Journal Of Medical Science And Clinical Research

IGM Publication   An Official Publication Of IGM Publication

Original Research Article

Prevalence of Bacterial Vaginosis in Patients Attending in Tertiary Care Hospital at ESI-PGIMSR, Basaidarpur

Authors
Dr Sima Chaoudhary[1], Dr Ratnesh Kumar[2]
[1,2]Specialist Medical Officer, Referral Hospital, Naubatpur, Patna
Corresponding Author
Dr Ratnesh Kumar
Specialist Medical Officer, Referral Hospital, Naubatpur, Patna, India

Abstract
Objective: *The present study was undertaken to assess the prevalence of bacterial vaginosis (BV) and to estimate the prevalence of anaerobic organism in vaginal discharge of woman suffering from bacterial vaginosis.*
Materials and Methods: *High vaginal swabs taken from 112 female patients complaining of abnormal vaginal discharge. BV was diagnosed by clinical composite criteria and by Gram's staining. Anaerobes were isolated and identified from the discharge.*
Results: *Out of 112 cases, 77 (68.75%) cases was diagnosed BV by using clinical composite criteria and 65 cases (58.04%) was diagnosed by Gram's staining. Anaerobic culture isolation of vaginal swab revealed that out of 112 cases 18 (16.07%) samples did not yields anaerobic growth, 94 cases (83.92%) were culture positive for anaerobes. Bacteroides were significantly raised in BV as compared with NBV (Non-bacterial vaginosis).*
Conclusion: *Anaerobic bacteria are important pathogens in the causation of bacterial vaginosis along with other aerobic organisms. Bacteroides and peptostreptococci are significantly raised in BV.*
Keywords: *Anaerobes, bacterial vaginosis, Gram's stain.*

Introduction

Bacterial vaginosis (BV) is a condition characterized by raised vaginal pH and milky white discharge in which the normal vaginal flora is replaced by mixed flora of aerobic, anaerobic and microaerophilic species. Bacterial vaginosis is an important genital syndrome because it affects a large number of women of reproductive age. The presence of BV puts patients at increased risk of upper genital tract infections with severe consequences to fertility and the outcome of pregnancy.

Bacterial vaginosis usually affects women in the reproductive age group but it may also be seen in menopausal women and women who have had a hysterectomy. The microbiology of BV is complex and involves various organisms such as Gardnerella vaginalis, mixed anaerobes such as Mobiluncus, Bacteroides, Prevotella, Peptostreptococci, Eubacterium, Mycoplasma hominis and other aerobic organisms.

The clinical composite criteria of BV comprise of an increased homogenous greyish white vaginal discharge, increased vaginal pH>4.5, a fishy smell

on addition of 10% KOH to vaginal fluid (whiff test) and the presence of clue cells. The laboratory methods for the diagnosis of BV include direct Gram's stain of vaginal secretions, culture for Gardnerella vaginalis and other organisms associated with BV, biochemical tests for metabolic by products of vaginal bacteria (gas liquid chromatography) and Proline amino peptidase tests, etc. The aetiology and pathogenesis of BV is still unclear. Very few studies have been conducted in this part of the country. Therefore, the study was undertaken to assess the prevalence of BV and to estimate the prevalence of anaerobic organisms in the vaginal discharge of women suffering from BV.

Materials and Methods

Present study was conducted in the Department of obstetrics and Gynaecology, ESI - PGIMSR, Basaidarpur, during the period of January 2014 to December 2015 . A total of 112 female patients of reproductive age group, who were attending in GOPD and GIPD with complaining of abnormal vaginal discharge, excluding those who were planning to undergo any pelvic surgical procedures and patients on antibiotic treatment. A routine gynaecologic speculum examination was performed on each patient and a medical history was taken. Vaginal secretions were collected by fully aseptic methods using two vaginal swabs from each patient and transported to Microbiology laboratory without any delay. One swab in 3 ml of sterile thioglycollate broth for anaerobic culture, another swab was brought in 0.5 ml of saline for non culture methods. While taking the swab colour, consistency and odour of vaginal discharge was also noted. The pH of vaginal discharge was measured directly by placing indicator paper for pH range of 4.0-6.0 on the vaginal wall. From one swab, wet mount preparation and smears for Gram's staining were prepared, which were examined for the presence of clue cells, Pus cells, yeast and parasites. Gram's stain smears were read for morphotyping and scoring patterns according to Nugent criteria.

Patients not fulfilling the minimum of three out of four diagnostic criteria were considered normal and served as controls.

The second swab was processed by inoculating samples onto freshly prepared blood agar with haemin and vitamin K supplement. Metronidazole 5 μg discs and Gentamicin 10 μg were placed on primary and secondary streaking, respectively for observing primary sensitivity and presumptive identification of anaerobes. Plates were incubated anaerobically in a gas pack anaerobic jar for 48-72 hours. Pure growth of anaerobes was obtained after repeated subculture and organisms were identified on the basis of standard methods.

Results

Out of 112 vaginal samples collected, 62.5% (70/112) were from patients between the age of 26 and 40 years old followed by 37.5% (42/112) between the age of 18 and 25 years old. Bacterial Vaginosis was diagnosed in 68.75% of the patients using clinical composite criteria. 31.25% of the patients had only one or two out of the four clinical criteria. Out of 112 cases, 18 samples did not yields anaerobic growth, and 94 were culture positive for anaerobes. Out of 94 anaerobic isolates, 75.53% (71/94) were BV and 24.47% (23/94) were from NBV suggesting anaerobes were significantly increased in BV. Bacteroides isolation was significantly higher in BV as compared with NBV

Table-1 Prevalence of Bacterial Vaginosis by Smear and Culture

Clinical Composite Criteria (n = 112 samples)	Prevalence by Gram's staining smear	Prevalence by Culture
Bacterial vaginosis (BV) 77(68.75%)	65 (58.04%)	71 (63.39%)
Non-Bacterial Vaginosis (NBV) 35(31.25%)	18 (16.07%)	23 (20.53%)
	29 (25.89%) Intermediate stage	18 (16.07%) samples do not yields anaerobic growth.

Table -2 Shows organism isolated in Culture

Organism Isolated	Bacterial Vaginosis n=71	Non Bacterial Vaginosis n=23	Total N=94
Peptostreptococcus spp.	7 (7.45%)	3 (3.19%)	10 (10.64%)
Peptococci spp.	12 (12.76%)	2 (2.13%)	14 (14.89%)
Prevotella spp.	6 (6.39%)	3 (3.19%)	9 (9.58%)
Bacteroides spp.	29 (30.83%)	9 (9.58%)	38 (40.43%)
Fusobacterium spp.	8 (8.52%)	5 (5.31%)	13(13.83%)
Veillonella spp.	9 (9.57%)	1 (1.06%)	10 (10.63%)
Mobiluncus spp.	0	0	0
Total	71 (75.53%)	23 (24.47%)	94 (100%)

Discussion

In present study, 68.75% (77) of patients were diagnosed as BV using Amsels criteria. Out of 112 samples, 65 (58.04%) samples were diagnosed as BV and 29 were diagnosed as intermediate (25.89%) using Nugent's Gram's stain scoring system. The intermediate stage is considered a transitional phase and the patients may go on to frank BV.

Gram's staining of vaginal secretions is more reliable with sensitivity of 89-93% and specificity of 70-83%. Gram's staining of vaginal smears are least expensive, requires the least time to perform, are more widely available than other laboratory methods and is the most interpretative of the laboratory methods. Gram's staining of vaginal smears are more useful than the culture for the diagnosis of BV. Anaerobes were isolated in 75.53% of the cases of BV and in 24.47% of the cases of non bacterial vaginosis. Anaerobes were significantly raised in BV as compared with NBV. Peptostreptococci, Bacteroides, Fusobacterias, Porphyromonas and Veillonella are associated with BV.

Blackwell, et al., Spiegel, and Easrnon, et al. suggested that organisms like Peptostreptococci, Bacteroides fusobacterias, Porphyromonas, Veillonella, peptococci and Mobiluncus organisms may be associated with BV.

In the study by Rosenstein, et al. Anaerobic streptococci were isolated in 74% of patients with BV, while bacteroides and other Gram's negative rods were isolated in 60% of the patients. Levison, et al. isolated Peptostreptococci in 5 of the patients, Peptococci in 5 of the patients and Bacteroides in 6 of 12 patients with non specific vaginitis. In the study by Krohn, et al. The Bacteroides species were isolated in 62% of the cases and peptostreptococci in 59% of pregnant women having BV with three of the four clinical signs being positive.

The difference in the type of rate of isolations of anaerobes reflects the difference in the population under study and the different methods of investigations.

Conclusion

Bacterial vaginosis is an important genital syndrome because it affects a large number of women of reproductive age. The presence of BV puts patients at increased risk of upper genital tract infections with severe consequences to fertility and the outcome of pregnancy. Concluded that anaerobic bacteria are important pathogens in the causation of BV along with other aerobic organisms. So it must be diagnosed and eradicated using appropriate antibiotic treatments.

References

1. Aggarwal A, Devi P, Jain R. Anaerobes in bacterial vaginosis. Indian J Med Microbial 2003;21:124-6.
2. Mathew R, Kalyani J, Bibi R, Mallika M. Prevalence of bacterial vaginosis in antenatal women. Indian J Pathol Microbiol 2001;44:113-6.
3. Phiefer TA, Forsyth PS, Durfee MA, Pollock HM, Holmes KK. Non specific vaginitis: Role of Haemophilus vaginalis and treatment with metronidazole. N Engl J Med 1978;298:1429-34.
4. Nugent RP, Krohn MA, Hillier SL. Reliability of diagnosis of bacterial vaginosis is improved by standardized method of gram stain interpretation. J Clin Microbiol 1991;29:297-1.
5. Brown R, Collee JG, Parton IR, Bacteroides, Fusobacterium and other

gram negative anaerobic rods; Anaerobic cocci; identification of anaerobes. In: Collee JG, Fraser AG, Marimon BP, Simmons A, editors. Mackie of McCarteney Practical medical Microbiology. 14th ed. New York: Churchill Living Stone Inc; 1996. p. 501-20.

6. Set R, Sequeria L, Angadi SA, Koppikar GV. Prevalence of anaerobic bacteria in pyogenic infections. Indian J Med Micribiol 1997;15:121-2.

7. Biswas MK. Bacterial vaginosis. Clin Obstet Gynecol 1993;36:166-76.

8. Rosenstein IJ, Morgan DJ, Sheehan M, Lamont RI, Taylor- Robinson D. Bacterial vaginosis in pregancy: Distribution of bacterial species in different gram stain Categories of vaginal flora. J Med Microbiol 1996;45:120-6.

9. Black well A, Phillips I. Anaerobic vaginosis. In: Recent advances in Infection Reeves DS, Geddes AM, editors. Edinburgh: Churchill Livingstone; 1989. p. 171-87.

10. Spiegel CA. Bacterial vaginosis. Clin Microbial Rev 1991;4:485-502.

11. Easrnon CS, Hay PE, Ison CA. Bacterical vaginosis: A diagnostic approach. Genitourin Med 1992;68:134-8.

12. Levison ME, Trestman I, Quanch R, Sladowski C, Floro CN. Quantitative bacteriology of vaginal flora in vaginitis. Am J Obstet Gynecol 1979;133:139-44.

13. Krohn MA, Hiller SL, Eschenbach DA. Comparison of methods for diagnosing bacterial vaginosis among pregant women. J Clin Microbiol 1989;27:1266-71.