

Correlation of Significant Asymptomatic Bacteriuria in Pregnancy with Preterm Labour

Azmat Jahan Mantoo¹, Bushra Shakil², Mufeed Ahmad Bhat³, Zohra Younis⁴

ABSTRACT

Introduction: There is a correlation between asymptomatic bacteriuria and adverse pregnancy outcomes like increased risk of preterm labour. As asymptomatic bacteriuria is detectable and treatable, screening during pregnancy may be justified. It provides obstetrician an opportunity to prevent a significant complication of pregnancy.

Objective to study the risk of preterm labour in pregnant women with significant asymptomatic bacteriuria and prevalence of asymptomatic bacteriuria in antenatal women.

Material and methods: A total of one thousand pregnant patients were screened for symptomatic bacteriuria by using two rapid reagent strip tests and urine culture. One hundred twenty six screened positive for asymptomatic bacteriuria among whom one hundred patients with single positive urine culture were taken as cases. Out of those screened negative, one hundred patients were randomly selected and followed as controls.

Results: Our study reflects a definite correlation of asymptomatic bacteriuria with preterm labour. The prevalence of asymptomatic bacteriuria was 12.6%. There is a positive correlation of asymptomatic bacteriuria with lower socioeconomic status and lower hemoglobin levels.

Keywords: Asymptomatic Bacteriuria, Preterm Labour

INTRODUCTION

Pregnant women are susceptible to colonization of urogenital tract. As a result of the biochemical mechanisms operating in these conditions, the women may experience preterm labor.¹ Preterm birth and its consequent complications contribute to 50% of 3 million neonatal deaths world-wide annually and India contributes to 23% of the world's annual premature deliveries.² Preterm labour contributes to majority of these deaths, and the proportion of deaths due to low birth weight/prematurity has remained high in spite of the intensive efforts done during antenatal care.³ Focusing on the preventable causes of preterm labour such as *Asymptomatic Bacteriuria* is a promising solution.

Asymptomatic bacteriuria occurs in 2 to 7 percent of pregnant women.⁴ Factors that have been associated with a higher risk of bacteriuria include a history of prior urinary tract infection, pre-existing diabetes mellitus, and low socioeconomic status. Without treatment, as many as 20 to 35 percent of pregnant women with asymptomatic bacteriuria will develop a symptomatic urinary tract infection including pyelonephritis, during pregnancy.⁵ This risk can be reduced by 70 to 80 percent if bacteriuria is eradicated. Most of the women whose urine are colonized are asymptomatic and

hence never receive treatment, while few go on to develop frank symptoms and signs of urinary tract infection. As asymptomatic bacteriuria is detectable and treatable, screening of urine during pregnancy may be justified. The detection and treatment of asymptomatic bacteriuria provides obstetrician an ideal opportunity to prevent a significant medical complication of pregnancy.

Aims & objectives

To find out the prevalence of significant asymptomatic bacteriuria in antenatal women in our setup. To study the risk of developing preterm labour in pregnant women with significant asymptomatic bacteriuria. To define other parameters associated with significant asymptomatic bacteriuria like gravidity, parity, age, socioeconomic status.

Inclusion criteria

Pregnant women in the first trimester of gestation having no symptoms or signs of UTI.

Patients of cases and controls were matched on the basis of: Maternal age, Gestational age, Parity, Blood pressure and blood sugars within normal limits.

Exclusion criteria

Pregnant women having symptoms of UTI such as frequency, urgency, dysuria and suprapubic pain. taking antibiotics for any reason. with history of multiple Dilatation and curettage, congenital abnormalities of cervix or uterus, cervical cerclage or cervical surgeries, connective tissue disorders e.g Ehlers Danlos Syndrome, multiple pregnancy, bacterial vaginosis. Pregnant women who developed hydramnios, placenta praevia, anemia and hypertension were excluded.

MATERIAL AND METHODS

It was a Prospective cohort study Conducted in the department of Obstetrics and Gynaecology over a period of two years. After initial screening with two rapid reagent strip tests, namely Sodium nitrite and leukocyte esterase tests and

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urine culture ; patients were divided into two groups : Cases :Positive for asymptomatic bacteriuria Controls : Negative for asymptomatic bacteriuria .

Timing of screening for Asymptomatic Bacteriuria:ACOG and U.S Preventive Services Task Force recommends to screen for asymptomatic bacteriuria between 12th and 16th week of gestation. The participants for this study were screened around the same gestational age and were followed prospectively for the outcome.The cases were given treatment according to the routine hospital policy and based

on culture sensitivity and safety during the pregnancy.

RESULTS

The mean age in the study group was 29.3±2.76 years and the mean age in the control group was 29.4±2.73.

The distribution of number of abortions in the study and control group was uniform in our study which avoided any bias.

The dipstick test was done almost at the same mean gestational age in the study (15.54 weeks) and the control

Group*Preterm Labour*Socio-economic Status Crosstabulation				
Socio Economic Status	Group	Preterm Labour		Total
		No	Yes	
Lower	Control	5	0	5
	Study	4	5	9
	Total	9	5	14
Upper Lower	Control	40	1	41
	Study	51	11	62
	Total	91	12	103
Middle	Control	43	2	45
	Study	21	2	23
	Total	64	4	68
Upper Middle	Control	8	1	9
	Study	6	0	6
	Total	14	1	15
Total	Control	96	4	100
	Study	82	18	100
	Total	178	22	200
Mantel-Haenszel Common Odds Ratio Estimate				
Odds Ratio(OR _{MH})				4.840
p-Value				0.009
Asymptotic 95% Confidence Interval	Common Odds Ratio	Lower Bound		1.495
		Upper Bound		15.671

Group*Preterm Labour*Gravida Cross tabulation				
Gravida	Group	Preterm Labour		Total
		No	Yes	
1	Control	26	1	27
	Study	32	13	45
	Total	58	14	72
2	Control	40	2	42
	Study	24	3	27
	Total	64	5	69
3	Control	26	0	26
	Study	23	2	25
	Total	49	2	51
4	Control	4	1	5
	Study	3	0	3
	Total	7	1	8
Total	Control	96	4	100
	Study	82	18	100
	Total	178	22	200
Mantel-Haenszel Common Odds Ratio Estimate				
Odds Ratio(OR _{MH})				4.919
p-Value				0.008
Asymptotic 95% Confidence Interval	Common Odds Ratio	Lower Bound		1.511
		Upper Bound		16.018

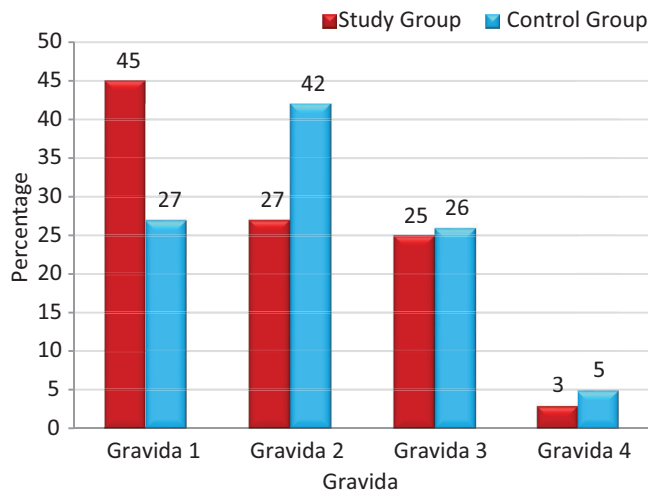


Figure-1: Gravida distribution of study patients in two groups

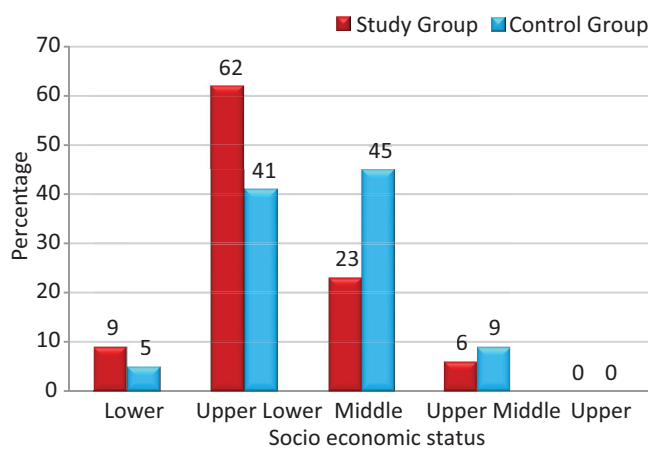


Figure-2: Socio economic status of study patients in two groups

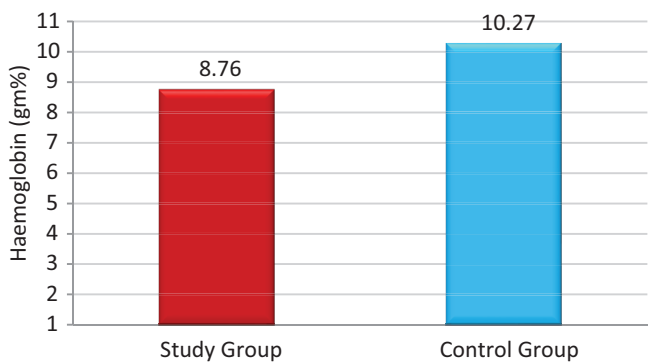


Figure-3: Comparison based on haemoglobin (gm%) in two groups

(15.48 weeks) group to avoid bias in the study. The prevalence of the asymptomatic bacteriuria among the study population was 12.6%. No significant difference was seen with respect to the mode of delivery in the two groups.

CONCLUSION

The relationship between asymptomatic bacteriuria in pregnancy with adverse pregnancy outcomes was first suggested by Kass in 1959⁶. Romero et al⁷ in a meta-analysis assessed that asymptomatic bacteriuria during pregnancy is significantly associated with low birth weight and preterm

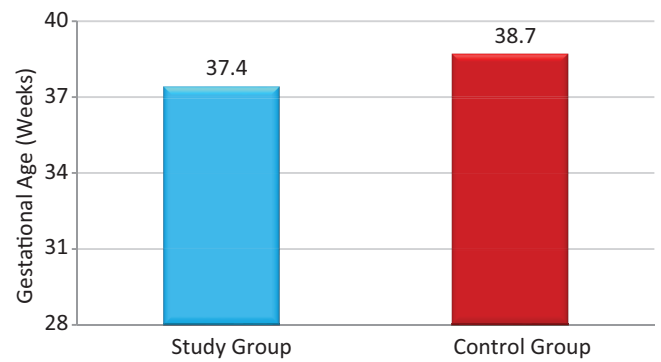


Figure-4: Gestational age (Weeks) at delivery in two groups

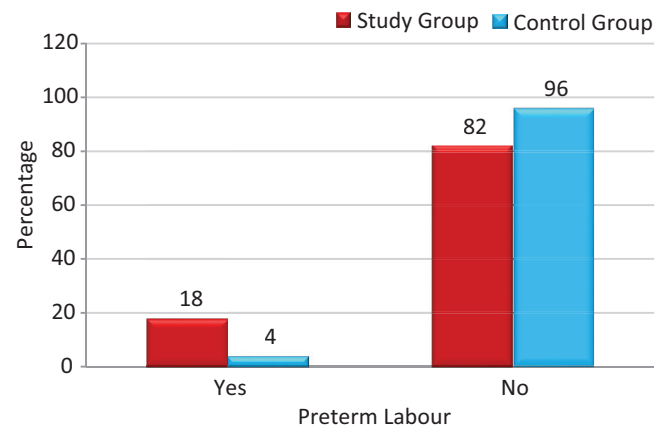


Figure-5: Comparison based on preterm labour in two groups

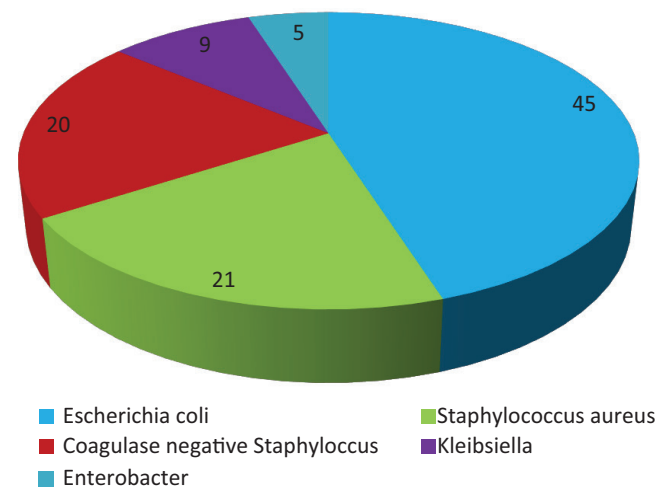


Figure-6: Organism isolated in study group

delivery. Mittendorf Robert et al⁸ also found asymptomatic bacteriuric mothers to have twice the risk of giving birth to preterm infant than the non bacteriuric mothers. The published results of various researchers like Anayetullah M et al⁹, Shieve Laura A et al,¹⁰ Enayat Kalantar et al¹¹, Uncu y et al¹² Tutuncu Levent et al,¹³ Fiona M Smail¹⁴, Farahnaz et al¹⁵, Abdulkadir B et al¹⁶, Sonkar M & Banerjee M¹⁷, Ketema Bizuwork et al¹⁸, Manish Gehani et al¹⁹, Muthusamy Radhamani et al²⁰ all depict the correlation of asymptomatic bacteriuria in pregnancy with preterm labour. Keeping in view the huge burden of preterm labour and the findings of our study relating asymptomatic bacteriuria in

pregnancy with preterm labour, we conclude that the screening for asymptomatic bacteriuria in pregnancy should be done. Antibiotic treatment may be effective in reducing the risk of complications associated with asymptomatic bacteriuria. To lower the burden of asymptomatic bacteriuria and hence preterm labour, we need to improve the hemoglobin status of the pregnant mothers, Of adolescent girls with special attention given to their diet. Educating the common masses regarding nutrition, personal and environmental hygiene shall help us achieve the millennium development goal to improve the maternal health.

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