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RESEARCH ARTICLE

ROLE OF SCREENING AND TREATMENT TO PREVENT ADVERSE OUTCOME IN PREGNANT WOMEN WITH BACTERIAL VAGINOSIS

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Abstract

Bacterial vaginosis(BV) is defined as clinicopathological condition where the normal lactobacillus strain are reduced in number and there is an increase of a characteristic set of microflora which include *Gardnerellavaginalis*, *Mobiluncus*species, *Bacteroides*and *Prevotella*species, and *Mycoplasma* species . Clinically bacterial vaginosis patient presents with complaints of white discharge per vaginum, pruritus and malodor. In few patients, there can be asymptomatic vaginosis. It is a known risk factor for adverse obstetric outcomes, such as preterm labour and delivery, preterm premature rupture of membranes, spontaneous abortion, chorioamnionitis, and postpartum infections . Preterm labour with subsequent delivery of premature baby remains a major cause of perinatal mortality responsible for 35% of neonatal death.Bacterial vaginosis can be detected by applying Nugent's Criteria and when treated with antibiotics can reduce incidence of preterm labour. To calculate the prevalence of bacterial vaginosis in symptomatic and asymptomatic pregnant women . To observe the role of screening of asymptomatic pregnant women in prevention of adverse outcome and to assess the effect of treatment on the adverse pregnancy outcome in both symptomatic and asymptomatic bacterial vaginosis patients. A prospective cohort study where 199 pregnant women fulfilling the inclusion criteria were subjected to a detailed history ,general, systemic as well as obstetric examination and vaginal examination . A high vaginal swab was taken with the help of 2 sterile swab sticks. After excluding*Trichomonal*infection the other swab stick was taken for gram staining in the Department of Microbiology.Nugent's'criteria was used to diagnose the positive cases.According to the results, the patients were put in swab positive or swab negative groups respectively.Those patients with swab positive were treated with Tab. Metronidazole 400mg thrice daily for seven days. Both the groups were followed up till term to find the adverse outcome in the form of preterm labour or PROM. The prevalence of bacterial vaginosis based on Nugents criteria is 20.1%. 18% of the women had complaints of vaginal discharge and malodor. 50% of the symptomatic women were swab positive while only 13.5% of the asymptomatic women were swab positive. Out of total 199 women, 4% women had preterm labour and 3.5% had PROM for > 12 hours. Out of the treated women with BV, 10% had preterm delivery and 7.5% had PROM. The rate of Preterm labour and PROM among the women without BV was 2.5% each. After treatment 9.5% asymptomatic women had preterm labour whereas 11.1% symptomatic women delivered preterm.

Conclusions – Bacterial Vaginosis is a known cause of preterm delivery and high prevalence upto 20.1%. is found in pregnant women. The condition can be symptomatic or asymptomatic. Oral metronidazole is found to be effective in treatment of BV.Screening of all pregnant women is not recommended as there is no decrease in preterm delivery rate even aftertreatment of asymptomatic BV cases.

Key words – Bacterial Vaginosis , Vaginal discharge, Nugent's score , Preterm labor, Premature rupture of membrane .

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INTRODUCTION

Bacterial vaginosis(BV) is defined as clinicopathological condition in which there is a dramatic alteration in the endogenous micro flora. The normal lactobacillus strain are reduced in number and there is a multilog increase in the population of a characteristic set of microflora which include *Gardnerellavaginalis, Mobiluncus*species, *Bacteroides*and *Prevotella*species, and *Mycoplasma* species (1,2). This condition is associated with increase in concentration of bacterial endotoxin, proteases,mucinases, sialidases, IgA proteases andphospholipasesA2 and C in the lower reproductive tract(3).

Clinically bacterial vaginosis produces characteristic changes in the vagina and the patient presents with complaints of white discharge per vaginum, pruritus and malodor. In few patients, vaginosis occurs without producing symptoms, these are asymptomatic vaginosis.

The presence of bacterial vaginosis has consistently been shown to be a risk factor for adverse obstetric outcomes, such as preterm labour and delivery, preterm premature rupture of membranes, spontaneous abortion, chorioamnionitis, and postpartum infections such asendometritis and Caesarean section wound infections(3,5). Preterm labour with subsequent delivery of premature baby remains a major cause of perinatal mortality responsible for 35% of neonatal death (4).

Bacterial vaginosis can be detected by applying Nugent's Criteria(6) and when treated with antibiotics can reduce incidence of preterm labour (7).

OBJECTIVE

To calculate the prevalence of bacterial vaginosis in symptomatic and asymptomatic pregnant women from the sample. To observe the role of screening of asymptomatic pregnant women in prevention of adverse outcome and to assess the effect of treatment on the adverse pregnancy outcome in both symptomatic and asymptomatic bacterial vaginosis patients.

MATERIAL AND METHODS

A prospective cohort study conducted in the Department of Obstetrics and Gynecology in Dr. S.M.C.S.I. Medical College, Karakonam including 199 women attending the OPD .Inclusion criteria consisted of singleton pregnancy of gestational age between 26-32 weeks with any obstetric score with or without symptoms of vaginosis i.e. white discharge per vaginum and pruritis. Women with multiple pregnancy, intrauterine growth restriction,history of urinary tract infection, respiratory tract infection or recurrent pregnancy loss or any history of previous preterm labour and medical complications like diabetes and pregnancy induced hypertension were excluded from the study.

199 pregnant women fulfilling the inclusion criteria were subjected to a detailed history and general, systemic as well as obstetric examination . After taking informed consent a speculum examination was done to note the presence or absence and nature of discharge. A high vaginal swab was taken with the help of 2 sterile swab sticks. One slide was prepared for wet mount to exclude *Trichomonal*infection. The other swab stick was taken for gram staining in

the Department of Microbiology. Gram staining was done to all the slides ,Nugent's'criteria was used to diagnose the positive cases.According to the results, the patients were put in respective groups i.e. swab positive or swab negative.

Nugent's criteria –

Score	Lactobacillus morphology	Gardenella and Bacteroidssp morphology	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+	

Interpretation of Nugent's Score		
If N score is :	AND	Then report
0 – 3		Smear not consistent with BV
4 – 6	Clue cells not present	
4 – 6	Clue cells present	Smear consistent with BV
7		

Those patients with swab positive were treated with Tab. Metronidazole 400mg thrice daily for seven days. Both the groups were followed up till term to find the adverse outcome in the form of preterm labour or PROM.

All the noted findings were entered in a pre-structured proforma . Correlation of these groups was done by using paerson chi-square and fisher's exact test & SPSS statistical package was used for analysis.

RESULT

The prevalence of bacterial vaginosis based on Gram staining (Nugents criteria) is 20.1% (40/199). Among the pregnant women 18%(36/199) have complains of vaginal discharge and malodor. In this study50%(18/36) of the symptomatic women were swab positive while only 13.5%(22/163) of the asymptomatic women were swab positive. Out of total 199 women, 4% (8/199)women had preterm labour and 3.5%(7/199) had PROM for > 12 hours. All the patients

diagnosed to have bacterial vaginosis based on Gram stain were treated with oral metronidazole 400mg, three times a day for seven days. Out of the treated women with BV, 10%(4/40) had preterm delivery and 7.5%(3/40) had PROM. The rate of Preterm labour and PROM among the women without BV was 2.5% (4/159)each.There were no cases of preterm premature rupture of membrane. After treatment 9.5%(2/22) asymptomatic women had preterm labour whereas 11.1% (2/16) symptomatic women delivered preterm. In swab negative asymptomatic women 2.8% (4/141) delivered preterm.

DISCUSSION

The prevalence of Bacterial vaginosis in 199 pregnant subject taken in this study was 20%(*95% CL 14.5% to25.5%)* . This coincides with the findings of Paavonen J et al and Kurki T et al(12,8) These studies found the incidence to be around 23%. In our study 18% of the pregnant women were symptomatic . We found highly significant correlation between symptoms and swab positivity rate for bacterial vaginosis . 50% of the symptomatic patients were swab positive but only 13.5% of asymptomatic patients were swab positive.

Bacterial Vaginosis had been a leading cause of adverse pregnancy outcome in the form of preterm labour and premature rupture of membrane. If left untreated BV can lead to preterm labour in 30% of cases. In a study conducted by Hiller et al (9) 10,397 women were enrolled at23-26 wks, those women who had BV, 36-40% women delivered before 37 weeks of gestation. Oral metronidazole is proved to be an effective treatment for reducing the incidence of adverse pregnancy outcome in patients with BV(10,11,14). In our study, 40 women were diagnosed to have bacterial vaginosis, all were treated with oral metronidazole. Out of these 40 women, 4 women had preterm labour . This accounted for 10% cases with preterm delivery. Thus ifthis data is compared with the study of Hiller et al (9), the preterm delivery rate is reduced by 20-25% when BV was identified and treated. In the study by Morales et al(10), a placebo controlled trial, after treatment with metronidazole only 8 out of 44 women had preterm delivery; whereas in the placebo group 16 out of 36 had preterm labour as seen by Carey J.C et al(13) in their study. In our study 159 women did not have bacterial vaginosis, out of this 4 women had preterm delivery, thus the preterm delivery rate in normal women was 2.5% . There was no case of preterm premature rupture of membrane in all the treated women. In our study 7 women had premature rupture of membranes, out of which 3 were treated cases of bacterial vaginosisi.e 7.5% , where as incidence of PROM in treated cases in the study by J Christopher Carey et al in year 2000(13) was 4.5%. Out of 159 women who did not have bacterial vaginosis in our study , 4 women had PROM. Thus 2.5%of normal pregnant women had PROM.

Bacterial vaginosis in pregnancy can present with symptoms like vaginal discharge and malodor, but it can also exist without any symptom. These cases are difficult to identify unless screening of all pregnant population is done. In a prospective, randomized, double blind placebocontrolled trial conducted by Carey JC et al(13) , no significant difference was found in the incidence of preterm birth in normal women and those asymptomatic women who were screened and treated . Guise JM et al in their meta-analysis in 2001 found no benefit to routine BV screening and treatment(15). In our study, after treatment, 9.5% asymptomatic women had preterm labour. This can be compared with the study conducted by Secondo Guaschinoa et al(16) . In this

randomized trial conducted to check the rate of adverse outcome after treatment on asymptomatic bacterial vaginosis women, it was found that the rate of preterm delivery in treatment group was 12.2%. Thus even after treatment of asymptomatic women, the rate of preterm delivery was high. Although the type of study is different, the data is comparable. Thus routine screening of all asymptomatic women is not indicated in our set up also.

CONCLUSION

Bacterial Vaginosis is a known cause of preterm delivery and high prevalence upto 20.1%. is found in pregnant women. The condition can be symptomatic or asymptomatic. Although symptomatic BV is an extremely prevalent vaginal condition among pregnant women, the true magnitude is of BV not known because more than one half of BV cases are asymptomatic. There are several evidence gaps in the literature on screening and treating bacterial vaginosis in asymptomatic pregnant women. A critical gap in the evidence exists in demonstrating a benefit of treatment in asymptomatic pregnant women at increased risk for preterm delivery. Available evidence on treatment benefit is conflicting. Additional research is needed to evaluate the benefit of screening and treating asymptomatic bacterial vaginosis in women at highest risk for preterm delivery. Screening of all pregnant women is not recommended as there is no decrease in preterm delivery rate even aftertreatment of asymptomatic BV cases. Oral metronidazole has been found to be effective in treatment of BV .

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