

## ASSESSMENT OF MATERNAL AND PERINATAL OUTCOME IN PRETERM LABOUR ASSOCIATED WITH A A-SYMPTOMATIC BACTERIURIA

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### Abstract

**Background:** To assess maternal and perinatal outcome in preterm labour associated with a a-symptomatic bacteriuria. **Materials and Methods:** forty preterm labour cases (group I) and equal number of subjects with no pre-term labour (group II) were selected. A clean mid- stream urine sample was collected from all patients. Pus cells per high power field were measured after direct microscopy examination of the unspun urine. **Result:** Out of 40 pre-term patients, asymptomatic bacteriuria (ASB) was seen in 10 (25%). Parity was nulliparous in 12 in group I and 10 in group II, multiparous in 18 and 22, grand multi in 10 and 8. BMI was obese in 22 and 20 and non- obese in 18 and 20 in group I and II respectively. Comorbidity was anaemia in 6 and 2, hypertension in 1 and 0, hypothyroidism in 3 and 1, GDM in 4 and 3 and renal calculi in 3 and 1 in group I and II respectively. The difference was significant ( $P < 0.05$ ). Common micro- organism isolated were E. coli in 5, mixed in 3, Klebsiella in 1 and Pseudomonas in 1 patient. The difference was significant ( $P < 0.05$ ). Intrauterine growth restriction was seen in 1 and 0, low birth weight (LBW) in 3 and 1, preeclamptic toxemia was seen in 2 and 1 and preterm premature rupture of membrane in 1 and 0 in group I and group II respectively. The difference was significant ( $P < 0.05$ ). **Conclusion:** Asymptomatic bacteriuria is a typical illness. Asymptomatic bacteriuria during pregnancy increases the likelihood of negative maternal and foetal outcomes in pregnant women.

## INTRODUCTION

Pregnancy-related profound physiologic and anatomical changes in the urinary system increase the risk of infection.<sup>[1]</sup> Asymptomatic bacteriuria (AB) is the presence of bacteria that are actively proliferating in the urinary tract, excluding the distal urethra, in a patient who has no overt symptoms of the urinary system.<sup>[2,3]</sup> The diagnosis of asymptomatic bacteriuria has been considered to be made by the presence of 100,000 or more colony forming units of a single bacteriuria per millilitre of two consecutive clean catch urine specimens or a single catheter specimen in the absence of urinary symptoms and signs.<sup>[4]</sup>

Asymptomatic bacteriuria is a condition that can have harmful effects on the mother and the foetus.<sup>[5]</sup> Symptomatic urinary tract infection (UTI), pyelonephritis, preeclamptic toxemia (PET), anaemia, low birth weight (LBW), intrauterine growth retardation (IUGR), preterm labour (PTL), preterm premature rupture of membranes (PPROM), and post-partum endometritis are among the maternal and foetal complications linked to it.<sup>[6]</sup>

There is no information from developing countries on the effects of antimicrobial therapy for ASB during pregnancy, despite the fact that first trimester screening and treatment for ASB during pregnancy are standards of care in developed countries and the role of specific antimicrobial therapy in pregnancy is well established. However, there is ample evidence to suggest that bacteriuria is common in India and its neighbours.<sup>[7]</sup> We performed this study to assess maternal and perinatal outcome in preterm labour associated with a a-symptomatic bacteriuria.

## MATERIALS AND METHODS

After considering the utility of the study and obtaining approval from ethical review committee, we selected forty preterm labour cases (group I) and equal number of subjects with no pre-term labour (group II). Patients' consent was obtained before starting the study.

Data such as name, age, etc. was recorded. A clean mid- stream urine sample was collected from all patients. Pus cells per high power field were measured after direct microscopy examination of the

unspun urine. Following the plate count, the susceptibility to antibiotics of the detected organisms was assessed using the Disc-Diffusion method. The results were compiled and subjected for statistical analysis using Mann Whitney U test. P value less than 0.05 was set significant.

## RESULTS

Out of 40 pre-term patients, asymptomatic bacteriuria (ASB) was seen in 10 (25%) [Table 1]. Parity was nulliparous in 12 in group I and 10 in group II, multiparous in 18 and 22, grand multi in 10 and 8. BMI was obese in 22 and 20 and non-obese in 18 and 20 in group I and II respectively. Comorbidity was anaemia in 6 and 2, hypertension in 1 and 0, hypothyroidism in 3 and 1, GDM in 4 and 3 and renal calculi in 3 and 1 in group I and II respectively. The difference was significant ( $P < 0.05$ ) [Table 2].

**Table 1: Prevalence of asymptomatic bacteriuria**

ASB	Preterm labour	P value
Yes	10 (25%)	0.01
No	30 (75%)	

**Table 2: Assessment of parameters**

Parameters	Variables	Group I (40)	Group II (40)	P value
Parity	Nulliparous	12	10	0.87
	Multiparous	18	22	
	Grand multi	10	8	
BMI	Obese	22	20	0.95
	Non-obese	18	20	
Comorbidity	Anaemia	6	2	0.05
	Hypertension	1	0	
	Hypothyroidism	3	1	
	GDM	4	3	
	Renal calculi	3	1	

**Table 3: Isolation of organism**

Organism	Number	P value
E. coli	5	0.041
Mixed	3	
Klebsiella	1	
Pseudomonas	1	

Common micro-organism isolated were E. coli in 5, mixed in 3, Klebsiella in 1 and Pseudomonas in 1 patient. The difference was significant ( $P < 0.05$ ) [Table 3].

**Table 4: Assessment of complications**

Parameters	Group I	Group II	P value
Intrauterine growth restriction	1	0	0.05
Low birth weight (LBW)	3	1	0.02
Preeclamptic toxemia	2	1	0.04
Preterm premature rupture of membrane	1	0	0.05

Intrauterine growth restriction was seen in 1 and 0, low birth weight (LBW) in 3 and 1, preeclamptic toxemia was seen in 2 and 1 and preterm premature rupture of membrane in 1 and 0 in group I and group II respectively. The difference was significant ( $P < 0.05$ ) [Table 4].

## DISCUSSION

The most typical renal issue that develops during pregnancy is UTI. Due to its higher nutritional content, pregnant women's urine promotes bacterial growth better than that of non-pregnant women.<sup>[8,9]</sup> Pregnant women are more vulnerable to UTIs due to the significant physiologic and

anatomic changes in the urinary tract that occur during pregnancy.<sup>[10,11]</sup> These changes include ureteral dilatation, stasis, and occasionally obstruction.<sup>[12,13]</sup> We performed this study to assess maternal and perinatal outcome in preterm labour associated with asymptomatic bacteriuria.

Our results showed that out of 40 pre-term patients, asymptomatic bacteriuria (ASB) was seen in 10 (25%). Vidhyalakshmi et al<sup>[14]</sup> included 50 patients who do not exhibit preterm labour pain and 50 as controls. The prevalence of asymptomatic bacteriuria in preterm labour in the study group was 22% since it was found in 11 patients who reported with preterm labour pain. E. coli made about 20% of the pathogenic organisms discovered, followed by Klebsiella (2%). Both the case (14%) and control

(12%) groups had mixed growth that would indicate contamination. Four of the patients' cultured samples (or 36.36%) showed nitrofurantoin sensitivity.

We observed that parity was nulliparous in 12 in group I and 10 in group II, multiparous in 18 and 22, grand multi in 10 and 8. BMI was obese in 22 and 20 and non-obese in 18 and 20 in group I and II respectively. Comorbidity was anaemia in 6 and 2, hypertension in 1 and 0, hypothyroidism in 3 and 1, GDM in 4 and 3 and renal calculi in 3 and 1 in group I and II respectively. In their study, Jain et al (15), selected women who are pregnant up to 20 weeks (n=371) and up to 34 weeks (n=274) but have no urinary symptoms. ASB was discovered in 17% of pregnant women up to 20 weeks of gestation and in 16% between 32 and 34 weeks. Preterm labour (PTL), preterm premature membrane rupture (PPROM) and preeclamptic toxemia (PET) are all more common.

Common micro-organism isolated were *E. coli* in 5, mixed in 3, *Klebsiella* in 1 and *Pseudomonas* in 1 patient. Intrauterine growth restriction was seen in 1 and 0, low birth weight (LBW) in 3 and 1, preeclamptic toxemia was seen in 2 and 1 and preterm premature rupture of membrane in 1 and 0 in group I and group II respectively. Izuchukwu et al,<sup>[16]</sup> enrolled 220 suitable prenatal participants. Each participant had urine culture and sensitivity testing. 65 patients had asymptomatic bacteriuria, making the prevalence of the condition 29.5%. Twenty-three (35.4%) of the cultures produced *Klebsiella* spp., and fifty-eight (89%) of the organisms were Nitrofurantoin sensitive. Between affected and unaffected women, there was no statistically significant difference in the rates of prelabor membrane rupture, preeclampsia, preterm delivery, birth asphyxia, or low birth weight.

In a study conducted by Balachandran et al,<sup>[17]</sup> 549 women made up the exposed group while 329 made up the comparator group (i.e., those who did not have UTI). Preterm birth, recurrent UTI, pyelonephritis, and low birth weight (LBW) were the study's main outcome variables. Preterm births were more frequent in pregnant women with UTIs than in those without one ( $c^2=7.092$ ;  $p=0.007$ ). In contrast to the modest frequency of pyelonephritis (1.45%), recurrent UTI was seen in 26.6% of UTI-positive women. Pregnancy LBW and UTI had no statistically significant relationship ( $c^2=0.097$ ;  $p=0.756$ ). *Escherichia coli* (30.9%) and Group B *Streptococcus* (GBS, 31.3%) were the two most typical bacteria found in women with UTIs.

## CONCLUSION

Asymptomatic bacteriuria is a common complication during pregnancy. Asymptomatic bacteriuria during pregnancy increases the likelihood of unfavourable maternal and foetal outcomes in pregnant women.

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