



TO STUDY THE ROLE OF BACTERIAL VAGINOSIS IN PRETERM AND TERM LABOUR IN NORTH INDIA

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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. It most often manifests clinically as a vaginal pH of > 4.5, the presence of thin whitish homogenous vaginal discharge, the detection of "clue" cells and the presence of an amine odour after the addition of 10 percent potassium hydroxide. These anaerobic bacteria through specific products stimulate the decidual tissue; an increase of cytokine level and of the release of A2 phospholipase, and prostaglandins will lead to uterine contractions and preterm labor activity. Bacterial vaginosis can lead to premature rupture of membranes, preterm labor, chorioamnionitis, development of PID following abortion.

Objectives: To study 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 a tertiary care hospital in North India. BV was determined to be present or absent on the basis of Amsel's criteria. Pearson's chi-square test was used to demonstrate the difference between both groups with respect to various categorical data.

Results: The proportion of patients who fulfilled Amsel's criteria for the diagnosis of BV was significantly more in PTL group as compared to term labour group, and the difference was statistically significant.

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

Preterm labour is a most challenging obstetrical complication. 75% of all perinatal deaths is due to preterm labour¹. With improvement of neonatal care there has been improvement in the neonatal survival rates of preterm infants as NICU care is expensive so preterm labour is not only a medical and social problem but also an economical burden²⁻⁴. Etiology of preterm labour is multifactorial but maternal infection plays major role. Among the infections, bacterial vaginosis is a major cause. Bacterial vaginosis is a polymicrobial infection where physiological lactobacilli dominant flora is replaced by overgrowth of anaerobic commensals such as Gardnerella vaginalis, Mobilincus, Mycoplasma Hominis, Ureaplasma urealyticum and Prevotella⁵. So our study aim and objective was to study the role of bacterial vaginosis in preterm and term labour.

Material and methods

Setting: Study was carried out in the Department of Obstetrics and Gynaecology and the Department of Microbiology, AIMSRS, Bathinda from July 2016-July 2017 after getting permission from institutional 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: Discharge suggestive of Bacterial Vaginosis in preterm and term labour group

DISCHARGE	SUGGESTIVE OF BACTERIAL VAGINOSIS n (%)	NOT SUGGESTIVE OF BACTERIAL VAGINOSIS n (%)	SIGNIFICANT
PRETERM LABOUR	55(44.4%)	69(55.6%)	124 Highly significant (p<0.001)
TERM LABOUR	25(18.4%)	111(81.6%)	136 Highly significant (p<0.001)
TOTAL	80(30.8%)	180(69.2%)	250

STUDY	Discharge suggestive of bacterial vaginosis		Basic vaginal PH		Amsel's criteria >3	
	Preterm	Term	Preterm	Term	Preterm	Term
DeepaMasand,et al.(2016) ⁵	18(36%)	4(8%)	23(46%)	6(12%)	18(36%)	4(8%)
Priyanka Chatterjee,et al. (2016) ¹	14(28%)	2(4%)	22(44%)	7(14%)	15(30%)	2(4%)
Present study	55(44.4%)	25(18.4%)	70(56.5%)	48(35.3%)	55(44.4%)	25(18.4%)

In the present study, no. of patient having vaginal discharge suggestive of bacterial vaginosis, patient with basic vaginal ph and who fulfilled the Amsel's criteria for diagnosis of bacterial vaginosis were more in preterm labour group(44.4%,56.5%,44.4% respectively) as compared to term labour group(18.4%,35.3%,18.4% respectively) which was similar to the study conducted by DeepaMasand,et al.(2016)⁵ Priyanka Chatterjee,et al. (2016)¹

CONCLUSION

It is clearly evident from present study that bacterial vaginosis plays the major role in preterm labour. Therefore, the testing for bacterial vaginosis and treatment may reduce the risk of preterm labour and neonatal complications due to prematurity.

References

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

Bacterial vaginosis was more prevalent in women with preterm labour 55(44.4%) in comparison with Women with term labour 25(18.4%) and p value was 0.001 which is statistically significant.

Table 2: Vaginal pH in preterm and term labour group

Ph	BASIC n (%)	ACIDIC n (%)	TOTAL n (%)
PRETERM LABOUR	70(56.5%)	54(43.5%)	124(100)
TERM LABOUR	48(35.3%)	88(64.7%)	136(100)
TOTAL	118(45.4%)	142(54.6%)	260(100)

p < 0.001 (highly significant) chi-square statistic-11.7136,p value-0.00062

The proportion of patients which had basic vaginal Ph was significantly more in preterm labour group70(56.5%) as compared to term labour group 48(35.3%) with p value <0.001 (highly significant)

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