

Bacterial vaginosis infection during pregnancy and its effect on fetal outcome

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Abstract

Introduction: Bacterial vaginosis is characterized as a polymicrobial condition in which a characteristic set of bacterial species seem to synergistically overgrow and cause local genital symptoms as well as upper reproductive tract pathology. Despite the frequency of bacterial vaginosis among women, its natural history remains poorly studied. Bacterial vaginosis may be acute, chronic, resolve spontaneously or recurrent. **Aims and Objectives:** To study the prevalence of Bacterial vaginosis infection during pregnancy and its effect on fetal outcome. **Materials and Method:** The study was conducted on 200 pregnant women. Written and informed consent in patients own language was taken before enrolling patients for the study. A detailed history and examination pertinent to an antenatal case was done in all the antenatal women. All women were subjected to routine antenatal investigations. Apart from the routine investigations, vaginal secretion/discharge was sent to detect bacterial vaginosis by Nugent's criteria. All the ANC were followed till the outcome of pregnancy. **Results:** Out of total 200 women, 18% were suffering from bacterial vaginosis. The mean gestational age at the time of examination was in bacterial vaginosis positive women were 31.4±6.4 weeks and that of bacterial vaginosis negative women was 29.2±7.4 weeks. It was seen that majority of the women suffering from bacterial vaginosis were of low socioeconomic class and the difference was statically significant. Bacterial vaginosis was more common in primiparus women (69.44%) as compared to multiparus women and the difference was also statistically significant. 36.11% Bacterial vaginosis positive women delivered preterm. The mean weight of neonates, proportion of neonatal sepsis and congenital abnormality was statistically insignificant in bacterial vaginosis positive women. In 44.44% neonates were diagnosed to be suffering from neonatal jaundice in bacterial vaginosis positive women group whereas 29.88% neonates were diagnosed to be suffering from neonatal jaundice in bacterial vaginosis negative women group. **Conclusion:** Bacterial vaginosis is associated with adverse pregnancy outcome and should be treated early to prevent adverse outcome.

Keywords: Bacterial vaginosis, preterm delivery, neonatal jaundice.

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INTRODUCTION

Bacterial vaginosis is characterized as a polymicrobial condition in which a characteristic set of bacterial species seem to synergistically overgrow and cause local genital symptoms as well as upper reproductive tract pathology.¹

The epidemiology of Bacterial vaginosis is complicated by the use of varying diagnostic criteria. Despite of these limitations, a review of current information about bacterial vaginosis is informative. Bacterial vaginosis has been detected generally among 10 to 41 percent of the women from studies around the world; the prevalence of bacterial vaginosis varies widely among. The different population studied; bacterial vaginosis has been most widely studied among women attending public supported sexually transmitted infection clinics, family planning clinics and obstetrical clinics.¹ Despite the frequency of bacterial vaginosis among women, its natural history remains poorly studied. Bacterial vaginosis may be acute, chronic, resolve spontaneously or recurrent.² The recent awareness of the possible adverse sequelae of bacterial vaginosis during pregnancy has led to more attention to screening and treating women for this condition during

pregnancy. In addition, the availability of more rapid, easier to use and less expensive diagnostic tests have made it easier for the practicing physician to screen pregnant patients. Considering the tragedy of premature birth with its early loss of a child's life or the personal, biological, and economic impairment resulting from preterm birth, both for the neonate and family, the ease and cost at which Bacterial Vaginosis screening can be done in pregnancy makes it an attractive clinical tool for the clinician.³

AIMS AND OBJECTIVES

To study the prevalence of Bacterial vaginosis infection during pregnancy and its effect on fetal outcome.

MATERIALS AND METHOD

The present study was conducted in the Dept. of Obstetrics and Gynecology RIMS Medical College, Ongole, over a period of one year extending from October 2009 to September 2010. The study was conducted on 200 pregnant women. For the purpose of study following inclusion and exclusion criteria was used.

Inclusion Criteria

- All pregnant women visiting the antenatal clinic with or without any complaints, irrespective of age, parity and period of gestation.

Exclusion Criteria

- All pregnant women in labour
- Women with known obstetrical complications,
- Antimicrobial therapy in preceding two weeks.

Written and informed consent in patients own language was taken before enrolling patients for the study. A detailed history and examination pertinent to an antenatal case was done in all the antenatal women. All women were subjected to routine antenatal investigations. Apart from the routine investigations, vaginal secretion/discharge was sent to detect BV by Nugent's criteria. All the ANC were followed till the outcome of pregnancy. Various maternal and fetal outcomes were studied. Gestational age, birth weight, preterm labour, Neonatal Sepsis and congenital abnormality in bacterial vaginosis positive and negative women were compared.

RESULTS

Table 1: Prevalence of bacterial vaginosis in the ANC woman

Bacterial vaginosis	No. of women	Percentage
Present	36	18
Absent	640	82
Total	200	100

In The present study Nugent criteria was used to diagnose the bacterial vaginosis. It was observed that out of total 200 women, 18% were suffering from bacterial vaginosis.

Table 2: Distribution according to mean maternal age and gestational age

	Bacterial vaginosis		P value
	Present	Negative	
Maternal age (years)	22.43±2.7	23.04±2.98	0.229
Gestational age (weeks)	31.4±6.4	29.2±7.4	0.071

It was seen that the mean age of women suffering from bacterial vaginosis was 22.43±2.7 years whereas mean age of bacterial vaginosis negative women was 23.04 ± 2.98year. And the difference observed was not statistically significant. The mean gestational age at the time of examination was in bacterial vaginosis positive women were 31.4±6.4 weeks and that of bacterial vaginosis negative women was 29.2±7.4 weeks and the difference was not statically significant.

Table 3: Distribution of women according socioeconomic status

	Bacterial vaginosis		P value	
	Present	Negative		
Socioeconomic class	I	0	41 (25.00%)	0.000*
	II	4 (11.11%)	66 (40.24%)	
	III	9 (25.00%)	31 (18.90%)	
	IV	10 (27.78%)	15 (9.15%)	
	V	13 (36.11%)	11 (6.71%)	
Parity	Primi para	25 (69.44%)	81 (49.39%)	0.029*
	Multi para	11 (30.56%)	83 (50.61%)	

*Significant.

It was seen that majority of the women suffering from bacterial vaginosis were of low socioeconomic class as compared to bacterial vaginosis negative women. And the difference was statically significant. It was observed that bacterial vaginosis was more common in primiparus women (69.44%) as compared to multiparus women and the difference was also statistically significant.

Table 4: Distribution according to preterm labour

Variable	Bacterial vaginosis		Significance
	Positive	Negative	
Preterm labour	Preterm 13 (36.11%)	19 (11.59%)	P=0.0002
	Full term 23 (63.89%)	145 (88.41%)	

*Significant.

It was seen that 36.11% Bacterial vaginosis positive women delivered preterm whereas the rate of preterm delivery in bacterial vaginosis negative women was 11.59%, and the difference observed was statistically significant.

Table 5: Comparison of outcome in bacterial vaginosis positive and negative pregnant women

Variable		Bacterial vaginosis		Significance
		Positive	Negative	
Birth weight	Positive	2546.4±523.1	2632.6±6.3	0.254
Neonatal Sepsis	Present	3 (8.33%)	10 (6.10%)	0.622
	Absent	33 (91.67%)	154 (93.90%)	
Congenital abnormality	Present	1 (2.78%)	3 (1.83%)	0.712
	Absent	35 (97.22%)	161 (98.17%)	
Neonatal jaundice	Present	16 (44.44%)	45 (27.44%)	0.04
	Absent	20 (55.56%)	119 (72.56%)	

*Significant.

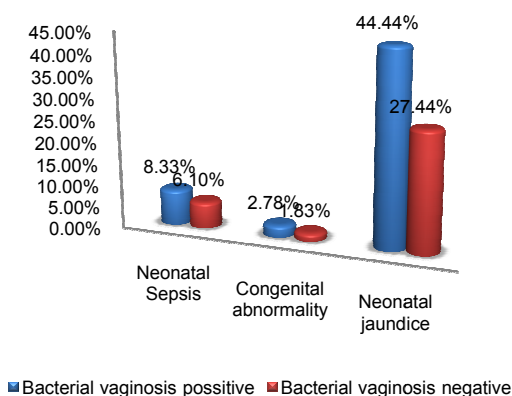


Figure 1: Outcome in bacterial vaginosis positive and negative pregnant women

The mean weight of neonates born to bacterial vaginosis positive women was 2546.4±523.1 whereas bacterial vaginosis negative women was 2632.6±6.3, and the difference was not significant. Neonatal sepsis was diagnosed in 8.33% and 6.10% bacterial vaginosis positive and negative women respectively. Congenital abnormality did not differ significantly between bacterial vaginosis positive and bacterial vaginosis negative women. In 44.44% neonates were diagnosed to be suffering from neonatal jaundice in bacterial vaginosis positive women group whereas 29.88% neonates were diagnosed to be suffering from neonatal jaundice in bacterial vaginosis negative women group.

DISCUSSION

In the present study we studied 200 pregnant women to diagnose bacterial vaginosis by using Nugent criteria. It was observed that out of total 200 pregnant mothers 36 were suffering from bacterial vaginosis. Thus the prevalence of bacterial vaginosis was 18% in the present

study. Similar results were also reported by Gravett *et al*⁴ (19%), Kurki *et al*⁵ (21.4%), Jacobsson *et al*⁶ (15.6%), Pastor *et al*⁷ (17%). It was seen that the mean age of bacterial vaginosis positive women and bacterial vaginosis negative women was 22.43±2.7 years and 23.04 ± 2.98year respectively. And the difference observed was not statistically significant. The mean gestational age at the time of examination in bacterial vaginosis positive women was 31.4±6.4 weeks and that of bacterial vaginosis negative women was 29.2±7.4 weeks and the difference was not statically significant. It was seen that majority of the women suffering from bacterial vaginosis were of low socioeconomic class as compared to bacterial vaginosis negative women. And the difference was statically significant. Though the socioeconomic status is not directly associated with bacterial vaginosis, access to good health facilities, privacy and knowledge to maintain hygiene are less accessible to lower socioeconomic class peoples. In a study by Bhalla *et al*⁸ and Thakur *et al*⁹ bacterial vaginosis showed a positive correlation with low socioeconomic status. However Gravett *et al*⁴ in their study did not observed any difference with respect to demographic or socioeconomic factors. However first trimester spontaneous abortion was significantly higher among those women with Bacterial vaginosis. It was observed that bacterial vaginosis was more common in primiparus women (69.44%) as compared to multiparus women and the difference was also statistically significant. Cristiano *et al*¹⁰, also observed bacterial vaginosis more common in primipara in their study. Whereas Gravett *et al*⁴ didn't find any difference in parity and bacterial vaginosis. It was seen that 36.11% Bacterial vaginosis positive women delivered preterm whereas the rate of preterm delivery in bacterial vaginosis negative women was 11.59%, and the difference observed was statistically significant. Kurki *et al*⁵ in their study observed that bacterial vaginosis was associated with 2- to 6-fold increased risk for preterm labor, a 6.9-fold increased risk for preterm birth and a 7.3- fold increased risk of preterm PROM. Sheehan *et al*¹¹ in their study observed that bacterial vaginosis had increased risk of late miscarriage or preterm delivery. Gravett *et al*⁴ also observed that bacterial vaginosis was significantly associated with preterm birth. The mean weight of neonates born to bacterial vaginosis positive women was 2546.4±523.1 whereas bacterial vaginosis negative women was 2632.6±6.3, and the difference was not significant. Neonatal sepsis and congenital abnormality did not differ significantly between bacterial vaginosis positive and bacterial vaginosis negative women. In 44.44% neonates were diagnosed to be suffering from neonatal jaundice in bacterial vaginosis positive women

group whereas 29.88% % neonates were diagnosed to be suffering from neonatal jaundice in bacterial vaginosis negative women group. Thus neonatal jaundice was significantly more in bacterial vaginosis positive women as compared to bacterial vaginosis negative women. Gravett *et al*⁴ and Kurki *et al*⁵ also found significant difference in the bacterial vaginosis positive pregnant women.

CONCLUSION

Thus from the above results and discussion we conclude that bacterial vaginosis is associated with adverse pregnancy outcome and should be treated early to prevent adverse outcome.

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