A STUDY OF ASYMPTOMATIC UTI AMONG THE PREGNANT WOMEN IN THE SAPTARI DISTRICT OF NEPAL

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Abstract : *Urinary tract infection (UTI) is caused by microbial invasion of tissue lining the urinary tract which extends from renal cortex to urethral meatus. Asymptomatic UTI is a significant bacterial count (usually* $>10^5$ *organisms/ml.) present in the urine of persons without any symptom. The present study was conducted to find out the incidence of asymptomatic UTI in pregnant women in the Saptari district of Nepal and to know the antibiotic susceptibility pattern of the isolates. The work was carried out in the Microbiology Laboratory of Tribhuvan University, MBM Campus, Rajbiraj, Nepal during half of the first quarter of* 2018 *A.D. A total of* 100 *midstream urine samples of pregnant women from different villages were collected and processed using standard microbiological technique. All the samples were cultured on Blood Agar and McConkey Agar to identify the potential pathogen. To observe colour, odour and turbidity macroscopic observation was done. Microscopic examination was performed to observe pus cell, RBC, epithelial cell, cast and crystal. For the screening of the samples Uristrip analysis was performed. The antibiotic sensitivity test was conducted for the bacteria which grew significantly during culture. The colony count was done and the organisms were identified by biochemical tests. In course of our study asymptomatic bacteriuria was observed in* 6% *cases. Among the isolates Escherichia coli is found to be the major causative agent. The study also reveals that most of the isolates are resistant to one or more antibiotics.*

Keywords : *Incidence, Screening, Culture, Antibiotic, Escherichia coli*.

1. INTRODUCTION

Urinary tract infection (UTI) is the second most common infection after respiratory tract infection. UTI is defined as a disease caused by microbial invasion of the genitourinary tract that extends from the renal cortex of the kidney to the urethral meatus [1]. The presence of detectable bacteria in the urine is named as bacteriuria. Presence of pus cell in urine denotes pyuria which most often accompanies UTI. Normally kidneys, ureters, urinary bladder and proximal urethra are sterile but bacteria may be present in distal urethra as transient flora, most of which are derived from the fecal flora [2].

During pregnancy there occur many anatomical and hormonal changes in women making them susceptible to develop UTI. Around 20% of the pregnant women are reported to have UTI and it is the most common cause for admission to obstetric

ward. Its occurrence usually starts in 6 weeks and becomes most frequent during 22-24 weeks of pregnancy [3].

2. MATERIALS AND METHODS

The study was carried out in the Microbiology Laboratory of Tribhuvan University, MBM Campus, Rajbiraj, Nepal from February 6 to March 18, 2018. A total of 100 midstream urine (MSU) samples were collected from the pregnant women in different villages of the Saptari district in Nepal and then observed both macroscopically and microscopically.

These samples were inoculated onto McConkey Agar and Blood Agar and incubated at 37^{o}C. for 24 hours. After incubation the organisms were identified by performing gram staining and different types of biochemical test [4].

After identification the antibiotic sensitivity testing was done for each organism. Finally, the concentrations of proteins, sugars and pH of each urine sample were detected by using uristrip, a urine analysis kit [5].

3. RESULTS AND DISCUSSION

3.1 Culture Result

Out of the above-mentioned MSU samples 6% were found to be infected with UTI. A pregnant woman is said to be infected with UTI if the bacterial colony counts more than or equal to 10^5cfu/ml. The result is furnished in Table–1.

TABLE–1

Total case	Number of growth		
	≥10^5 cfu/ml	<10^5 cfu/ml	No growth
100	6	89	5

3.2 Distribution of Uropathogen

In the positive UTI samples the organisms *Escherichia coli*, *Proteus vulgaris* and *Staphylococcus aureus* were found. The result is tabulated in Table–2.

TABLE–2

Bacterial isolates	Number of isolates	Percentage of isolates
Escherichia coli	3	50
Proteus vulgaris	2	37.5
Staphylococcus aureus	1	12.5
Total	**6**	**100**

3.3 Distribution of Bacteria

The gram negative bacteria were found to be the most common uropathogen responsible for UTI in comparison to the gram positive bacteria. The result is shown in the figure below [6].

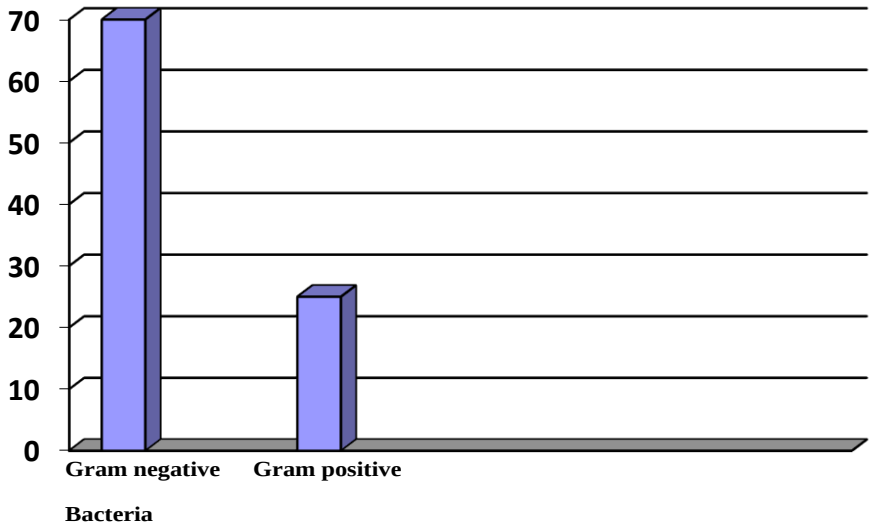

Figure : Bar diagram

3.4 Antibiotic Susceptibility Test

Antibiotic susceptibility test was performed for all the isolates detected from positive urine samples. Cefixime was noticed to be almost 100% resistant with all the isolates. Chloramphenicol and Cotrimoxazole were found to be 100% sensitive.

4. CONCLUSION

Increase in age, number of child birth, number of intercourses per week, diabetes, recessive sickle cell anemia, previous history of UTI, immunodeficiency and urinary tract abnormalities can increase the risk of UTI in pregnant women. Bacterial organisms which cause this disease include *Escherichia coli*, *Klebsialla pneumonia*, *Proteus vulgaris*, *Staphyllococcus aureus*, *Acinetobacter*, *Saprophyticus*, *Streptococcus* Group B and *Pseudomonas aeruginosa*.

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