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Bacterial Vaginosis in Preterm Delivery and its relationship with Birth Weight

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ABSTRACT

Aim: Bacterial Vaginosis in Preterm Delivery and its relationship with Birth Weight
Study Setting: Dept. of Obstetrics and Gynaecology at a Tertiary Care Hospital, Mumbai
Study Design: Hospital based Prospective Observational study
Methodology: The study was conducted on Preterm Delivery patients admitted in Tertiary Care Institute in Year 2016 (N=80). Each woman after relevant history, investigations were studied for the presence of Bacterial Vaginosis based on Amsel's criteria.5
Results: Total 21 patients were diagnosed of Bacterial Vaginosis Infection (N=80). The mean age of patients was 27 Years. Most of them were multipara (56.5%) and in 33-36 weeks of gestation (82.5%). Around 24% of neonates had birth weight < 1.5 Kg. The association of birth weight with presence of Bacterial Vaginosis in preterm infants was statistically not significant (p>0.05).
Conclusions: Low birth weight is common in preterm neonates with maternal Bacterial Vaginosis infection. Preventive measures (including screening) and control of Bacterial Vaginosis infection in pregnancy is necessary.

KEYWORDS : Bacterial Vaginosis, Preterm delivery, Amsel's criteria

Introduction

Bacterial Vaginosis is the most common lower genital tract disorder among women of reproductive age (pregnant and non-pregnant) and the most prevalent cause of vaginal discharge and malodour[1,2].

Bacterial Vaginosis is a polymicrobial syndrome resulting in a decreased concentration of lactobacilli and an increase in pathogenic bacteria, mainly anaerobic or microaerophiles. These organisms include *Gardnerella vaginalis, Mobiluncus species, Bacteroides and Prevotella species, and Mycoplasma* species[3,4].

Bacterial Vaginosis can be diagnosed using Amsel[5], Spiegel[6] or Nugent criteria[7]. Metronidazole is the drug of choice in the treatment of Bacterial Vaginosis.[8] The majority of cases of Bacterial Vaginosis are asymptomatic and remain unreported and untreated[9].

It has been associated with a significant number of obstetric and gynaecologic complications, such as preterm labour and delivery, preterm premature rupture of membranes, spontaneous abortion, chorioamnionitis, postpartum endometritis, post- Caesarean delivery wound infections, postsurgical infections, and subclinical pelvic inflammatory disease.[10-16]

Bacterial vaginosis is very common, with the exact prevalence varying widely. In India, the reported prevalence of Bacterial Vaginosis among the preterm labour varies between 20-30%. [17,18,19]

Since, Bacterial Vaginosis can be associated with pregnancy complications as well as adverse neonatal outcome, we undertook this study to know the prevalence of Bacterial Vaginosis in preterm deliveries and its relationship with birth weight.

Material and Methods

It was a Hospital based Prospective Observational study of 80 preterm pregnant women attending department of Obstetrics and Gynecology (N=80) registered for a period of one year. Inclusion criteria were - a) gestational age less than 37 weeks, b) regular uterine contractions (four or more in 20 minutes or eight or more in 60 minutes) each lasting more than 40 seconds, c) cervical dilatation equal to or greater than 1 cm but less than 4 cm, d) intact amniotic membranes. These women were screened for Bacterial Vaginosis after taking written informed consent. Exclusion criteria were - cervical incompetence, cervical surgery, placenta previa, abruptio placenta, uterine abnormality, multiple pregnancy, polyhydramnios, Rh isoimmunization, etc.

Using a sterile vaginal speculum, vaginal swab was taken from the lateral vaginal wall or posterior fornix, avoiding contamination with cervical mucous The diagnosis of Bacterial Vaginosis rests on the presence of three of the following four findings: (1) a thin, dark or dull gray homogenous malodorous discharge that adheres to the vaginal walls; (2) an elevated vaginal pH level (≥4.5); (3) a positive Whiff test (fishy odor is noted on adding KOH to the discharge); or (4) the presence of clue cells (epithelial cells with adherent organisms) on wet mount microscopic evaluation. Bacterial Vaginosis was diagnosed if three or more of the criteria (Amsel's criteria)5 were present. After delivery, materno-foetal complications were noted; birth weight of a baby is recorded.

Data were tabulated using Microsoft Excel 2013 and analyzed using SPSS version [9]. Chi square tests is used and the probability of 5% was considered as statistically significant.

Results Table 1

Age of the Pregnant Woman (N=80)		
< 20 Years	1	1.25 %
20 to 35 Years	73	91.25 %
> 35 Years	6	7.5 %
Weeks of Gestation		
<28	2	2.5 %
29-32	12	15 %
33-36	66	82.5 %
Parity		
Primi	34	42.5 %
Multipara	46	57.5 %
Bacterial Vaginosis		
Present	21	26.25 %
Absent	59	73.75 %

Most of the pregnant women belong to age group 20 to 35 years (91.25%) with a mean of 27 years. Out of the total 82, 66 women in gestational age of 33-36 weeks (82.5%). Multiparity was more common (57.5%) and presence of Bacterial Vaginosis was detected in 21 women (26.25%).

Table 2

PROM (N=80)		
Yes	28	35 %
No	52	65 %
Mode of delivery		
Vaginal	65	81.25 %
LSCS	15	18.75 %
Birth weight (Kg)		
< 1.5	19	23.75 %
1.5 to 2	39	48.75 %
2 to 2.5	22	27.5 %

The PROM was seen in 35% of the total women, Vaginal delivery was common (81.25%). The outcome as measured by birth weight showed that most of the neonates weighed between 1.5 to 2 Kg (48.75%). Birth weight less than 1.5 Kg was seen in 23.75% of preterm births with Bacterial Vaginosis, whereas 27.5% of the total neonates had birth weight of 2 to 2.5 Kg.

Table 3

Bacterial Vaginosis	Birth Weight (Kg)			Total
	< 1.5	1.5 to 2	2 to 2.5	
Present	5	9	7	21
Absent	14	30	15	59
Total	19	39	22	80

(Chi Square test, X2= 0.55, DF = 2, p>0.05, Not significant)

The association between Bacterial Vaginosis in Preterm Delivery and birth weight was statistically not significant (p > 0.05). Birth weight below 1.5 Kg as well as more than 2.5 Kg was common in both groups.

Discussion

The global incidence of Bacterial Vaginosis is within the global range of 5-21 %.[20] The incidence may be more in developing countries. Approximately 7-10% of all births are preterm births in developing countries like India.

In our study, preterm births were more common in age group 20-35 years (91.25%). Similar finding are reported by other author[21]; the possible explanation is that maximum fertility is seen in this age group. Maximum preterm births were seen in multiparous women (57.5%), possibly due to cervical trauma due to repeated child birth, anemia, etc.[22]

The association of Bacterial Vaginosis and preterm labour was studied by many authors[23,24]; in the present study 21 preterm deliveries were associated with Bacterial Vaginosis (26.25%).

In our study, birth weight above 2.5 Kg was not seen in Bacterial Vaginosis positive preterm deliveries. Birth weight less than 1.5 Kg was seen in 23.75% of preterm births with Bacterial Vaginosis, whereas 27.5% of the total neonates had birth weight of 2 to 2.5 Kg. The association between Bacterial Vaginosis in Preterm Delivery and birth weight was statistically not significant (p > 0.05). Low birth weight as an outcome of preterm delivery in Bacterial Vaginosis positive patients is documented by many authors.[19,25,26,27,28,29]

Conclusion

Low birth weight as an indicator of poor pregnancy outcome is common in preterm deliveries with Bacterial Vaginosis. Preventive measures (including screening) and control of Bacterial Vaginosis infection in pregnancy is necessary to prevent neonatal morbidity and mortality.

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