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Original Research Article

Prevalence of bacterial vaginosis among pregnant women and its perinatal outcome: a descriptive, observational and prospective study

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ABSTRACT

Background: Pregnancy is commonly associated with increased vaginal discharge which is often non-pathological while bacterial vaginosis, candidiasis and trichomoniasis are associated with abnormal vaginal discharge. However, most cases of abnormal vaginal discharge in pregnant women are treated inappropriately as candidiasis as a result of inadequate investigation of other causes. Bacterial vaginosis is a polymicrobial syndrome characterized by loss of normal vaginal flora and increase in other species like *Gardenella vaginalis, Ureaplasma urealyticum, Mobiluncus, Mycoplasma, Bacteriodes, Peptostreptococcus* and *Prevotella*. It has severe adverse outcomes in pregnancy which include preterm labour, preterm premature rupture of membranes (PPROM), spontaneous abortion, increased risk of peripartum infections. Current study aims to evaluate the prevalence of bacterial vaginosis in pregnant women using easily available, rapid, inexpensive, diagnostic tests and its adverse maternal and fetal outcome in pregnancy.
Methods: 150 antenatal women attending the outpatient clinic as well as the admitted patients in the Department of Obstetrics and Gynaecology satisfying the inclusion criteria and who had given well written and informed consent were enrolled for the study. We studied the prevalence of bacterial vaginosis in these women using Amsel's criteria and Nugent scoring and correlated it with adverse pregnancy outcomes.
Results: Out of the 150 pregnant women screened, 35 women were tested positive as per Amsel's criteria (23.3%). According to Nugent scoring, 16 out 150 pregnant women screened had a score of more than 7(10.6%). Out of the 16 women tested positive, 12 of them had preterm delivery and PPROM (75%), 7 of them delivered small for gestational age (SGA) babies (43.75%), and 15 of the delivered babies required NICU admission (93.75%).
Conclusions: The above results suggest that universal screening for all antenatal patients for bacterial vaginosis should be done during antenatal visits as they are rapid and inexpensive along with effective treatment of the same to avoid perinatal complications. More focus needs to be done on prevention of preterm labour and PPROM, rather than treatment of the same, once it occurs.

Keywords: Bacterial vaginosis, Prevalence, Pregnant, Perinatal, Outcome, Preterm labor

INTRODUCTION

Bacterial vaginosis (BV) is recognized as a significant global health concern, particularly among pregnant women. During pregnancy, an increase in vaginal discharge is a common physiological occurrence and is usually harmless. However, abnormal vaginal discharge may indicate infections such as BV, candidiasis, or trichomoniasis. Unfortunately, many cases of abnormal discharge in pregnant women are often mis-diagnosed as candidiasis due to insufficient diagnostic evaluation and a lack of awareness about other possible causes.

BV is the most common cause of abnormal vaginal discharge in women of reproductive age. The normal inhabitants of the vagina are mostly aerobic, the most

common being *Lactobacillus* bacteria which creates an acidic environment inside the vagina.[1] BV is a polymicrobial condition that occurs due to a reduction in the normal vaginal flora, especially hydrogen peroxide–producing *Lactobacillus* species, and an overgrowth of anaerobic bacteria such as *Gardnerella vaginalis*, *Ureaplasma urealyticum*, *Mobiluncus*, *Mycoplasma*, *Bacteroides*, *Peptostreptococcus*, and *Prevotella*. Among these anaerobes outnumbered aerobes by around 10%.[2] However, the pathogenesis of BV is still a topic of debate.[3]

BV accounts for 40–50% of vaginal infections in women of childbearing age. However, approximately 50% of individuals with BV remain asymptomatic.[4] When symptoms do occur, women with BV typically present with a thin, gray, fishy-smelling vaginal discharge. The discharge is non-pruritic, and the vagina generally appears non-inflamed, with little or no discomfort, burning, or pain during intercourse. BV was first described clinically by Dukes in 1995, and its diagnosis today relies mainly on Amsel's criteria and Nugent scoring system. Amsel's criteria are based on clinical findings, while Nugent scoring uses Gram-stained vaginal smears to evaluate bacterial balance. Among these, Nugent scoring is considered as the gold standard for the laboratory diagnosis of BV.[1] Despite the available data, there are no established recommendations or protocols for routine screening of abnormal vaginal flora, even though screening methods like Gram stain, pH testing, self-screening for pH, and their combinations are easy to perform.[5]

Any bacterial growth in the amniotic fluid or placenta was believed to originate from the lower genital tract and was considered likely to negatively impact the pregnancy.[6] Therefore, BV is associated with several serious complications during pregnancy, including preterm labour, preterm premature rupture of membranes (PPROM), spontaneous abortion, and postpartum infections such as endometritis, chorioamnionitis, and wound infections. It also increases the risk of acquiring sexually transmitted infections (STIs) such as HIV, HSV type 2, chlamydia, and gonorrhoea, and may contribute to the reactivation of HPV infections.

Preterm birth is regarded as one of the major issues in modern obstetrics. It is the second most common direct cause of death in children under 5 years old.[4] It is also the leading cause of perinatal morbidity and mortality in developed nations. Among the various factors linked to prematurity, subclinical intra-amniotic infection, caused by the migration of bacteria from the lower genital tract, is responsible for up to one-third of preterm births.[4] One of the proposed mechanisms linking BV to preterm birth is the increased production of prostaglandins by pathogenic bacteria, which can trigger early uterine contractions. This occurs either through the direct action of inflammatory mediators released by the bacteria, such as phospholipase A2 and C10, or indirectly by causing inflammation in the fetal membranes, chorion, and amnion, which then release cytokines and prostaglandins that stimulate labour.[3] BV-related intrauterine infections can activate the fetal inflammatory response, thereby increasing the risk of neonatal morbidities that may require admission to the neonatal intensive care unit (NICU).

In India, BV poses a major public health concern due to its strong association with reproductive and pregnancy-related morbidity. However, research on BV in India remains limited and is largely confined to a few states. Considering the wide-ranging adverse effects of BV on maternal and fetal health, it is crucial that both symptomatic and asymptomatic women are properly screened, diagnosed, and treated. Additionally, preventing mis-diagnosis and inappropriate therapy is essential to minimize side effects and ensure better maternal and neonatal outcomes.

METHODS

Study design, setting, duration

This was a descriptive, observational, prospective study conducted in Tata Motors Hospital, Jamshedpur between March 2023 to August 2024.

Study population

All pregnant women with a single intra-uterine pregnancy between 16-36 weeks of gestation visiting out-patient department (OPD) or been admitted (IPD) and have given well-written and informed consent were included for the study. Any non-pregnant women, or any pregnant women with any active vaginal bleeding, history of cervical insufficiency in past pregnancy, history of receiving antimicrobial treatment in last two weeks were excluded. Any pregnant women suffering from systemic diseases like diabetes mellitus (DM), with symptoms of urinary tract infection (UTI) or with history of usage of any vaginal medications in last 48 hours were also excluded from the study.

Sample size calculation

The sample size was estimated using non-paired qualitative variable study taking one variable at 5%, and desired power of study as 80%, confidence level at 95% and confidence interval as 5%. According to the index study Kulkarni et al, the expected occurrence of BV among pregnant women attending antenatal clinic was 0.42 and the expected occurrence of BV among pregnant women not attending antenatal clinic was 0.58.[2] Using these above determinants, 150 was the minimum required sample size for the current study.

Ethical permission and consent of participants

Ethical permission was first obtained from the Institutional Ethics Committee. After obtaining written informed consent in local vernacular language, the patients who

were fulfilling the inclusion criteria were included in the study. Following Helsinki Declaration on research bioethics, they were given the options not to participate in the study if they wished.

Methodology

Sample collection

Per speculum examination was done for the 150 participants included in the study and vaginal secretion from posterior fornix was collected using a sterile cotton swab and smeared in glass slide and sent to lab for Gram staining. Litmus paper was then applied on lateral vaginal wall and if the red litmus paper turned into blue, the finding was recorded as positive. A drop of the vaginal discharge would be mixed with a drop of normal saline on glass slide, covered with a clean cover slip and sent to lab for clue cell examination under high power microscope.

Whiff test

Speculum was then removed and 2 drops of 10% KOH was added on the lower blade of the speculum. If fishy amine odour developed within 30 seconds, it was recorded as positive Whiff test.[1]

Preparation of Gram stain

Cotton swab containing vaginal discharge was smeared on a glass slide, air-dried and heat fixed. The slide was stained with methyl violet for 1 minute and washed under slow running water, stained again with Gram's iodine for 1 minute and re-washed. It was then decolourized with acetone, washed and counter-stained with safranin and re-washed. It was then finally air-dried and examined under oil-immersion field microscope and Nugent score was given accordingly.

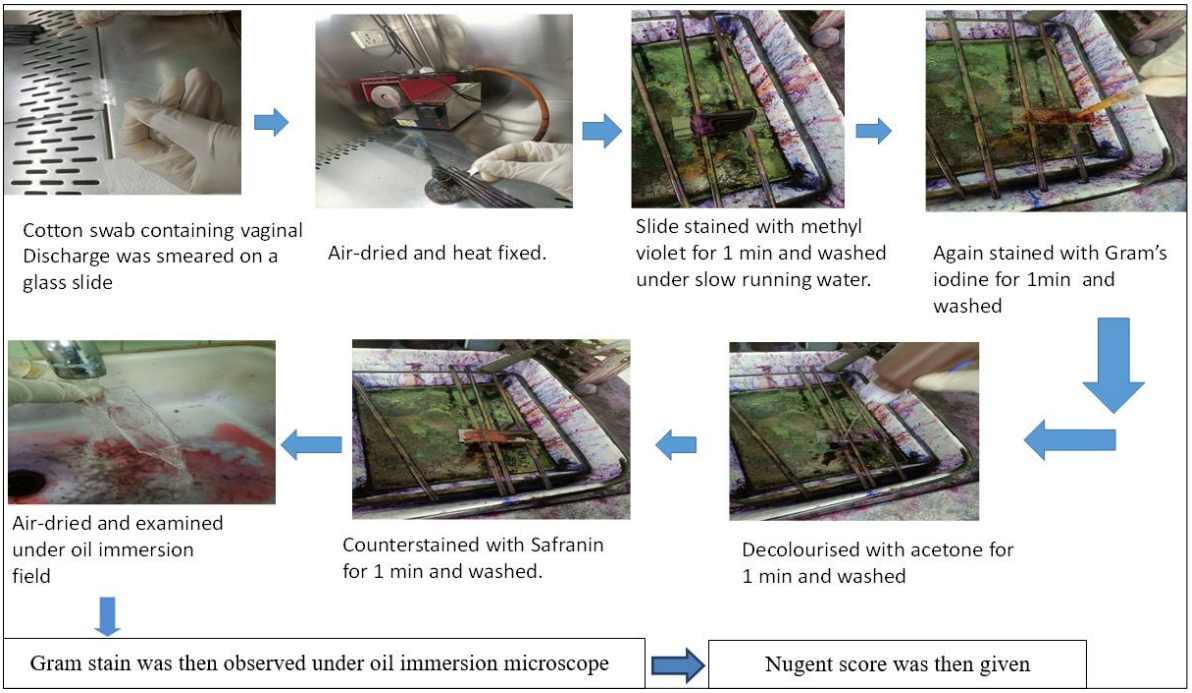

Figure 1: Procedure of Gram staining in laboratory.

Principle of Gram's staining

In Gram staining, crystal violet initially stains all cells blue. Gram's iodine acts as a mordant, helping the dye bind to gram-positive bacteria. When acetone is applied, it removes the stain from everything except gram-positive bacteria. Finally, the counterstain (neutral red or safranin) makes the decolourized gram-negative bacteria turn deep pink.

Reading and reporting the smears

Using Nugent criteria for BV diagnosis, the results were assessed.

Nugent Scoring System (0-10) for Gram-Stained Vaginal Smears

Score	*Lactobacillus* morphotypes		*Gardnerella* and *Bacteroides* morphotypes		Curved gram-variable rods
0	4+		0		0
1	3+		1+		1+ or 2+
2	2+	+	2+	+	3+ or 4+
3	1+		3+		-
4	0		4+		-

Scoring Based on Morphotypes per High Power Field: 0 = 0; 1+ = <1; 2+ = 1-4; 3+ = 5-30; 4+ = >30
Total Score: 0-3 Normal; 4-6 Intermediate; 7-10 Bacterial Vaginosis

Figure 2: Nugent score calculation.[7]

A score range of 0-3 was considered as normal, 4-6 as intermediate and a score between 7-10 was considered as positive for BV.

Saline microscopy for clue cells examination

The saline-mounted slide was examined under high power microscope for clue cells. Clue cells are vaginal epithelial cells coated with bacteria, and hence cell edges have sharply defined borders on gram-staining and on saline mount.[1]

Diagnosis of bacterial vaginosis

All the samples collected were evaluated for Amsel's criteria which included homogenous dirty white foul smelling vaginal discharge, pH >4.5, clue cells > 20% coating the vagina and a positive Whiff test.[1]

If any three criteria were positive, BV was positive according to Amsel's criteria. However, since Nugent scoring is considered as the gold standard for the diagnosis, hence those participants who had a Nugent score ≥7, were regarded as positive for BV in this study.[2]

Treatment

All the participants who were screened as positive for BV according to Nugent scoring were treated with capsule Clindamycin 100 mg + capsule Cotrimazole 100 mg + capsule Tinidazole 100 mg per-vaginally once daily before bedtime at night for 7 nights.

Assessment of outcome

All the participants who were included in this study were followed up till delivery and after delivery for any adverse maternal and fetal outcome. The maternal outcome assessed included preterm labor and fetal outcome included SGA babies and NICU admission of the babies.

Statistical methods

Statistical analysis and data execution were analysed by statistical package for the social sciences (SPSS) (version 27.0; SPSS Inc., Chicago, IL, USA) and Graph Pad Prism version 5. Statistical analysis "Chi-square test" was used for categorical data. "Gaussian single mean test" was used for comparing continuous data of single mean. Statistical analysis "|Z|- proportion test" was used for comparison of proportion of categorical data. Paired |t|- test was used for comparing two mean of continuous data.

Statistical methods were used to find the significance of homogeneity of study characteristics between two groups of patients. Finally, the calculated values were compared with the tabulated values at a particular degree of freedom and the level of significance was determined. If p value <0.05, it was considered as statistically significant.

RESULTS

In the present study consisting of 150 participants, 17 (11.33%) had age ≤20 years, 35 (23.33%) had age between 21-25 years, 61 (40.67%) had age between 26-30 years, 30 (20%) had age between 31-35 years and 7 (4.67%) had age ≥35 years. Among the 150 patients enrolled for the study, 78 (52%) were primi gravida and 72 (48%) were multi gravida.

Table 1 summarizes distribution of cases according to Amsel's criteria among the study population. Among 150 cases, 35 (23.33%) had Amsel's criteria more than or equal to 3 and 115 (76.67%) had Amsel's criteria less than 3.

Table 1: Distribution of study population according to Amsel's criteria.

Amsel's criteria	No. of patients (n=150)	Percentage
<3	115	76.67
≥3	35	23.33

Table 2 summarizes Nugent scores among the study population. Among 150 cases, 90 (60%) had normal Nugent scores between 0-3, 44 (29.33%) had intermediate scores between 4-6 and 16 (10.67%) of them had a score between 7-10 (10.67%) and hence were diagnosed as BV positive.

Table 2: Distribution of study population according to Nugent score.

Nugent scores	No. of patients (n=150)	Percentage
Normal score (0-3)	90	60
Intermediate score (4-6)	44	29.33
BV (+)ve score (7-10)	16	10.67

Table 3 summarizes BV prevalence according to Nugent score among the study population. Among 150 cases, 16 (10.67%) were diagnosed as positive for BV and 134 (89.33%) were diagnosed as negative for BV.

Table 3: Bacterial vaginosis prevalence according to Nugent score.

Bacterial vaginosis	No. of patients (n=150)	Percentage
Positive	16	10.67
Negative	134	89.33

Table 4 summarizes age distribution with BV among the study population. Among the 16 cases, diagnosed as BV, 6 cases were in the age-group between 26-30 years (37.5%), 3 cases were in the age group ≤20 years (18.75%), 3 cases in the age group 31-35 years (18.75%), no cases were reported ≥35 years. There was no significant

difference in age distribution with BV among the study population, with p value=0.7753{p>0.05}.

Table 5 summarizes parity distribution with BV among the study population.

Among the 16 cases diagnosed as BV (+) positive, 10 cases were primigravida (62.5%) and 6 cases were multi-gravida (37.5%). There was no significant difference in parity with BV among the study population, with p value=0.3754 {p>0.05}.

Table 6 summarizes correlation of BV with gestational age at delivery among the study population. Among the 16 patients screened as BV positive, 12 (75%) of them had preterm labour and 4 (25%) of them had term delivery. Among the 134 patients screened as BV negative, 14 (10.45%) of them had preterm delivery and 120 (89.5%) had term delivery. Hence, among patients screened as BV positive, 12 (75%) of them had preterm labour which was significantly higher than 4 term deliveries (25%), with p value=0.0057 {p<0.05}.

For test of significance, we used "Chi-square test {$|\chi^2|$ – test}".

Table 7 summarizes correlation of BV with SGA delivered babies. Among 16 patients screened as BV positive, 7 (43.75%) of the delivered babies were SGA and 9 (56.25%) of the delivered babies had were appropriate for age. Among the 134 patients screened as BV negative, 30 (22.39%) of the delivered babies were SGA and 104 (77.61%) were not SGA. Hence, among 16 patients screened as BV positive, 7 (43.75%) of the delivered babies were SGA which was not significantly higher than delivered babies which were appropriate for age with p value=0.0619 {p>0.05}.

For test of significance, we used "Chi-square test {$|\chi^2|$ – test}".

Table 8 summarizes correlation of BV with NICU admission of delivered babies among the study population. Among the 16 patients screened as positive for BV, 15 (93.75%) of the delivered babies required NICU admission and 1 (6.25%) of the delivered babies did not require NICU admission. Among the 134 patients screened as negative for BV, 31 (23.13%) of the delivered babies required NICU admission and 104 (76.87%) did not require NICU admission. Hence, among the 16 patients screened as positive for BV, 15 (93.75%) of the delivered babies required NICU admission which was significantly higher than 1 of the delivered babies requiring no NICU admission with p value {p<0.0001}.

For test of significance, we used "Chi-square test {$|\chi^2|$ – test}".

Table 4: Distribution of bacterial vaginosis according to age group.

Age distribution (years)	Bacterial vaginosis (+)ve	Prevalence (%)	Bacterial vaginosis (-)ve	Prevalence (%)	P value	Results
≤20 (n=17)	03	18.75	14	10.45	0.7753	Not significant
21-25 (n=35)	04	25	31	23.13		
26-30 (n=61)	06	37.5	55	41.04		
31-35 (n=30)	03	18.75	27	20.15		
≥35 (n=7)	00	0	07	5.22		
Total	16		134			

Table 5: Distribution of bacterial vaginosis according to parity.

Parity	Bacterial vaginosis (+)ve	Prevalence (%)	Bacterial vaginosis (-)ve	Prevalence (%)	P value	Results
Primi (n=78)	10	62.50	68	50.75	0.3754	Not significant
Multi (n=72)	06	37.50	66	49.25		
Total	16		134			

Table 6: Correlation of bacterial vaginosis with gestational age at delivery.

Type of delivery	Nugent scores				Total	P value	Results
	Bacterial vaginosis (+) ve		Bacterial vaginosis (-) ve				
Preterm delivery/ PPROM	12	75%	14	10.45%	26	0.0057	Significant
Term delivery	04	25%	120	89.55%	124		
Total	16		134		150		

Table 7: Correlation of bacterial vaginosis with SGA delivered babies.

SGA babies	Nugent scores				Total	P value	Results
	Bacterial vaginosis (+) ve		Bacterial vaginosis (-) ve				
Yes	07	43.75%	30	22.39%	37	0.0619	Not significant
No	09	56.25%	104	77.61%	113		
Total	16		134		150		

Table 8: Correlation of bacterial vaginosis with NICU admission of delivered babies.

NICU admission	Nugent scores				Total	P value	Results
	Bacterial vaginosis (+) ve		Bacterial vaginosis (-) ve				
Admitted	15	93.75%	31	23.13%	46	<0.0001	Significant
No admission	01	6.25%	103	76.87%	104		
Total	16		134		150		

DISCUSSION

Pregnancy is often associated with increased vaginal infections, which often remain undiagnosed and hence untreated. During antenatal visits, appropriated screening is not done. It is seen that most of such women remain asymptomatic and hence per-speculum examination is not done. In the Indian sub-continent, most of the vaginal infections, are uncharted and come into light only if patient is symptomatic. Even after the patient presents with symptoms, they are misclassified as candidiasis, which being the most common infection and are thereby wrongly treated. Appropriate individual tests for the various infections are not being done as a routine practice. This being said if such vaginal infections are neglected, they pose a considerable amount of threat to both the mother and the child. Some of the adverse sequelae include preterm labor, premature rupture of membranes, spontaneous abortion, chorioamnionitis and increase in other infections during and post-delivery. Fetal effects include low birth weight (LBW) babies, low APGAR score of the delivered babies, thereby resulting in NICU admission. Hence, this study was conducted in Eastern India in Tata Motors Hospital, Jamshedpur to find the prevalence of BV using rapid inexpensive tests mainly the Nugent scoring system, the gold standard test available. Women screened as positive, were immediately given treatment. They were then followed up for any adverse maternal and fetal outcome, and its association with Bacterial vaginosis was compared.

A total of 150 pregnant women satisfying the inclusion criteria and who had given consent for the study were included. These included women from different age groups. Maximum people were recruited in the age group of 26-30 years. Among the 16 cases, diagnosed as BV, 6 cases were in the age-group between 26-30 years (37.5%), 3 cases were in the age group ≤20 years (18.75%), 3 cases in the age group 31-35 years (18.75%), no cases were reported ≥35 years. Hence, maximum prevalence of Bacterial vaginosis was seen between the age group of 26-30 years (37.5%) which may be due to the maximum number of people recruited in this particular age group. There was no significant difference in age distribution with BV among the study population, with p value=0.7753{p>0.05}. In a study conducted by Ezeigwe et al, among 333 pregnant women, BV was found positive among 87 women.[6] Among the positives, 17 (19.5%) were aged between 16-20 years, 18 (20.7%) between 21-25 years, 22 (25.3%) between 26-30 years, 16 (18.4%) between 31-34 years, 14 (16.1%) between 35-40 years. Hence, BV was found in the age group between 26-30 years with χ^2=1.42, p value=0.2340. These results were similar to our study.

In our study, among the 150 patients screened for BV, 78 (52%) were primigravida and 72 (48%) were multi gravida. Among the 16 cases diagnosed as BV (+) positive, 10 cases were primigravida (62.5%) and 6 cases were multi-gravida (37.5%). There was no significant difference in parity distribution with BV among the study population, with p value=0.3754 {p>0.05}. Hence, maximum positive cases were seen among primigravida patients. In a study conducted by Ambike et al among 301 pregnant women, 31% of BV cases were found in primigravida and 69% in multigravida.[8]

Among 150 cases included in our study, 35 (23.33%) patients had Amsel's criteria ≥3 and 115 (76.67%) had Amsel's criteria <3. According to the study conducted by Kulkarni et al among 246 pregnant women, 216 (87.8%) had Amsel's criteria <3 and 30 (12.2%) had Amsel's criteria ≥3.[2] In our study, patients with Nugent score ≥7 were only considered as positive for BV. Among 150 cases included in our study, 90 (60%) had normal Nugent score between 0-3, 44 (29.33%) had intermediate scores between 4-6 and 16 (10.67%) of them had a score between 7-10 (10.67%) and hence were diagnosed as BV positive. In a study conducted by Bhavana et al, among 117 pregnant women, the number of positive cases was 93 (79.5%) by Nugent scoring (score ≥7) which was higher than our study.[9] However, they distributed their sample equally among all the three trimesters, whereas in our study, only pregnant women in second and third trimester were included. This could have made some difference. According to the study conducted by Kulkarni et al, among

246 pregnant women, 28 (11.38%) were screened as positive (Nugent score ≥7).[2] Their prevalence was almost identical to our study results. They had also offered treatment with Metronidazole to all the patients screened as positive, despite that adverse outcomes were recorded. This was the same scenario in our study also, which may be due to a higher recurrence rate of BV or it may be because of non-compliance to treatment.[2] In a study conducted by Madhivanan et al, among 863 women in Mysore, 165 (19.1%, 95% CI: 12.9-21.8%) were screened as positive having Nugent score ≥7.[10] In the study conducted by Ambike et al, among 301 pregnant women, 68 (23%) of the women tested positive for BV according to the Nugent score criteria (Nugent score 7–10).[8] In a study conducted by Mulinganya et al, among 525 pregnant women, 138 (26.3%) of them were screened as positive according to Nugent criteria.[11] This was comparatively higher as compared to our study which may be due to the fact that they included only pregnant women in their second trimesters in their study. In a cross-sectional study conducted by Shetty et al, among 200 pregnant women, 25 (12.5%) of them were screened positive for BV according to Nugent scoring with a Chi square value=17.704 and p value=0.07.[12] This prevalence was almost complimentary to our study. In a study conducted by Ezeigwe et al, among 333 pregnant women, BV was found positive among 87 women according to the Nugent scoring system.[6]

In our study, among the 16 patients screened as BV positive, 12 (75%) of them had preterm labour and 4 (25%) of them had term delivery. Hence, among patients screened as BV positive, 12 (75%) of them had preterm labour which was significantly higher than 4 term deliveries (25%), with p value=0.0057{p<0.05}. For test of significance, we used "Chi-square test {$|\chi^2|$ –test}" In a study conducted by Mohanta et al, among 204 pregnant women 46 were diagnosed as positive for BV.[13] Among the positive cases, 12 (30.43%) had preterm vaginal delivery and 34 (73.9%) had term delivery thereby giving a Chi-square value=15.23 and p value <0.001, thereby making the correlation statistically significant. These, results were similar to our study. According to study conducted by Gupta et al, among 500 antenatal women, 98 of them were screened positive for BV.[14] Among 98 positive women, 30 (23.5%) of them had preterm delivery thereby giving a p value <0.0001, thereby making it statistically significant. These findings were resembling our study. According to the study conducted by Kulkarni et al, among 246 pregnant women, 28 were screened as positive.[2] Among them, 2 had preterm delivery (0.8%) giving a Chi-square value 15.69, p value <0.05, thereby making it statistically significant which was similar to our study. In the study conducted by Ng et al, among 237 pregnant women, 24 of them were screened as positive according to Nugent scoring.[15]

The mean gestational age of delivery of the positive patients was 33.8 weeks. Among the positive patients, 3 (13.6%) had preterm delivery with a p value=0.107, thereby making the correlation between the two as statistically significant. This was analogous to our study.

In our study, among 16 patients screened as BV positive, 7 (43.75%) of the delivered babies were small for gestational age (SGA) (baby weight ≤2.5 kg) and 9 (56.25%) of the delivered babies had were appropriate for age. Among the 134 patients screened as BV negative, 30 (22.39%) of the delivered babies were SGA and 104 (77.61%) were appropriate for gestational age. Hence, among 16 patients screened as BV positive, 7 (43.75%) of the delivered babies were SGA which was not significantly higher than delivered babies which were appropriate for age with p value=0.0619 {p>0.05}. According to Kulkarni et al, among 246 pregnant women, 28 were screened as positive for BV.[2] Among them, 7 delivered SGA babies giving a Chi square value of 15.3, p value <0.05, thereby making the correlation statistically significant.

In our study, among the 16 patients screened as positive for BV, 15 (93.75%) of the delivered babies required NICU admission and 1 (6.25%) of the delivered babies did not require NICU admission. Hence, among the 16 patients screened as positive for BV, 15 (93.75%) of the delivered babies required NICU admission which was significantly higher than 1 of the delivered babies requiring no NICU admission with p value {p<0.0001}. In the study conducted by Bhakta et al, among 217 pregnant women 44 were diagnosed as positive for BV.[4] Among the positive, 34 (77.3%) delivered babies had NICU admission with p value <0.001 and RR=6.847 (3.589-13.063), thereby making the correlation statistically significant. These results were similar to our study.

Our study, however, was limited by the fact that repeat testing was not done on patients who were detected positive for BV. After having received treatment, we could not know, whether the patient was completely cured.

Similarly, most of the genital hygiene practises like history of vaginal douching, use of intra-uterine devices in past, were self-reported. So, these could have been mis-classified or under-classified. Moreover, the sample size in our study was also comparatively small.

CONCLUSION

The prevalence of BV among the antenatal patients satisfying the inclusion criteria visiting Tata Motors Hospital, Jamshedpur came to be 10.67%. We concluded that routine screening should be done specifically for BV during antenatal checkups as these tests are rapid, inexpensive and feasible. This is essential for a better maternal and fetal prognosis as it foresees the development of adverse perinatal complications, thereby helping us improving both the maternal and fetal outcome. It is always better to eradicate the root cause of preterm labour, rather than facing its adverse consequences. However, recent advances in the detection of BV like Blue test and

PCR testing using RNA technology leaves the scope for further research in this aspect.

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