

Asymptomatic Bacteruria in Pregnancy, Prevalence, Risk Factors and causative Organisms

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ABSTRACT:

To screen the antenatal women for the prevalence of asymptomatic bacteriuria. Prevalence of asymptomatic bacteriuria among the women who attended our antenatal clinic was 22 %. Primi gravida was prone for infection followed by multi gravida. Correlation between demographic factors like age and socio economic status on infection was studied using chi-square test. Asymptomatic bacteriuria was more common in the younger age groups ($p=0.019$) and in the lower socioeconomic class. Hence spreading awareness regarding high risk factors for ASB and screening the pregnant women at the earliest will help in preventing the complications of ASB which thereby reduces the public health burden.

Keywords: bacteriuria, antenatal, acute cystitis, acute pyelonephritis, anemia and preeclampsia.

INTRODUCTION

ASB is defined as “the presence of actively multiplying bacteria within the urinary tract excluding the distal urethra” at a time when the patient has no urinary tract symptoms. Clinically a diagnosis of asymptomatic bacteriuria is more significant when urine culture shows bacterial count ($\geq 10^5$ organisms or colony forming units present per millilitre) in urine. ASB is common in pregnancy due to local genitourinary changes of pregnancy and generalized reduced immunity of pregnancy.[1-3] Apart from progression of asymptomatic bacteriuria to symptomatic bacteriuria resulting in acute cystitis and acute pyelonephritis is the troublesome complication of ASB. The prevalence of Asymptomatic Bacteriuria (ASB) in pregnancy varies from 2 -10% [3,4] ASB is also associated with various maternal and fetal adverse outcomes. Maternal complications attributed to ASB are acute

cystitis, acute pyelonephritis, anemia, preeclampsia (PE) and post-partum endometritis.[4-5]

Fetal complications are Fetal Growth Restriction (FGR), preterm premature rupture of membrane (PPROM), preterm labour (PTL), low birth weight (LBW). This study is conducted to identify the prevalence in our antenatal population and to determine the various risk factors and common organisms with asymptomatic bacteriuria of pregnancy. As always prevention is better than cure. Aim of good antenatal care is to ensure the well being of both mother and child.[6-9]

2. MATERIALS AND METHODS

This study was conducted after getting ethical clearance from the University ethical committee. In the present study, the prevalence of asymptomatic bacteriuria in 500 antenatal women attending the antenatal clinic.

TYPE OF STUDY: Cross Sectional Analytical Study.

STUDY POPULATION: Asymptomatic pregnant women with singleton pregnancy attending antenatal op in SBMCH. **STUDY SETTING:** Department of Obstetrics and Gynaecology, Sree Balaji Medical College and Hospital, Chrompet, Chennai.

STUDY PERIOD: August 2016- Feb 2018

INCLUSION CRITERIA:

Asymptomatic pregnant women for routine antenatal care irrespective of the gestational age.

- Women who are willing to participate in this study.

EXCLUSION CRITERIA:

- H/o increased frequency of urine, burning micturition (symptoms of cystitis).
- Pregnant women having overt diabetes, chronic hypertension and pre-existing medical disorders.
- Women with h/o intake of any antibiotics in this pregnancy.

- H/o preterm delivery, recurrent UTI, PROM, PPROM, IUGR in previous pregnancy.
- Patient who have sickle anemia ,renal disease .

3.RESULT

Demographic variables in categorical/dichotomous were given in frequencies with their percentages.Prevalence of asymptomatic bacteriuria among the women with gestational diabetes mellitus and Anemia attending our antenatal clinic were assessed.To study the commonest organism which causes the asymptomatic bacteriuria in gestational diabetes mellitus and Anemia was assessed using percentage of occurrence to the total.

To correlate whether factors like socioeconomic class, parity and age has any influence on the infection and Hemoglobin and OGCT values differences between no growth and positive chi square test was applied.Simple bar diagram, Multiple bar diagram and Pie chart were used to represent the data.P<0.05 was considered statistically significant.

TABLE 1: PREVALENCE OF ASYMPTOMATIC BACTERIURIA

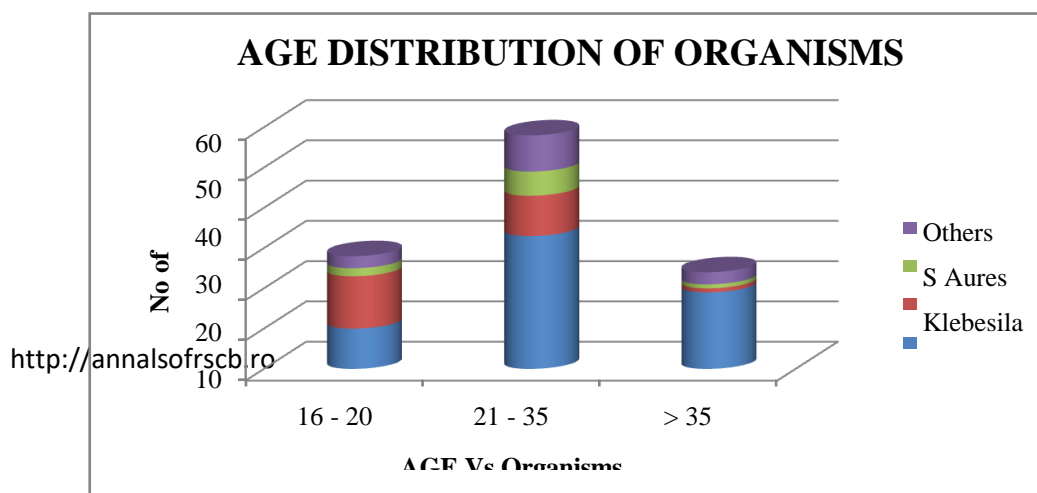
INURINE CULTURE

Urine culture	No of cases	Percentage
Growth	110	22
No Growth	390	88
Total	500	100

Among the total cases, 22 % had prevalence of asymptomatic bacteriuria in urine culture positive whereas 88% of them had urine culture negative.

Figure 12: DISTRIBUTION OF WOMEN WITH URINE CULTURE

POSITIVEACCORDING TO AGE



Among the total cases, 32 % in the age group of 16 – 20 years, 19 % in the age group 20 - 35 years, 21 % in the age group > 35 years have growth of organisms.

TABLE 2 : DISTRIBUTION OF WOMEN WITH URINE CULTURE

POSITIVE ACCORDING TO GDM

OGCT	NO GROWTH		GROWTH	
	Noof cases	Percentage	Noof cases	Percentage
Above 140	47	12	29	26
Below 140	343	88	81	74
Total	390	100	110	100

Among the 76 OGCT cases, only 29 (26%)cases had urine culture positive.Test Applied Chi Square Test P Value <0.05

TABLE 3: DISTRIBUTION OF WOMEN WITH URINE CULTURE

POSITIVE ACCORDING TO ANEMIA

Among the 140 anemic cases, only 42 (38%) cases had urine culture positive.

Test Applied Chi Square Test P Value <0.05

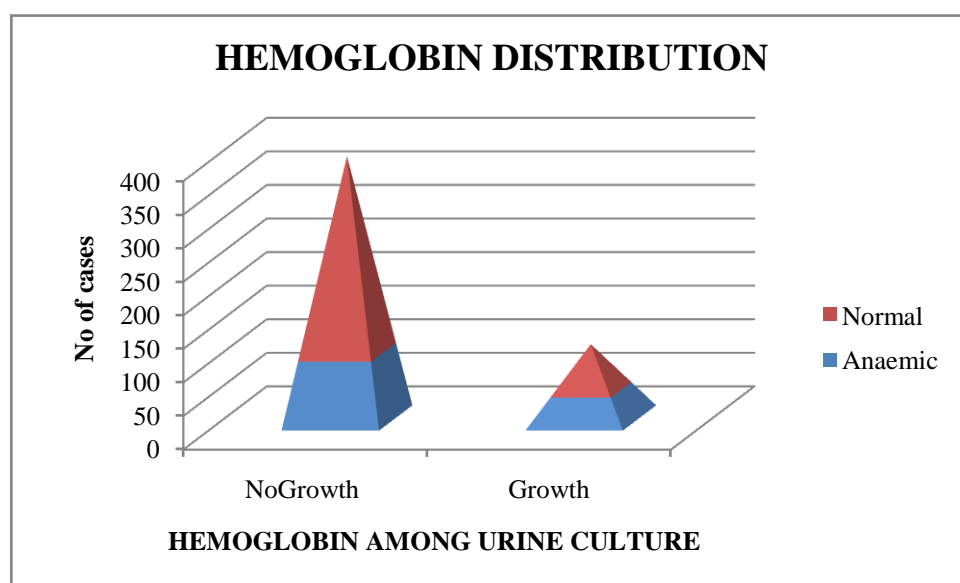


TABLE 4: PATTERN OF DISTRIBUTION OF ORGANISMS CAUSING ASYMPTOMATIC BACTERIURIA IN SOCIO ECONOMIC STATUS

Organisms	SOCIO ECONOMIC STATUS						
	I	II	III	IV	V	No Of Cases	Percentage
E Colli	2	7	29	19	5	62	56
Klebesila	1	4	5	9	5	24	22
S Aures	1	4	2	1	1	9	8
Others	1	1	5	5	3	15	14
Total	5	16	41	34	14	110	100

FIGURE 3 : PATTERN OF DISTRIBUTION OF ORGANISMS CAUSING ASYMPTOMATIC BACTERIURIA IN OGCT POSITIVE

It is evident that E.Coli is the predominant organism in asymptomatic bacteriuria followed by S.Aures and Klebsila among GDM patients

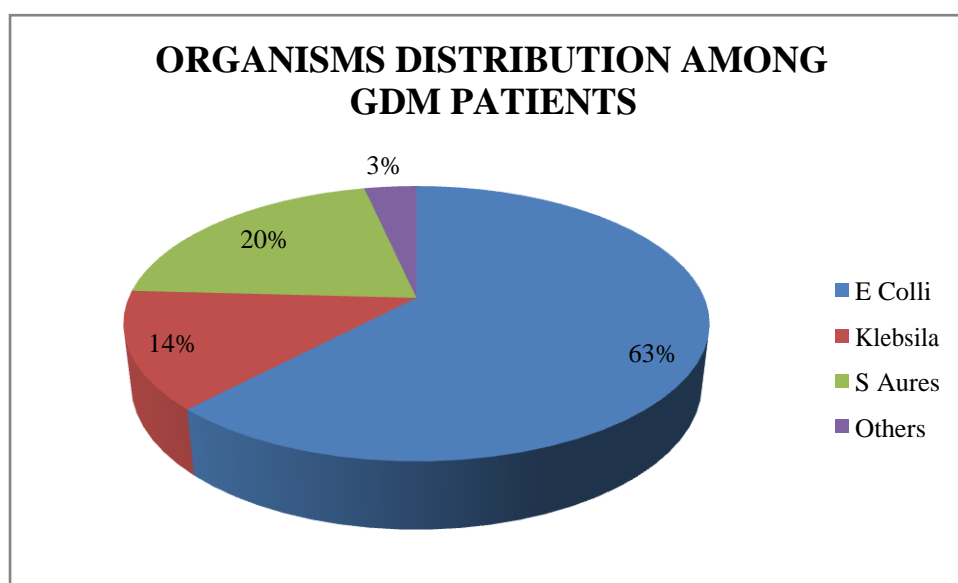
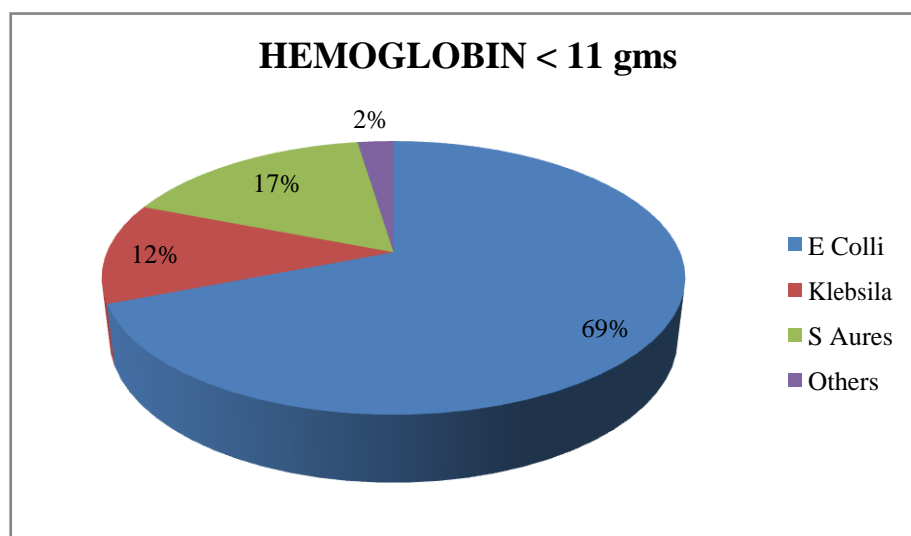


TABLE 5: PATTERN OF DISTRIBUTION OF ORGANISMS CAUSING ASYMPTOMATIC BACTERIURIA IN ANEMIA

ORGANISMS	HEMOGLOBIN < 11 gms	Percentage
E Colli	29	69
Klebsila	5	12
S Aures	7	17
Others	1	02
Total	42	100

FIGURE 5: CHI-SQUARE TESTS

It is evident that E Colliis the predominant organism in asymptomatic bacteriuria followed by S Aures and Klebsila among the anaemic patients.



3. DISCUSSION

The urinary tract infection is the most commonly found bacterial infections for nearly seven million OPD visits. It is the most commonly seen in the elderly, and patients with spinal cord injuries and/or catheters, multiple sclerosis, HIV, and also diabetes. 65 In a recent study from Europe, asymptomatic bacteriuria was more prevalent among women with diabetes (26%) than in

women without diabetes (6%) $P < 0.001$. Diabetic patients are at a high risk of development of UTIs, so it is recommended that special attention is paid to them, especially for the management of bacterial UTIs. 67 Various risk factors such as sexual intercourse, age, duration of diabetes, glycemic control, Anemia, low socio economic status and complications of diabetes are associated with UTI.[10,11]

Ansari et al⁷⁰ in 2011, in his study, he took 125 pregnant women, 113 (90.4%) were in the age group of 15 - 25 years and 12 (9.6%) were between the ages of 26 -35 years. 21(16.8%) women out of 125 showed significant bacteriuria. Culture positivity was seen in 17 women (15.04%) and in 4 women (33.3%) in the 15-25 and 26-35 age groups respectively. Present study Out of 500 majority urine culture positive cases were among 'women in the age group 16 -20 years (32%), followed by the age group > 35 years and 19 % in the age group 20 - 35 years, There is a strong statistical significance between younger age and prevalence of ASB.[12]

There is a strong statistical significance between younger age and prevalence of infection $p=0.000$ high prevalence with early maternal age which is associated with neurogenic bladder and increased residual urine volume Santi Kakoty et al in his studies found that among the antenatal women Primigravida women were 8.6 % testing positive for bacteriuria. SV Lavanya et al studied that among the pregnant women 66.6 % of primigravida showed urine culture positive. Present study however shows that primigravida has prevalence of infection 22% and multi gravida has prevalence of infection 21%.[13] Jennifer et al⁷⁵ in 2012 studied among the 250 Srilankan women screened for asymptomatic bacteriuria, 9 showed a significant colony count resulting in prevalence rate of 3.6%. This study too showed that there was no significant association between bacteriuria and gestational diabetes.[14,15] Present study implies 26 % of GDM patients has prevalence of asymptomatic bacteriuria in urine culture. Association between GDM & ASB is statistically significant. It is evident that E Coli is the predominant organism in asymptomatic bacteriuria followed by S Aures and Klebsilla among the GDM patients. In present study also E.coli is the commonest organism, isolated with 56% prevalence among the infection group.[16,17]

5.CONCLUSION

This study results, taken together with existing literature, suggest that there is high prevalence of asymptomatic bacteriuria in pregnant women in our population. The study revealed younger age, low socio economic status, GDM and anemia significantly associated with higher

prevalence of ASB in pregnant mothers. India is marching forward as the diabetic capital of the world, let us not burden even the unborn child of the GDM mother with infections in the form of ASB. Hence spreading awareness regarding high risk factors for ASB and screening the pregnant women at the earliest will help in preventing the complications of ASB which thereby reduces the public health burden

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Ethical approval: The study was approved by the Institutional Ethics Committee

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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