ORIGINAL RESEARCH

Assessment of bacterial vaginosis in pregnant women

[1]Dr. Kirti Nagesh, [2]Dr. Reenu Markam, [3]Dr. Gulab Meena, [4]Dr. Priyanka Y

[1]Senior Resident, Gajra Raja Medical College, Gwalior, Madhya Pradesh, India
[2,4]Senior Resident, NSCB Medical College, Jabalpur, Madhya Pradesh, India
[3]Department of Obstetrics and Gynaecology, Kamla Nehru State Hospital for Mother & Child, Indira Gandhi Medical College & Hospital Shimla, Himachal Pradesh, India

Corresponding author
Dr. Priyanka Y
Senior Resident, NSCB Medical College, Jabalpur, Madhya Pradesh, India

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ABSTRACT

Background: Bacterial vaginosis (BV) is the most frequent vaginal infection. The present study was conducted to assess bacterial vaginosis (BV) in pregnant women. **Materials & Methods:** The present study was conducted over the period of two years from 2020 to 2021. 80 pregnant women with bacterial vaginosis (BV) were subjected to a detailed obstetric and per speculum examination. Vaginal and cervical swabs samples were obtained and sent to microbiology laboratory. All samples were processed for possible isolation and identification of pathogenic microorganisms. **Results:** There were 8 cases of BV in first trimester, 30 in second and 42 in third trimester. The difference was significant (P< 0.05). Staphylococcus aureus positivesamples was seen in 42, enterococcus positivein 7, group B Streptococci positive in 5, E. coli positive in 24, klebsiella positive in 6, proteus vulgaris positive in 3, candidapositive in 2. The difference was significant (P< 0.05). **Conclusion:** Common bacterial species in pregnant women with Bacterial vaginosis was staphylococcus aureus, enterococcus, group B Streptococci, E. coli, klebsiella, proteus vulgaris and candida.

Key words: Bacterial vaginosis, Staphylococcus aureus, pregnant women

INTRODUCTION

Bacterial vaginosis (BV) is the most frequent vaginal infection, characterized by the replacement of Lactobacillus species of normal vaginal flora by the excessive growth of a mixture of microorganisms including Gardnerella vaginalis, Bacteroides species, genital mycoplasma, and fastidious anaerobic bacteria. A woman may have vaginal itching or burning and may notice a discharge. The discharge may be excessive in amounts or abnormal in color.[1]

Microbial infections of the vagina among pregnant women are serious problems. Vaginitis is inflammation of the vagina. Vulvovaginitis, is an inflammation of the vagina and vulva. Infection can result in discharge, itching and pain.[2] The three main causes of vaginitis are infections by bacteria (bacterial vaginosis), yeast (vaginal candidiasis), or the protozoan that causes trichomoniasis. A woman may have multiple infections at any one time. If there is discomfort in the vulvovaginal area, women can request their health care providers evaluate for the presence of an infection.[3]

Several obstetric complications such as pre-term labor, amniotic fluid infection, premature rupture of the fetal membranes, and low birth weight of the neonate can be attributed to microbial infections of pregnancy, leading to high perinatal mortality. However, proper identification and treatment will reduce the risk of preterm birth and its consequences.[4] In a developing nation like India, where very less amount of GDP is spent on healthcare facilities, the burden of diseases such as preterm delivery, low birth weight, PROM imposes might be reduced by early identification of risk factors associated and treating them pre-handed.[5] The present study was conducted to assess bacterial vaginosis (BV) in pregnant women.

MATERIALS & METHODS

The present study was conducted over the period of two years from 2020 to 2021. The present study comprised of 80pregnant women with bacterial vaginosis (BV). All gave their written consent for the participation in the study.

Data such as name, ageetc. was recorded. A detailed obstetric examination and per speculum examination was carried out and the vaginal mucosa was inspected for the presence of erythema, lesions, and discharge. Vaginal and cervical swabs samples were obtained

and sent to microbiology laboratory. All samples were processed for possible isolation and identification of pathogenic microorganisms was done.Data thus obtained were subjected to statistical analysis using chi- square test. P value < 0.05 was considered significant.

RESULTS

Table I Distribution based on trimester

Trimester	Number	P value
First trimester	8	0.05
Second trimester	30	
Third trimester	42	

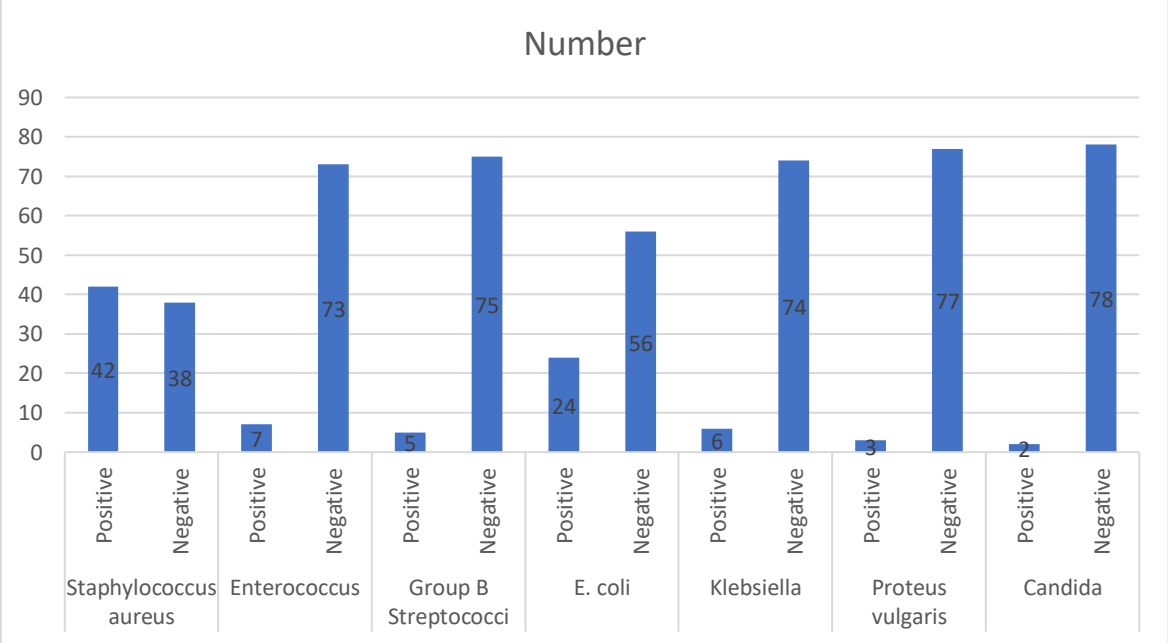
Table I shows that there were 8 cases of BV in first trimester, 30 in second and 42 in third trimester. The difference was significant (P< 0.05).

Table II Assessment of positive and negative samples of different bacteria spices

Bacterial vaginosis	Variables	Number	P value
Staphylococcus aureus	Positive	42	0.17
	Negative	38	
Enterococcus	Positive	7	0.02
	Negative	73	
Group B Streptococci	Positive	5	0.04
	Negative	75	
E. coli	Positive	24	0.05
	Negative	56	
Klebsiella	Positive	6	0.03
	Negative	74	
Proteus vulgaris	Positive	3	0.02
	Negative	77	
Candida	Positive	2	0.01
	Negative	78	

Table II, graph I shows that staphylococcus aureus positive sampleswas seen in 42, enterococcus positive in 7, group B Streptococci positive in 5, E. coli positive in 24, klebsiella positive in 6, proteus vulgari positive in 3, candida positive in 2. The difference was significant (P< 0.05).

Graph I Assessment of positive and negative samples of different bacteria spices



DISCUSSION

Bacterial vaginosis (BV) is a common vaginal infection that results from an imbalance in the normal bacterial flora of the vagina.[6] It is characterized by the overgrowth of harmful bacteria, particularly Gardnerella vaginalis, and a decrease in beneficial

bacteria, such as lactobacilli, which normally help maintain a healthy vaginal environment.BV can cause a range of symptoms, but some women may not experience any symptoms at all.[7] Common symptoms include a thin, grayish-white vaginal discharge with a foul or "fishy" odor, along with itching and irritation in the vaginal area.[8,9]The exact cause of BV is not well understood, but it is associated with a disruption in the balance of vaginal bacteria. Certain factors can increase the risk of developing BV, including multiple sexual partners, douching, and the use of certain antibiotics.[10,11]The present study was conducted to assess bacterial vaginosis (BV) in pregnant women.

We found that there were 8 cases of BV in first trimester, 30 in second and 42 in third trimester. Mishra et al[12] studied 460 pregnant women with suspicion of symptomatic and asymptomatic vaginal infections. Vaginal and cervical swabs samples were obtained from each subject and processed immediately for possible isolation and identification of pathogenic microorganisms. Out of 460 patients, 328 (71.3%) found to be positive for vaginal infections. Age group 17- 25 years had 12% of cases, 26- 34 years had 65%, 35- 42 years had 18% and >42 years had 5% of cases. Common microorganisms were Chlamydia trachomatis (32%), Candida albicans (27%), Mycoplasma hominis (12%), Gardnerella vaginalis (10%), Staphylococcus aureus (6%), Trichomonas vaginalis (5%), Neisseria gonorrhea (3%), E. coli (2%) and vibrio Mobiluncus (3%). Conclusion: Vaginal infections are quite common in pregnant women.

We found that staphylococcus aureus positivesamples was seen in 42, enterococcus positivein 7, group B Streptococci positive in 5, E. coli positive in 24, klebsiella positive in 6, proteus vulgarispositive in 3, candidapositive in 2. Bamniya et al[13]studied the prevalence of vaginal infections in pregnant women and its implications in pregnancy. Overall, 200 cases were enrolled, 100 symptomatic and 100 asymptomatic women. Identification of the aerobic culture isolates was performed using 41 standard biochemical tests. Afterward, colonies grown on SDA agar were subjected to growth on CHROM agar for the speciation of Candida. Diagnosis of BV was made using Amsel's criteria and Gram's stain Nugent's scoring system. Results: The prevalence of vaginal infections in the present study was 22.5%. The incidence of BV was found to be 9%. The incidence of candidiasis was found to be 13.5%. The analysis in the present study also showed that there were greater odds of vaginal infections among women with clinical symptoms (37%) as compared to asymptomatic women (8%).

Konadu et al[14]determined the prevalence of vulvovaginal candidiasis (VVC), bacterial vaginosis (BV) and trichomoniasis (TV) in pregnant women. The overall prevalence of at least one vaginal infection was 56.4%. The prevalence of vulvovaginal candidiasis, bacterial vaginosis and trichomoniasis were 36.5, 30.9 and 1.4% respectively. Women with more than four previous pregnancies and those in the third trimester of pregnancy were associated with a lower risk of bacterial vaginosis. Douching and antibiotic use were neither associated with VVC or BV.

GhiasiMet al[15] found that totally identified gram-positive bacteria were significantly higher in number than the gram-negative bacteria. The prevalence of bacterial vaginosis as 70.34% among infertile women of Qom city. Staphylococcus aureus was the most prevalent vaginal pathogen (57.33%) followed by E. coli (25.33%). S. aureus showed maximum sensitivity to penicillin and gentamicin. It means that fortunately in Qom, this bacterium has not acquired resistance against penicillin yet.

The limitation of the study is the small sample size.

CONCLUSION

Authors found that common bacterial species in pregnant women with Bacterial vaginosis was staphylococcus aureus, enterococcus, group B Streptococci, E. coli, klebsiella, proteus vulgaris and candida.

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