



“BACTERIAL PROFILE, ANTIBIOTIC SUSCEPTIBILITY PATTERN AND ASSOCIATED FACTORS AMONG PREGNANT FEMALE WITH URINARY TRACT INFECTION ATTENDING ANTI NATAL CLINIC IN TERTIARY CARE HOSPITAL”

Microbiology

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ABSTRACT

Introduction-Pregnancy is a state associated with physiological, structural and functional urinary tract changes which promote ascending infections from the urethra .Urinary tract infections (UTIs) are common in pregnant women and pose a great therapeutic challenge its and its consequences for both the mother and the unborn child.

AIM& OBJECTIVE :- To isolate and identify bacteria causing UTI in pregnant female and to study their antimicrobial susceptibility pattern.

Material and Methods:- Study was conducted in the Department of Microbiology of G.R Medical College & J.A. Group of Hospitals Gwalior from January 01, 2019 to 31 December, 2019. Prospective study conducted on 650 urine samples collected from pregnant female attending Antenatal clinic in Department of Obstetrics and Gynecology at Kamalaraja Hospital and Madhav dispensary, Gwalior. All urine specimens were processed following standard protocols.

Results: In our study, the proportion of pregnant women with UTI was maximum in the 3rd trimester. E. coli was most commonly isolated & most commonly sensitive to Norfloxacin (95%) and Nitrofurantoin (91.5%), Klebsiella and staphylococcus aureus were sensitive to cephalosporins and ciprofloxacin (85.7%). Staph aureus was 100% sensitive to Amoxyclav and Norfloxacin. CONS showed 100% sensitivity to Nitrofurantoin, Amoxyclav, Ciprofloxacin and cefotaxime. Similar antibiotic pattern was observed in studies conducted by A. Masinde et al. and A Alemu et al. High resistance to cotrimoxazole (20.3%) observed in our study is similar to study conducted by S.J. Moyo et al. and M.N. Mokube et al.

KEYWORDS

Urinary Tract Infection, Escherichia Coli, Pregnant Female. Highlevel Resistance.

INTRODUCTION

Pregnancy is a state associated with physiological, structural and functional urinary tract changes which promote ascending infections from the urethra.

Urinary tract infections (UTIs) are common in pregnant women and pose a great therapeutic challenge its and its consequences for both the mother and the unborn child.

Higher risk (up to 40%) of progression to pyelonephritis, and possibly increased risk of pre- eclampsia, premature birth and low neonatal birth weight.

AIMS & OBJECTIVE

- To isolate and identify bacteria causing UTI in pregnant female.
- To study their antimicrobial susceptibility pattern.

MATERIAL AND METHODS

- Study was conducted in the Department of Microbiology of G.R Medical College & J.A. Group of Hospitals Gwalior from January 01, 2019 to 31 December, 2019.
- Prospective study conducted on 650 urine samples collected from pregnant female attending Antenatal clinic in Department of Obstetrics and Gynecology at Kamalaraja Hospital and Madhav dispensary, Gwalior J.A. Group of Hospitals, Gwalior.
- All urine specimens were processed following standard protocols.

Processing Of Samples

- Early morning clean catch mid stream urine sample from pregnant women were collected and transported within 2-4 hours
- Macroscopic examination
- Microscopic examination (Wet Mount & Gram staining)
- Inoculated on Blood agar and MacConkey agar
- Gram staining of isolated colony
- Identification by Biochemical reactions
- Antimicrobial susceptibility testing*

*As per CLSI 2019 guidelines

RESULTS

Table-1 Culture status of total urine samples processed

	No growth	Bacterial growth	Fungal growth	Mixed growth	Total urine samples
Number (%)	442 (68%)	181 (27.85%)	11 (1.69%)	16 (2.46%)	650

Table 2 Frequency of identified isolates

ISOLATES	TOTAL NUMBER	PERCENTAGE (%)
<i>Escherichia coli</i>	47	25.96
<i>Staphylococcus aureus</i>	37	20.44
<i>Klebsiella species</i>	29	16
<i>Enterobacter species</i>	18	9.94
<i>Proteus species</i>	15	8.2
<i>Pseudomonas aeruginosa</i>	13	7.1
<i>Citrobacter species</i>	12	6.6
Cogulase Negative Staph.aureus (CoNS)	08	4.4
<i>Enterococcus species</i>	02	1.1

Table-3 Age wise distribution of urine cultures positive cases

AGE (Inyears)	No. Of Patient Examined	No. Of Culture Positive Sample	Percentage (%)
<25	264	88	42.30
26-30	183	62	29.80
31-35	118	37	17.78
>36	85	21	10.09

Table 04 Prevalence of UTI With Gestational Age

TRIMESTER	CULTURE POSITIVE CASE	CULTURE NEGATIVE CASE	PREVALENCE
First Trimester	28	105	13.17
Second Trimester	69	139	33.17
Third Trimester	111	198	53.36
Total	208	442	
GRAND TOTAL	650		

Table.5 Antimicrobial susceptibility pattern

ANTIBIOTIC	ORGANISM E.coli (n=47)	ORGANISM K.spp(n=29)	S.aureus (n=37)	CONS (n=08)
Nitrofurantoin	91.5%	71%1	85.7%	100%
Gentamicin	81.4%	74.5%	71.5%	80%
Amoxycylave	78%	84%	100%	100%
Ciprofloxacin	77%	53.4%	85.7%	100%
Ceftazidime	75.4%	92%	85.7%	80%
Cefotaxime	54.2%	93.3%	85.7%	100%
Cotrimoxazole	20.3%	63%	71.5%	60%
Norfloxacin	95%	86%	100%	80%

DISCUSSION

Women with UTI in our study was 27.84% including both asymptomatic bacteriuria and symptomatic bacteriuria, comparable with the studies done previously in North India by Sujatha et al.[5] & from South India by Jayalakshmi and Jayaram and Lavanya and Jogonalakshmi have also reported similar estimates.[6]. In our study, the proportion of pregnant women with UTI was maximum in the 3rd trimester.[7]

E. coli was most commonly isolated & most commonly sensitive to Norfloxacin (95%) and Nitrofurantoin (91.5%), Klebsiella and staphylococcus aureus were sensitive to cephalosporins and ciprofloxacin (85.7%).

Staph aureus was 100% sensitive to Amoxycylav and Norfloxacin.

CONS showed 100% sensitivity to Nitrofurantoin, Amoxycylav, Ciprofloxacin and cefotaxime. Similar antibiotic pattern was observed in studies conducted by A. Masinde et al. and A Alemu et al.

High resistance to cotrimoxazole (20.3%) observed in our study is similar to study conducted by S.J. Moyo et al. and M.N. Mokube et al.

CONCLUSIONS

The burden of UTI among pregnant women attending the antenatal clinic of a tertiary care hospital was considerable, more so among those that presented with symptoms suggestive of UTI. The study suggested that considering the burden of UTI and its complications, diagnosis of UTI can be done after screening women with symptoms suggestive of UTI on the basis of history.

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