Research Article

Prevalence of bacterial vaginosis in pregnant women attending tertiary care institute

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Abstract

Introduction: Bacterial vaginosis is an extremely prevalent vaginal condition and the number one cause of vaginitis among both pregnant and non pregnant women and has been associated with severe sequel. **Aims and Objectives:** To study the prevalence of bacterial vaginosis in pregnant women attending tertiary care institute and to study the risk factors associated with it. **Materials and Methods:** Detailed history was taken using a standardized proforma with particulars about age, socioeconomic status, religion and detail past and present obstetric history. On per vaginal examination secretion and pH was noted. Wet mount preparation was also done to look for cue cells. Whiff test and Grams staining was also performed on the samples. All the ANC women attending the OPD were diagnosed bacterial vaginosis using Nugent criteria. Appearance of vaginal **Results:** prevalence of bacterial vaginoisis was 20% in the present study. Mean age of women suffering from bacterial vaginosis was 22.63 years with standard deviation of 2.77years. Majority of the women in the study were Hindu. Majority of the women suffering from bacterial vaginosis were of low socioeconomic class. **Conclusion:** Prevalence of baceterial vaginosis in the study was 20%. The Nugent criteria score in combination with gram stain is simple inexpensive, easily reproducible, method for diagnosis and can be used on a mass scale. BV is commoner among low SES, lower age and parity.

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INTRODUCTION

Bacterial vaginosis is an extremely prevalent vaginal condition and the number one cause of vaginitis among both pregnant and non pregnant women[1] and has been associated with severe sequelae.[2] Current studies have found that the prevalence of bacterial vaginosis among non pregnant women range from 15% to 30%; up to 50% of pregnant women have been found to have bacterial vaginosis.[1] It is a complex alteration of the vaginal ecosystem, where the physiologic H_2O_2 producing lacto bacilli dominant flora is replaced by an overgrowth of mixed flora, with a high concentration of anaerobic bacteria, normally present in the vagina in substantially fewer numbers[3]. The total concentration of bacteria may be 100 to 1,000 times their normal levels in women with bacterial vaginosis.[4] It is the most prevalent cause of vaginal discharge and fifty percent of women are asymptomatic.[5] The two classic symptoms of bacterial vaginosis, discharge and odor4 prevalence of bacterial vaginosis among pregnant women varies from 6 to 32 percent in various studies.[5] Ascending uterine infection from the lower genital tract due to bacterial vaginosis has been implicated as an important causative factor for many pregnancy complications namely preterm labour,

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spontaneous abortion, premature rupture of membranes chorioamnionitis , post-partum endometritis and post caesarean wound infection[6]. Considering the vast spectrum of maternal and fetal morbidity associated with this infection present study was undertaken to find the prevalence of bacterial vaginosis in the pregnant women.

AIMS AND OBJECTIVE

To study the prevalence of bacterial vaginosis in pregnant women attending tertiary care institute and to study the risk factors associated with it.

MATERIALS AND METHODS

The present cross-sectional study was conducted in the antenatal outpatient clinic of the Department of Obstetrics and Gynecology at Yenopoya Medical College Hospital, Deralakatte. All the ANC women attending ANC clinic were enrolled in the study that fulfills the following inclusion and exclusion criterion.

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
- Antimicrobial therapy in preceding two weeks
- History of cervical incompetence and cervical surgery
- History of antepartum hemorrhage, polyhydramniosis, urinary tract infection, diarrhea or any other obvious cause of preterm labour.
- Multiple pregnancy
- Intrauterine growth restriction, intrauterine death
- History of leaking per vaginum or absent membranes
- Medical complications of pregnancy such as moderate to severe anaemia, diabetesmellitusa any other maternal medical diseases
- History of known Mullerian anomalies
- History of prenatal diagnostic procedures like cordocentesis, amniocentesis.

Detailed history was taken using a standardized proforma with particulars about age, socioeconomic status, religion and detail past and present obstetric history. A thorough general and systemic examination was done to exclude exclusion criteria. A detailed obstetrical examination was done to note the fundal height, abdominal girth, presentation, uterine contractions and fetal heart rate. On per vaginal examination appearance of vaginal secretion and pH was noted. Wet mount preparation was also done to look for cue cells. Whiff test and Grams staining was also performed on the samples.

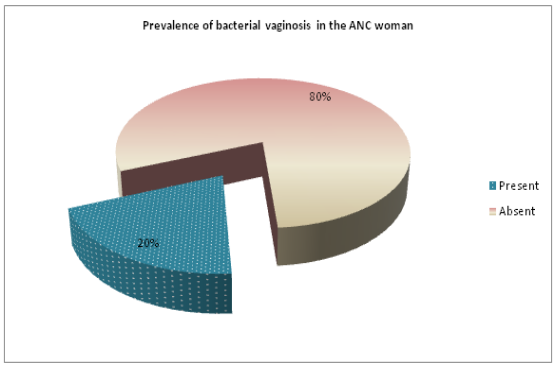
Diagnosing Criteria:

The Nugent criteria score vaginal flora normal (0-3) intermediate (4-6) and (7-10) were considered as BV positive and followed up.

RESULTS

Table 1: Prevalence of bacterial vaginosis in the ANC woman

Bacterial Vaginosis	No. of women	Percentage
Present	30	20%
Absent	120	80%
Total	**150**	**100%**



Out of total 150 women fulfilling the inclusion and exclusion criteria 30 women were suffering from bacterial vaginosis according to The Nugent criteria score. Thus the prevalence of bacterial vaginosis was 20 % in the present study.

Table 2: Distribution of women according mean age

Bacterial vaginosis	N	Mean	SD	t test
Present	30	22.6333	2.77282	1.74500 p=0.083*
Absent	120	23.9750	3.97146	

*not significant

Mean age of women suffering from bacterial vaginosis was 22.63 years with standard deviation of 2.77years. Whereas mean age of bacterial vaginosis negative women was 23.97year with standard deviation 3.97year.

Table 3: Distribution of women according to religion

Religion	Bacterial vaginosis		Total
	Positive	Negative	
Hindu	19 (63.3%)	77 (64.2%)	96 (64.0%)
Christian	05 (16.7%)	30 (25.0%)	35 (23.3%)
Muslim	06 (20.0%)	13 (10.8%)	19 (12.7%)
Total	**30 (100.0%)**	**120 (100.0%)**	**150 (100.0%)**

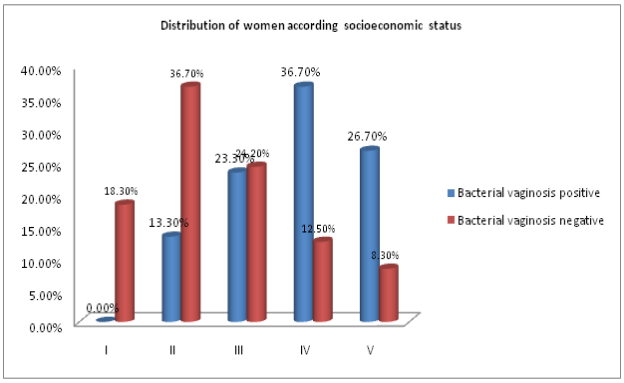
χ^2= 2.31, df=2, p>0.05 (not significant)

It was observed that majority of the women in the study were Hindu (64%) followed by Christian (23.3%) and Muslim (12.7%). There was slight religion wise difference in bacterial vaginosis positive and negative women. This shows that religion does not influence the risk of bacterial vaginosis.

Table 4: Distribution of women according socioeconomic status

Socioeconomic Class	Present	Negative	Total
I	00 (00.0%)	22 (18.3%)	22 (14.7%)
II	04 (13.3%)	44 (36.7%)	48 (32.0%)
III	07 (23.3%)	29 (24.2%)	36 (24.0%)
IV	11 (36.7%)	15 (12.5%)	26 (17.3%)
V	08 (26.7%)	10 (08.3%)	18 (12.0%)
Total	**30 (100.0%)**	**120 (100.0%)**	**150 (100.0%)**

χ^2=24.40, df=4, p< 0.001 (significant)



Socioeconomic status of all the women in the study was calculated by using B G Prasad's classification. It was observed that 26.75% women suffering from bacterial vaginosis whereas only 8.3% women were bacterial vaginosis negative belonging to class V. 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.

Table 5: Distribution of women according to parity

Parity	Bacterial vaginosis		Total
	Positive	Negative	
Primi para	22 (73.33%)	53 (44.16%)	75 (50%)
Multi para	8 (26.67%)	67 (55.83%)	75 (50%)
Total	**30 (100.0%)**	**120 (100.0%)**	**150 (100.0%)**

χ^2=8.17, DF=1, p< 0.05 (significant)

Relation of parity and bacterial vaginosis was also studied. It was observed that bacterial vaginosis was more common in primiparus women as compared to multiparus women and the difference was also statistically significant.

Table 6: Distribution of women according mean gestational age at the time of diagnosis

Bacterial vaginosis	N	Mean (weeks)	SD	t test
Present	30	29.0667	6.83265	0.17800
Absent	120	28.7750	8.29444	p=0.859

Gestational age at the time of examination was compared. And it was observed that mean gestational age in bacterial vaginosis positive women was more (29.06 ± 6.83 week) as compared to bacterial vaginosis negative women (28.77 ± 8.29 weeks). But the difference was not statically significant.

DISCUSSION

Bacterial vaginosis is the commonest cause of abnormal vaginal discharge, but most commonly it is asymptomatic[73]. Studies around the world has demonstrated that bacterial vaginosis in pregnancy is associated with a number of obstetric complication and neonatal morbidity[26].The obstetric complications include spontaneous miscarriage, preterm labour, preterm premature rupture of membranes, preterm birth, preterm premature rupture of membranes, amniotic fluid infection, post partum Endometritis, post caesarean wound infection and neonatal complications. Many organisms have been implicated in this process. Thus the present study was conducted with the objective to calculate to the prevalence of bacterial vaginosis in pregnant women. It was observed that out of 150 ANC women 30 were diagnosed to be suffering from bacterial vaginosis. Thus the prevalence of bacterial vaginosis was 20% in the present study. Similar results were also reported by Gravett *et al*[7] (19%), Kurki *et al*[8] (21.4 %.), Jacobsson *et al*[9] (15.6 %.), Pastore *et al*[10] (17%). The mean age of ANC women suffering from bacterial vaginosis was 22.63 years whereas that of not suffering from bacterial vaginosis was 23.97year. But the difference was not statistically significant. Similar age presentation was also reported by Helaye *et al*[11] in their study. The difference in religion wise distribution was not statistically significant. We also discovered that the prevalence of bacterial vaginois was high among low socioeconomic status ((X^2=24.40, df=4, p< 0.001), where as Gravett *et al* found no significant difference in socioeconomic status, among bacterial vaginosis positive and bacterial vaginosis negative. Further we also observed a statistically significant difference in parity index among bacterial vaginosis positive and bacterial vaginois negative [P<0.016] In contrast Helayne *et al*[11] and Kurki *et al*[8] found no difference in parity index among bacterial vaginosis positive and bacterial vaginosis negative group. Mean Gestational age at the time of diagnosis was also compared in the study population. It

was observed that mean gestational age was more (29.07 ± 6.83) in women with bacterial vaginosis as compared to bacterial vaginosis women (28.78 ± 8.29) but the difference was not statistically significant. In contrast Helayne *et al*[11] and Kurki *et al*[8] found no difference in parity index among bacterial vaginosis positive and bacterial vaginosis negative group. Bacterial vaginosis is associated with adverse pregnancy outcome independent of the gestational age. Treating bacterial vaginosis positive pregnant women at high risk of preterm delivery has now challenged by more recent evidence[12]. The evidence to date suggests that there is no role for antibiotic therapy in low risk pregnant women who have bacterial vaginosis. Given our current knowledge, the treatment of bacterial vaginosis in the first trimester of pregnancy or just before conception may well be beneficial.

CONCLUSION

Prevalence of baceterial vaginosis in the study was 20%. The Nugent criteria score in combination with gram stain is simple inexpensive, easily reproducible, method for diagnosis and can be used on a mass scale. BV is commoner among low SES, lower age and parity.

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