Research Paper

Volume : 5 | Issue : 6 | June 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

To Study The Role of Bacterial Vaginosis as a Risk Factor For Preterm Labour

Medical Science

KEYWORDS : bacterial vaginosis, preterm, labour.

Dr.Shachi Shukla Resident, Department of Obstetrics & Gynaecology, SMS Medical College, Jaipur.

ABSTRACT

Objective: To study the role of bacterial vaginosis as a risk factor for preterm labour and to evaluate the occurrence of preterm delivery associated with bacterial vaginosis.

Method: This comparative study was conducted in Department of Obstetrics and Gynaecology, Mahila Chikitsalaya, SMS Medical College, Jaipur on 100 parturient women. They were divided into two groups: - Group A : 50 primigravida with gestational age between 22-37 weeks with preterm labour, Group B : 50 primigravida with term gestation (≥ 37-40 weeks) in labour. All women in study and control group were tested for presence or absence of bacterial vaginosis based on Amsel's criteria. The results were statistically analyzed by chi-square test.

Result: The occurrence of bacterial vaginosis in preterm group was 32% compared to those in term labour i.e. 10%. 62.5% with bacterial vaginosis delivered prematurely compared to 55.9% women without bacterial vaginosis who delivered prematurely. In Amsel's criteria, most sensitive test for bacterial vaginosis was Whiff test whereas detection of clue cells was most specific test.

Conclusion: This study concludes that not only bacterial vaginosis is significantly associated with preterm labour but the occurrence of preterm delivery is also high in women with bacterial vaginosis. Further for clinical diagnosis of bacterial vaginosis, application of Amsel's criteria is quick, cost effective and efficacious.

Introduction The study was aimed to analyze the association of bacterial vaginosis with preterm labour and preterm delivery and to find out the most sensitive and specific marker in Amsel's criteria. Prematurity is the most significant problem confronting obstetrician in today's world. Preterm labour is defined as onset of labour before 37 completed weeks of gestation in pregnancy beyond 20 weeks.[1] Almost 8-10% pregnancies and in preterm labour[2] and alone infection is responsible for between 20-40% of all cases of preterm birth. Most acceptably mechanism of infection causing preterm birth is ascending infection[3] and amongst these infection, bacterial vaginosis is a major cause of preterm labour. In it normal vaginal flora is replaced by anaerobic organisms that include Gardnerella vaginalis, Mobiluncus, Bacteriodes spp, Mycoplasma Hominis, Peptostreptococcus, Fuso bacterium and Prevotella[4].

Methodology This was a prospective comparative study conducted during the year 2009. The study was approved by SMS Medical College Institutional Review Board. The study included primigravida women with gestational age >22 weeks in labour with singleton pregnancy. Exclusion criteria included women with known risk factors for preterm delivery like Multiple gestation, polyhydramnios, ruptured membranes, Rh isoimmunization, fetal anomaly, cervical incompetence, hypertension requiring treatment with medication, insulin dependent diabetes, current use of corticosteroids, chronic renal or symptomatic heart diseases., antepartum haemorrhage, pyrexia, congenital uterine anomaly

Sample of vaginal secretion from posterior fornix from study and control group was taken. Diagnosis of bacterial vaginosis was made based on Amsel's criteria which includes[5]: -

a. Homogeneous, milky or creamy discharge that adheres to vaginal wall.
b. Presence of true clue cells on microscopic examination.
c. pH of secretion above 4.5.
d. Fishy or amine odor with addition of 10% KOH to a drop of discharge (Whiff test).

Presence of any three of the above is necessary for diagnosis of bacterial vaginosis. Data was statistically analyzed using Chi-square test.

Results 100 women (50 in study group and 50 in control group) participated in this study. The study and control group were comparable with respect to age distribution, religion, residency, booking status, literacy status, occupation, body mass index, socio-economic status. After evaluating the results by Amsel's criteria, 32% of the subjects and 10% of the controls were positive for bacterial vaginosis. The association of bacterial vaginosis with preterm labour came to be highly significant ($P < 0.001$) establishing the fact that presence of bacterial vaginosis is a risk factor for preterm delivery (Table-1).

Moreover, occurrence of preterm delivery in bacterial vaginosis positive group was 62.5% compared to those without bacterial vaginosis i.e. 55.9% (Table-2).

In Amsel's criteria, most specific test for detection of bacterial vaginosis was presence of clue cell in vaginal smear with 100% specificity whereas most sensitive test was Whiff test with 90.5% sensitivity (Table-3, Table-4, Table-5, Table-6).

Table - 1

Bacterial Vaginosis	Study		Control		Total	
	Number	%	Number	%	Number	%
+ ve	16	32.00	5	10.00	21	21.00
- ve	34	68.00	45	90.00	79	79.00
Total	50	100.00	50	100.00	100	100.00

Association of Bacterial Vaginosis in Study and Control Group Based on Amsel's Criteria

$\chi^2 = 6.028$ d.f. = 1 P = 0.01 Statistically Significant

Table - 2

Delivery	BV +ve		BV -ve		Total	
	Number	%	Number	%	Number	%
Preterm Delivery (<37 wks)	10	62.50	19	55.90	29	58.00
Term Delivery (>37 wks)	6	37.50	15	44.10	21	42.00
Total	16	100.00	34	100.00	50	100.00

Delivery Among Women With or Without Bacterial Vaginosis in Preterm Labour Group

Table - 3

Clue Cell	Study Group (n = 50)		Control Group (n = 50)		Total	
	Number	%	Number	%	Number	%
+ ve	14	28.00	4	8.00	18	18.00
- ve	36	72.00	46	82.00	82	82.00
Total	50	100.00	50	100.00	100	100.00

Clue Cells in Study and Control Group

χ^2 = 5.488 d.f. = 1 P = 0.019 Significant
Sensitivity = 85.7% Positive Predictive Value = 100%
Specificity = 100% Negative Predictive Value = 96.3%

Table – 4

Whiff Test	Study		Control		Total	
	Number	%	Number	%	Number	%
+ ve	20	40.00	10	20.00	30	30.00
- ve	30	60.00	40	80.00	70	70.00
Total	50	100.00	50	100.00	100	100.00

Whiff Test in Study and Control Group

χ^2 = 3.857 d.f. = 10 P = 0.05
Sensitivity = 90.5% Positive Predictive Value = 63.3%
Specificity = 87.5%. Negative Predictive Value = 97.4%

Table - 5

Vaginal pH	Study		Control		Total	
	Number	%	Number	%	Number	%
< 4.5	20	40.00	34	68.00	54	54.00
> 4.5	30	60.00	16	32.00	46	46.00
Total	50	100.00	50	100.00	100	100.00

Vaginal pH in Study and Control Group
χ^2 = 6.804 d.f. = 1 P = 0.009
Sensitivity = 71.4% Positive Predictive Value = 32.6%
Specificity = 70%. Negative Predictive Value = 92.4%

Table - 6

Vaginal Discharge	Study		Control		Total	
	Number	%	Number	%	Number	%
Normal	16	32.00	13	26.00	29	29.00
BV Discharge	24	48.00	30	60.00	54	54.00
Discharge Other than BV (Trichomonal, Candidal, Mixed)	10	20.00	7	14.00	17	17.00
Total	50	100.00	50	100.00	100	100.00

Nature of Vaginal Discharge in Study and Control Group

Sensitivity = 66.7% Positive Predictive Value = 26%
Specificity = 49.4%. Negative Predictive Value = 84.8%

Discussion Bacterial vaginosis is the most common lower genital tract infection among women of reproductive age and most common cause of vaginitis in both pregnant and non-pregnant women. Association of bacterial vaginosis with preterm labour as obtained in this study which is in accordance with study of Renu Goyal et al[6]which found the association of bacterial vaginosis with preterm labour based on Spiegel's criteria. They found that 31.6% women in study (preterm labor) group and 15% women in control (term labour) group had bacterial vaginosis, concluding that bacterial vaginosis is strongly associated with preterm labour. Further, 94.7% patient with bacterial vaginosis delivered prematurely whereas only 73.2% without bacterial vaginosis delivered prematurely.

It is also similar to the findings of Desai Veena A[7] diagnosis of bacterial vaginosis was based on Nugent's criteria. They found that statistically significant number of subject in study group (preterm labour) tested positive for bacterial vaginosis (18.7%) as compared to controls (8%) (Term gestation).

It is also in accordance with study of Kumar Aruna et al[3] who found out that overall prevalence of bacterial vaginosis in their study was 30.35%. Amongst the subjects, 44% had bacterial vaginosis compared to 23% in control group based on Amsel's criteria and this difference was statistically significant (P < 0.016). They found that detection of clue cells in vaginal smear is the most accurate laboratory test and Whiff test is the most accurate bed side test.

Conclusion This study concludes that not only bacterial vaginosis is significantly associated with preterm labour but the occurrence of preterm delivery is also high in women with bacterial vaginosis. Further for clinical diagnosis of bacterial vaginosis, application of Amsel's criteria is quick, cost effective and efficacious.

References

1. American College of Obstetrician and Gynaecologists. *Preterm labour. Technical Bulletin, 1995, No. 206 Washington D.C. : ACOG.*
2. Andrews WW, Goldenberg RL, Hauth JC. Preterm labor, emerging role of genital tract infection. *Infect Agent Dis, 1995; 4 :* 196-211.
3. Kumar Aruna, Khare Jyoti. Role of bacterial vaginosis in preterm labor. *JOGSI, 2007*; 413-416.
4. Hill GB. The microbiology of bacterial vaginosis. *AJOG, 1993;* 169 : 450-54.
5. Infectious vulvovaginitis. *Gynaecologic and Obstetric Infection,* 348-49.
6. Renu Goyal, Poonam Sharma, Iqbal Kaur, Neera Aggarwal, Vibha Talwar. Bacterial vaginosis and vaginal anaerobes in preterm labor. *JIMA, 2004; Vol. 102*, No. 10.
7. Desai Veena A, Verma Rajini, Mann Pawan Preet. Bacterial vaginosis in patients with idiopathic preterm labour. *J Obstet Gynecol India, Jan/Feb 2009; Vol. 59* : pg. 53-57.