UTI during pregnancy. Rising drug resistance as the result of self-medication/medications by unauthorized persons and empirical treatment of UTI requires regular monitoring of antibiotic susceptibility of uropathogen.^[10]

To ensure effective medications and to have current information, it is necessary to identify the microorganisms that cause UTI in a very certain region and their susceptibility. In the majority of the developing countries including India, prenatal screening for UTI should be done during prenatal care.^[13,14]

MATERIAL AND METHODS

This Study was done in peripheral sub Himalyan institutes in Himachal Pradesh. 110 urine samples were taken from the pregnant women who were visiting the gynaecological OPD from month of September 2021 to February 2022.

Processing of Sample

1. Microscopy (i.e. Wet mount microscopy was done

to detect the RBC, WBC and Epithelial cells in uncentrifuged sample)

- Culture done on CLED agar(the cysteine lactose electrolyte deficient agar)

RESULTS

In our study out of 110 cases significant bacteriuria (20.27%), No significant bacteriuria(79.73%). According to the gestational period, highest percentage was then seen in the third trimester(56.66%) followed by second trimester (30%)and in contrast of the first trimester(13.34%).

Table 1: Causativeorganism.

Organism	Percentage(%)
GNB	
E.coli	53.33%
K.pneumoniae	13.33%
P.aeruginosa	3.34%
Acinetobacter	3.34%
S.aureus	10%
S.saprophyticus	10%
Enterococcuspp.	6.66%
Total	110%

Out of the total isolates the most common organism found was E.coli(53.33%) followed by the Klebsiella pneumoniae(13.33%), S.aureus and Pseudomonas S.saprophyticus(10%), Enterococcus spp.(6.66%), aeruginosa and Acinetobacter(3.34%).

DISCUSSION

The current study was done from september 2021 to february 2022. During the above said time period, a totalof 110 urine samples were collected from the pregnant women diagnosed as UTI patients. Furtherassessment of the samples was done to identify the causative agents of UTI.

Our study was highly comparable to studies done by O M Rahiman Fetal. They reported symptomatic UTI in the pregnant women (16.88%).^[15,16] Another study conducted in new Delhi byKantSetal. Concluded that UTI inpregnant women was 33.3%.While it was,(37.84%)in the study by Thakur S etal.^[13,17] Rate of UTI in the pregnant women(20.27%)in our research can also be correlated with study by Rizvi M et al. They reported 25.2% symptomatic bacteriuria. In our study occurrence of UTI was (13.34%) through out the first trimester, (30%) at second trimester and (56.66%) during third trimester. The highest incidences were found during the third trimester. This trend was similar with the study by OM Rahiman F etal. In their study, they reported bacteriuria duringfirst trimester, second trimester and third trimester of pregnancy as(13.95 %),(14.28%) and (18.69%) respectively. In another study by MPS et al they reported that highest incidents were found during the third trimester(13.88%) followed by second trimester(11.9%) and first trimester(8.5%).^[15,18] This is due to the increased obstruction of ureters which is result

of the enlarging uterus. However, in contrast to previous studies the study done by Sujatha R et al they showed the high rate of infection in first trimester itself.^[19]

In our study, E.coli (53.33%) was predominantly isolated organism in pregnant women with Similar study conducted by Eshwarappa M et al. showed that the highest percentage of isolated organism were E.coli (66.9%) followed by the Klebsiella(15.5%), Enterobacterspp.(4%)and pseudomonas (10.2%). Moreover, MP Srinath et al.in their study concluded that percentage of incidence of E. coli (53.8%), Klebsiella (23.07%), Pseudomonas (3.84%) and Enterococcus species (7.69%).^[18] Samage PM et al. also conducted a research on the UTI in pregnant women inwhich E.coli isolated was (42.2%), Klebsiella (11.1%) and Acinetobacter (6.7%).^[20]

CONCLUSION

Bacteria are the usual suspects for infections in the expecting women.Sometime this could also lead to complication like pyelonephritis, cystitis, pre term birth, decreased mean gestational age, biofilm formation etc.

Regular prenatal screening for asymptomatic or symptomatic or bacteriuria should be performed and then particular instructions for assessing antimicrobial susceptibility with safe medications in pregnant women should be provided urjently so that these can help in proper treatment.

Pregnant women should be tested meticulously for asymptomatic bacteriuria at least once throughout each trimester because it has been associated to serious pregnancy problems. To avoid the gynaecological and obstetric difficulties, all expectant women should have screening routine urine culture tests to detect the infections and appropriate treatment.

The aim of this study was to identify bacterias causing the UTI. Our study will therefore be helpful for better selection of antibiotics for pregnant women as most of the women in our area would get benefit from antibiotics acting upon gram negative bacterias.

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