



A SYMPTOMATIC BACTERURIA IN PREGNANCY

KEYWORDS

Asymptomatic bacteruria, E.coli, multigravida, preterm labour, puerperal sepsis, pyelonephritis,

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ABSTRACT

The present study is undertaken to provide an insight into the spectrum and frequency of microorganisms causing Asymptomatic Bacteruria (ASB) in pregnancy and its maternal outcome in pregnant women attending ASRAMS, Eluru. This study included 100 women, 50 as cases i.e., with ASB, 50 as controls. In our study, E.Coli was the commonest organism isolated (60%) followed by Klebsiella (22%). 52% had anaemia, 26% delivered preterm, 24% had PROM, 4% had pyelonephritis, 17% had puerperal pyrexia, 9% had emergency caesarean section wound infection, 20% had subinvolution. If unrecognized and untreated ASB leads to adverse maternal outcomes. Hence screening and treatment of ASB should be incorporated as a routine in antenatal care. Health education about personal hygiene should be emphasized to all pregnant women during their antenatal visits.

INTRODUCTION:

It is estimated that the prevalence of ASB varies between 2% - 13%, similar to nonpregnant women.¹ ASB is a major risk factor for the development of other urinary tract infections (UTIs) during pregnancy due to physiological, hormonal & mechanical changes of pregnancy, resulting in serious medical & obstetrical complications if untreated. Also, there is a 4 fold progression of an already existing infection, when compared with non pregnant counterparts.²

20-30% of pregnant women with untreated ASB may develop symptomatic UTI, such as cystitis / pyelonephritis, these UTI represent a significant risk to both mother and baby. ASB is also associated with IUGR & LBW infants.

AIMS AND OBJECTIVES

1. To know the spectrum and frequency of microorganisms causing asymptomatic bacteriuria in pregnancy in patients attending to the department of Obstetrics and Gynecology.
2. To know the maternal outcome in pregnant women with asymptomatic bacteriuria.

METHODOLOGY

Study design & Source of study:

This is a hospital based cross sectional study conducted in the department of OBGY, ALLURI SITARAMARAJU ACADEMY OF MEDICAL SCIENCES, Eluru. during March 2015 --February 2016 among pregnant women who were admitted on inpatient basis.

A total of 100 pregnant women (50 cases & 50 controls) were included in the study during the study period. These were followed longitudinally until the delivery.

Inclusion Criteria:

50 Pregnant women of term gestation who were admitted in department of OBGY, ALLURI SITARAMARAJU ACADEMY OF MEDICAL SCIENCES with bacteriologically proven bacteriuria, during antenatal period without overt symptoms of urinary tract infections i.e., Asymptomatic Bacteriuria as cases.

Another 50 cases delivered in department of OBGY, without ASB, omitting exclusion criteria were considered as controls.

Exclusion Criteria:

1. Pregnant women suffering with chronic medical or surgical illnesses.

2. Pregnant women with pregnancy complications like severe anaemia, hypertensive disorders in pregnancy, Diabetes, sensitized Rh negative pregnancy.
3. Pregnant women who didnot give consent.

Procedure:

Patients who satisfied the requirements were advised to undergo urine routine, colony Count, culture and sensitivity tests. The positive cases were treated on empirical basis or based on culture sensitivity reports. These patients were followed till delivery.

Sample collection:

Clean Catch Mid Stream Urine Sample

Laboratory methods:

a) Uncentrifuged fresh (i.e., < 2 hours) urine was used to perform urine routine & Colony count, culture and antibiotic sensitivity patterns done. Streak plate cultures were performed on Mac Conkey & Blood agars, using a standard platinum loop, which could carry 0.001 ml urine. These plates were incubated at 37 degrees for 24 hours; after which, the plates were analyzed and microscopic examination was performed. Colony counts of $\geq 10^5$ were considered positive. Cultures which failed to grow colonies at the end of 24 hours were considered negative.

Statistical Methods applied:

The data collected was entered in MS Excel 2007 analysed by Statistical software Graphpad. Necessary statistics like percentages, proportions and χ^2 test were used to know the significant association. 'P' value less than 0.05 was considered significant.

RESULTS

1. ISOLATED ORGANISMS

Table 1 : Culture Isolates

ORGANISM	Number	Percentage
Escheriscia coli	30	60%
Klebsiella Sp.	11	22%
CONS	3	6%
Pseudomonas	2	4%
Enterobacter	1	2%
Enterococci	1	2%
Citrobacter	1	2%
Beta haemolytic streptococci	1	2%

2.ANAEMIA & ASB**Table 2 : Anaemia & ASB**

	Cases	Controls
Anaemia	26 (52%)	8 (16%)
Without Anaemia	24 (48%)	42 (84%)

P value = 0.0001, $\chi^2 = 14.439$, df=1

Anaemia was significantly greater in cases than controls.

3.MATERNAL MORBIDITY EVENTS & ASB**Table 3 : Maternal Morbidity events**

	Cases	Controls	P	χ^2 test	Df
Preterm	12 (26%)	4 (8%)	0.02	5.242	1
PROM	11 (24%)	4 (8%)	0.03	4.251	1
Pyelonephritis	2(4%)	0(0%)	-	-	-

4.PUERPERAL EVENTS & ASB**Table 4 : Puerperal events**

	Cases	Controls	P	χ^2 test	df
Puerperal Pyrexia	8 (17%)	2 (4%)	0.03	4.321	1
Wound infection	4 (9%)	1 (2%)	0.15	2.039	1
Sub involution	9(20%)	2 (4%)	0.02	5.390	1
Hospital stay	6.02	5.82			

DISCUSSION

- In this study, *E. Coli* was the commonest organism causing ASB, with a prevalence of 60%, this correlates with the studies done by Sabharwal et al¹ and Jayaseelam et al.²
- Mixed infections were seen in 3 out of 50 cases. *E. Coli* and *Klebsiella* sp were the commonest causative organisms in the mixed infections.

Table 5 : Anaemia & ASB – Comparison with other studies

Savage et al ³	16%
Gilstrap et al ⁴	4%
Present study	52%

Savage et al showed an incidence of anemia as 16%³ and Gilstrap et al showed that 4% of cases with ASB were associated with anemia.⁴ These studies were done in the western population. In this study, the incidence of anemia is much higher (52%) in the cases, as the incidence of anemia itself was high (16%) in the considered population.

- Preterm and PROM was more in cases compared to controls, and was statistically significant.
- Occurrence of pyelonephritis in untreated patients with ASB during pregnancy has been quoted variably as depicted in the following Table.

Table 6 : Pyelonephritis in cases with ASB during pregnancy.

Study	Occurance of Pyelonephritis
Holder et al ⁵	3%
Fatak et al ⁵	3%
Blanc and MC Gantry et al ⁵	8%
Zinner et al ⁵	18%
Kancaid Smith et al ⁵	19%
Kass et al ⁵	20-40%
Warner et al ⁵	49%
Our study	4%

Puerperal events like puerperal pyrexia, wound infection and subinvolution are more in cases than controls. Mean hospital stay was longer in cases than controls. Puerperal pyrexia and subinvolution were statistically significant. No studies were available to compare wound infections and hospital stay in cases of ASB.

CONCLUSION

- ASB is a common bacterial infection, complicating pregnancy.
- E. Coli* is the commonest organism causing ASB (60%), followed by *Klebsiellasp.* (22%).
- If unrecognized and untreated, ASB leads to adverse maternal outcome like pyelonephritis, anemia, symptomatic UTI, preterm, PROM, puerperal fever, wound infections and subinvolution of uterus; prolonged hospital stay. Prompt and early treatment significantly reduces the adverse pregnancy outcome.
- Thus, all pregnant women are to be screened for ASB, preferably in the preconceptional period or atleast in the 1st trimester.
- Once ASB is recognized during pregnancy, it should be aggressively treated with antibiotics and promptly followed up.

REFERENCES

- Sabharwal ER. Antibiotic susceptibility patterns of uropathogens in obstetric patients. *N Am J Med Sci.* 2012; 4(7): 316-319.
- Senthinath TJ, Rajalakshmi PC, Keerthana R, Vigneshwari RS, Revathi P, Prabhu N & Susethira AR. Prevalence of ASB among antenatal women in rural tertiary care hospital, Tamilnadu, India. *Int. J. Curr. Microbiol. App. Sci.* 2013; 2(1): 80-85.
- Tincello DJ, Richmond DH. Evaluation of efficacy of antibiotics in treatment of ASB in early pregnancy. Prospective case series, *BMJ* 1998; 33(3): 575-580.
- Gilstrap LC, Ramin SM. Urinary Tract Infections during Pregnancy. *Obstetrics and Gynaecology. Clinics of North America* Sep 2001; 28: 581-589.
- Mishell DR, Murphy T, Brenner PF. *Management of Common Problems in Obstetrics & Gynaecology.* 4th ed. Blackwell Publishers; 2003; 336-349.