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To Estimate the Prevalence of Bacterial Vaginosis in Labour

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Abstract
Background: *Bacterial vaginosis (BV) is the most frequent type of vaginitis in women of reproductive age. BV is an imbalance in the ecology of the normal vaginal flora that is characterized by the depletion of lactobacilli, and the proliferation of anaerobic bacteria. In pregnancy, certain complications such as preterm delivery, premature rupture of the membranes, and amniotic fluid infection, postpartum endometritis are increased because of infection with BV. This study investigated the prevalence of BV among pregnant women in labour to avoid BV associated complications. Treating bacterial vaginosis can reduce the preventable cause of preterm birth as preterm labour is not only a medical and social problem but also an economic burden.*
Objectives: *To estimate the prevalence of BV in women presenting with preterm and term labour and to analyze its association as the causative factor of PTL.*
Methods: *A cross sectional study involving 260 patients with preterm and term labour was conducted at AIMSR, Bathinda. BV was determined to be present or absent on the basis of Amsel's criteria and Nugent criteria. Statistical analysis was based on simple percentages among related variables.*
Results: *Bacterial vaginosis was more prevalent in patients with preterm labour group (44.4%) as compared to patients in term labour group (18.4%) and the difference was statistically significant Since the P-value is <0.001.Bacterial vaginosis among preterm labour is about three times higher than among term labour group.*
Conclusion: *BV is most common preventable cause of preterm labour. Therefore, the testing for BV and its prompt treatment may reduce the risk of PTL. This will also go a long way in the prevention of neonatal complications due to prematurity.*
Keywords: *Bacterial vaginosis, Preterm labour, Term labour, Amsel's criteria, Clue cells.*

Introduction

Bacterial vaginosis (BV) is the most frequent type of vaginitis in women of reproductive age. 75% of all perinatal deaths is due to preterm labour[1].BV is an imbalance in the ecology of the normal vaginal flora that is characterized by the depletion of lactobacilli, and the proliferation of anaerobic bacteria such as Gardnerella Vaginalis,

Mobilincus, Mycoplasma Hominis, Ureaplasma Urealyticum and Prevotella. In pregnancy, certain complications such as preterm delivery, premature rupture of the membranes, and amniotic fluid infection, postpartum endometritis are increased because of infection with BV[2]. Preterm labour is a most challenging obstetrical complication. With improvement of neonatal care there has been improvement in the neonatal survival ratesof preterm infants as NICU care is expensive so preterm labour is not only a medical and social problem but also an economical burden[3-5]. Etiology of preterm labour is multifactorial but maternal infection plays major role. Among the infections, bacterial vaginosis is a major cause. Treating bacterial vaginosis can reduce the preventable cause of preterm birth and improve the perinatal outcome[5].This study investigated the prevalence of BV among pregnant women in labour to avoid BV associated complications.

Material and Methods

Setting: Study was carried out in the Department of Obstetrics and Gynecology and the Department of Microbiology, AIMSR, Bathinda from Dec 2016- Dec 2017 after getting permission from instituitional ethical committee.

Type of study: Cross Sectional Study

Basis of sample size planned: Prevalence of bacterial vaginosis in labour was about 20% by Gupta et al.

We calculate our sample size using the formula:

$$\text{Sample size (n)} = \frac{4 \times p \times q}{L^2}$$

Where: n: Sample size

p: expected prevalence or proportion

q: 100 – p

L: permissible error (here 5%,

i.e. for 95% confidence limit)

Thus our sample size comes out to be 260 124-preterm labour patients, 136-term labour patients.

Sample size: 260 subjects after taking informed consent.

Inclusion Criteria: Preterm labour

1) Singleton pregnancy
2) Gestational age 28-37 weeks
3) Intact membranes or PROM <4 hours
4) Uterine contractions-2 contractions/45 seconds/10 minutes
5) Cervical dilatation >1 cm
6) Cervical effacement >80%

Term labour

1) Singleton pregnancy
2) Gestational age >37 weeks
3) Intact membranes or PROM <4 hours
4) Uterine contractions-2 contractions/45 seconds/10 minutes
5) Cervical dilatation >1 cm
6) Cervical effacement >80%

Exclusion Criteria

1. Ruptured membranes>4 hours
2. Use of antibiotics in the preceding two weeks
3. Multiple gestation
4. Structural uterine anomalies
5. Established fetal anomalies
6. Pregnancy complicated with medical disorders
7. Patients who are not willing to give consent

Criteria for Diagnosis

The following diagnostic criteria will be used in the study

Clinical Criteria

1. Foul smelling discharge,
2. pH more than 4.5

Microscopic Criteria

1. Presence of clue cells,
2. Absence of polymorphs,
3. Absence of *Lactobacillus*,
4. Presence of curved gram negative bacteria,
5. Presence of polymicrobial flora (*Gardenella, Mobilincus, Prevotella, Peptostreptococci*)

Presence of any three of the above criteria confirms the diagnosis (AMSEL'S CRITERIA)

Detailed clinical history from the subjects was taken and recorded after obtaining informed consent. Clinical examination was done. Routine hematological, Urine and biochemical test were performed. Vaginal swab was collected from lower one-third of the vaginal wall which was subjected to Gram staining, wet mount and KOH test. The pH of vaginal discharge was tested using litmus paper.

Plan for Data Analysis

Collected data will be analyzed by frequencies, percentages and by chi square test.

Results

Table 1: Nugent's Scoring

S.No	Score	Number Of Cases
1	0-3	75 (28.8%)
2	4-6	89 (34.3%)
3	7-10	96 (36.9%)
	Total	260 (100%)

Based on Nugent's Criteria, 96 cases were labelled to have bacterial vaginosis.

Among 260 women, prevalence of bacterial vaginosis by Nugent's Criteria was 36.92%.

Table 2: Amsel's Criteria

S.No	Variable	Present	Absent
1	Vaginal Discharge	95 (36.5%)	165(63.5%)
2	Clue Cells	64 (24.6%)	196(75.4%)
3	Whiff Test	92 (35.4%)	168(64.6%)
4	Ph>4.5	118(45.4%)	142(54.6%)
	>3amsel Criteria	80(30.8%)	180(69.2%)

Based on AMSEL'S CRITERIA, 80 cases were labelled to have BV.

Among 260 women, prevalence of bacterial vaginosis by Amsel' Criteria was 30.76%.

Table 3: Diagnosis of Bacterial vaginosis according to Amsel's criteria in preterm and term labour group

Amsel's Criteria	> 3 Criteria N(%)	< 3 Criteria N(%)	Total N(%)
Preterm Labour	55(44.4%)	69(55.6%)	124
Term Labour	25(18.4%)	111(81.6%)	126
Total	80(30.8%)	180(69.2%)	260

p < 0.001 (highly significant) chi-square statistic-20.5399,p value-0.000006

Amsel's criteria was higher among the women with preterm labour 55 (44.4%) in comparison with women in term labour group 25(18.4%) and the difference was statistically significant p < 0.001 (highly significant).

Discussion

Prevalence of bacterial vaginosis in labour by Nugent's Criteria was 36.92%.

Prevalence of bacterial vaginosis in labour by Amsel' Criteria was 30.76% which is similar to other studies[9-10].

	Prevalence by Amsel	Prevalence by Nugent
Our study	30.76%	36.92%
Udayalaxmi et al.[9]	18%	19%
ZemenuMengistieet al.[10]	18.3%	19.4%

Prevalence of bacterial vaginosis in preterm and term labour were 44.4% and 18.4% respectively. These findings were consistent with other studies[1,6-8]

	Prevelance in pre-term	Prevelance in Term
Our study	44.4%	18.4%
Ali et al.[6]	32%	14%
Aruna et al.[7]	41.6%	16.6%
Priyanka et al.[1]	30%	4%
Shashikala et al.[8]	42%	18%

Conclusion

It is clearly evident from present study that bacterial vaginosis plays the major role in preterm labour as it is more prevalent in preterm labour than term labour and thus can be implemented in the etiology of preterm labour.It can be easily detected using Amsel criteria and Nugent's scoring method of the Gram stained vaginal smear and treated with clotrimazole and clindamycin combination in pessary or gel form in an outdoor antenatal clinic.

References

1. Chatterjee P, Hanumaiah I. An observational study of bacterial vaginosis in preterm and term labour at a tertiary care centre in South India. Indian Journal

of obstetrics and gynaecology research. 2016; 3(1):38-42.

2. McGregor JA, French JI. Bacterial vaginosis in pregnancy. Obstet Gynecol Surv 2000;55: S1–19.

3. Gaikwad V, Patvekar M, Gupta S, Chaudhari S, Gandham N, Jadhav SV. A study of the role of bacterial vaginosis in preterm labour from tertiary care hospital in India. International Journal of medical and clinical research. 2012; 3(7):221-224.

4. Ranjan S, Mohapatra I, Sahoo G. Study of association of bacterial vaginosis and preterm labour in tertiay care hospital. Perspectives in medical research. 2015; 3(3):6-10

5. Masand D, Melkani D. Study of prevalence of bacterial vaginosis in preterm and term labour. Int J Reprod Contraception, Obstet Gynecol Int J Reprod Contracept Obs Gynecol [Internet]. 2016;55(22):477–81.

6. Ali MA, Abdulameer Z, Ibraheem IS. The prevalence of bacterial vaginosis among women with preterm labour. Mustansiriya Med J. 2015;14(2). 2016; 5(2):477-481.

7. Kumari DP, Aruna G, Naga Sugeetha G, Professor A. Association of bacterial vaginosis in preterm labor and fetal outcome Study of association of bacterial vaginosis in preterm labor and fetal outcome. Int Arch Integr Med Int Arch Integr Med IAIM, All Rights ReservInt Arch Integr Med. 2015;2(4).

8. Shashikala A, Nagasrilatha B, Sasidhar M, Manmohan B, Suseela TL. Bacterial Vaginosis in Preterm Labour At a Tertiary Care Centre. J Evol Med Dent Sci [Internet]. 2015;4(51):8806–17.

9. Udayalaxmi J, Bhat G, Kotigadde S, Shenoy S. Comparison of the methods of diagnosis of bacterial vaginosis. J Clin Diagnostic Res [Internet]. 2011;5(3):498–501.

10. Mengistie Z, Woldeamanuel Y, Asrat D, Yigeremu M. Comparison of clinical and gram stain diagnosis methods of Bacterial Vaginosis among pregnant women in Ethiopia. J Clin Diagnostic Res. 2013;7(12):2701–3.