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Prevalence of Asymptomatic Bacteriuria in Pregnant Women Attending for Antenatal Checkup in Tertiary Care Hospital, Bihar, India.

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Abstract
Introduction
Due to the morphological and physiological changesUrinary Tract Infections (UTIs) common in pregnancy[1]. Features of urinary tract infection are urgency, frequency, and dysuria. Asymptomatic Bacteriuria (ASB) is defined as the presence of actively multiplying bacteria, which is greater than 105/ ml of urine within the urinary tract, excluding the distal urethra, at a time when the patient has no symptoms of a UTI[2,4] .
Aims and objective
The objective of this prospective study was to identify the prevalence of ASB and most common causative microorganisms among pregnant women who attended a tertiary care centre at Bihar, India so that appropriate antibiotic therapy should be given as early as possible to prevent any obstetric and maternal complication associated with pregnancy.
Method
This prospective study includedatotal 180 pregnant women with no sign and symptom of UTI attendingantenatal clinic in Department of Obs&GynaeAnmmch, Gaya over a period of 8 months, starting from November 2016 to June2017. All patient after taking formal consent ,Urine samples were collected by standard mid-stream "clean catch" method in sterile, wide mouthed containers that were covered with tight-fitting lids in department of microbiology Anmmch, Gaya for culture and sensitivity.

Result: *Of 180 pregnant women who were screened, Significant bacteriuria (CFU≥10^5/mL)was found in only 23 cases giving an overall prevalence of 12.78 %. E. coli was the most predominant organism followed by Klebsiella.E-coli Sensitivity was 100% with nitrofurantoin, Imepenem.*
Conclusion: *Each pregnant woman attending antenatal clinic should undergo routine urine culture test in order to screen for asymptomatic bacteriuria. Appropriate antibiotic therapy should be given as early as possible to prevent any obstetric and maternal complication associated with pregnancy. Awareness regarding personal hygiene, educating regarding proper antenatal checkup with relevant investigations can reduce co morbidities during and after pregnancy related to asymptomatic bacteriuria.*
Key words: *Urinary tract infection, Asymptomaticbacteriuria, E.Coli, Klebsiella*

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I. Introduction

Due to the morphological and physiological changesUrinary Tract Infections (UTIs) common in pregnancy[1]. Features of urinary tract infection are urgency, frequency, and dysuria. Asymptomatic Bacteriuria (ASB) is defined as the presence of actively multiplying bacteria, which is greater than 105/ ml of urine within the urinary tract, excluding the distal urethra, at a time when the patient has no symptoms of a UTI[2,4] . Pregnancy can enhancethe progression from ASB to Symptomatic bacteriurialeading to adverse obstetric outcomes such as prematurity, postpartum hypertensive disease, anaemia, UTIs, and higher Foetal mortality rates, if left untreated[5]. Early diagnosis and treatment reduces incidence of pyelonephritis in patients of ASB.[3]Asymptomatic bacteriuria is a microbial diagnosis based on a specified quantitative count of bacteria in a specimen of urine.Thus urine culture is the gold standard screening technique for ASB[6,7]. The relatively high prevalence of ASB during pregnancy, the significant consequences faced by women and their pregnancies, and the ability to avoid undesired outcomes with treatment, justify screening and treatment of ASB in pregnancy. The frequencies of isolated pathogens and their antimicrobial resistance patterns can vary in different geographical regions . Therefore, the most common causative agents should be investigated and communities should be made aware of their local antimicrobial resistances. The objective of this prospective

study was to identify the prevalence of ASB, its most common causative microorganisms among pregnant women who attended a tertiary care centre at Bihar, India to improve obstetric outcome in developing countries like ours.

II. Material And Method

This prospective study included total 180 pregnant women who attended antenatal clinic in department of Obs&GynaeAnmmch, Gaya were included over a period of 8 months, starting from November 2016 to June2017. Pregnant women having history of UTI symptoms (dysuria, frequency and urgency, etc), a history of antibiotic therapyin the previous two weeks, pyrexia of unknown origin,were excluded from this study. Informed consents were taken from all the patients. Urine samples were collected by standard mid-stream "clean catch" method from all the pregnant women, in sterile, wide mouthed containers that were covered with tight-fitting lids in department of microbiology Anmmch, Gaya for culture and sensitivity by disc diffusion method.

III. Result

Of 180 pregnant women who were screened, Significant bacteriuria (CFU≥105/mL)was found in only 23 cases giving an overall prevalence of 12.78 %. A total of 120 patients has sterile and 35 has contaminated urine sample. ASA Was found to be 9.52 % among primigravidae and 14.17% inMultigravidae(Table.3) Highest incidence seen in age group 21-30 yrs. None of the patient of high socio-economic status has ASA whereas 14.38 E. coli was the most predominant organism followed by Klebsiella. Most common causative organism of UTIs during pregnancy is *Escherichia coli*, which accounts for 80-90%.[8]

E-coli Sensitivity was 100% with nitrofurantoin, Imepenem.ForKlebsiella pneumonia sensitivity was 100% with Amikacin,Ceftriaxone,Imipenem (figure.1)

Table1. Findings of culture report

Findings	Total no of cases	Percentage
Significant bacteriuria	23	12.78
Insignificant bacteriuria	2	1.1
Contamination	35	19.44
Sterile	120	78

Table2. Significant bacteriuria age group

Age group (years)	No. Of patients	Percentage
<20	3	13.04
21-30	12	52.17
31-40	6	26.09
>40	2	8.7

Figure.1. Susceptibility of bacteria using Disc diffusion method.

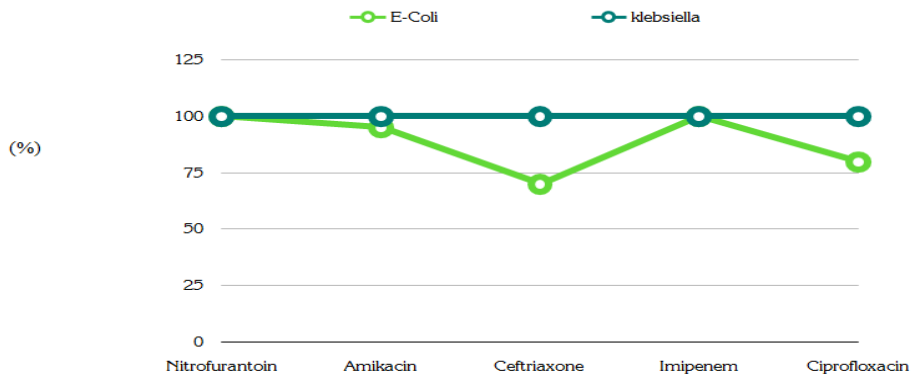

Table3. Demographic frequency

	Total no.of patients	No. Of significant bacteriuria patients	Percentage
Socioeconomic status			
Low	146	21	14.38
Intermediate	22	2	9.09
High	12	0	0
Parity			
Primigravida	42	4	9.52
Multiparous	127	18	14.17
Grandmultiparous	11	1	9.09

IV. Discussion

Pregnant women showing positivebacteriuria should be treated to prevent maternal and foetal morbidities. Women who have bacteriuria have a 20-50 fold increased risk of developing pyelonephritis as compared to women who do not have bacteriuria Those women who show positive cultures should be treated as per antimicrobial sensitivity patterns of the bacteria which are isolated from their samples, to prevent maternal and foetal morbidities .In our study the prevalence of asymptomatic bacteriuria was 12.78% which is more in comparison to rest of study done in India .This variation may be explained bySocio-economic status n awareness of personal hygiene .In our study, age group of 31-40 years reported a higher prevalence of UTIs .Advanced maternal age (of ≥35years) was reported as a risk factor for asymptomatic bacteriuria . In our study, incidence of asymptomatic bacteriuria was higher in multigravidae specially in first trimester of pregnancy.Multiparous women had a has higher frequency of ASB.[9]This is believed to be because high parity leads to the descent of pelvic organs, and a widening of the urethral orifice, whichinfluences the ascent of microbes.[10-12]

The antimicrobial sensitivity and resistance pattern varyfrom community to community and from hospital to hospital. This is because of emergence of resistant strains, caused by indiscriminate use of antibiotics. In our studyE-coli Sensitivity was 100% with nitrofurantoin, Imepenem.ForKlebsiella pneumonia sensitivity was 100% with Amikacin,Ceftriaxone,Imipenem. ASB had a Significant relationship with the direction of washing genitals after urination or defaecation.[13] Washing of genitals from back to front may lead to the spread of anal or vaginal infection into the urethra. So, Education on the direction of washing and advice to micturate shortly after sexual activity can reduce the prevalence of UTI.[14]

V. Conclusion

Each pregnant woman attending antenatal clinic should undergo routine urine culture test in order to screen for asymptomatic bacteriuria. Appropriate antibiotic therapy should be given as early as possible to prevent any obstetric and maternal complication associated with pregnancy. Awareness regarding personal hygiene, educating regarding proper antenatal checkup with relevant investigations can reduce co morbidities during pregnancy related to asymptomatic bacteriuria.

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