International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Jogi SR et al. Int J Reprod Contracept Obstet Gynecol. 2015 Aug;4(4):963-967
www.ijrcog.org

pISSN 2320-1770 | eISSN 2320-1789

DOI: http://dx.doi.org/10.18203/2320-1770.ijrcog20150401

Research Article

Prevalence of bacterial vaginosis in sexually active females in Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh

Sangeeta Raman Jogi*, Kavita Babbar

Department of Obstetrics & Gynaecology, Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh, India

Received: 17 July 2015
Revised: 20 July 2015
Accepted: 22 July 2015

***Correspondence:**
Dr. Sangeeta Raman Jogi,
E-mail: raman.jogi@yahoo.com

ABSTRACT

Background: To know the prevalence of bacterial vaginosis (BV) in sexually active females presenting with the complaints of Vaginal discharge to the outpatient department. BV also called as non-specific vaginitis, develops when the normally predominant peroxides producing lactobacillus species in the vagina are replaced by mixed predominantly anaerobic flora consisting of *Gardinerella vaginalis*, *Mycoplasm hominis*, Mobilunceus species, Bacteroids species, Prevotela Species, Peptostreptococcus Species, Fusobacterium Species and Porphyromonus Species.
Methods: Three hundred females attending the OPD with the complaints of vaginal discharge were studied. Diagnosis of BV were made according to Amsle's clinical criteria and Nugent's criteria for evaluating Gram stain vaginal smear. The results were compared with the data available from the previous studies.
Results: Out of 300 patients 122 (40.66%) were suffering from BV. 90 (73.33%) patients were having pH between 5-6.9. Among pregnant women 9.83% found positive. IUCD users 19 (29.68%) are found suffering from BV. Out of 33 VDRL positive patients 19 (57.51%) were positive with BV.
Conclusions: The prevalence of BV is on higher side of the available data. There is an association between IUCD use and occurrence of BV.

Keywords: Bacterial vaginosis, Sexually active females, Intrauterine contraceptive device, STD

INTRODUCTION

Bacterial Vaginosis (BV) also called no-specific vaginitis develops when the normally predominant peroxide producing lactobacillus species in the vagina are replaced by mixed predominantly anaerobic flora consisting of Gardnerella vaginalis. Mycoplasma hominis, Mobiluncus species, Bacteroides species, Prevotela species, Peptostreptococcoccus species, Fusobacterium species and Porphyromonas species.[1]

Risk factors associated with developing Bacterial vaginosis are include intrauterine contraceptive device, multiple sexual partners, recent antibiotics use and passive cigarette smoking. Although sexual intercourse is thought to play a role in its transmission, Bacterial vaginosis is not considered exclusively sexually transmitted disease.

Patients with bacterial vaginosis most commonly present with a foul (musty) fishy vaginal odour or a thin, white vaginal discharge. The diagnosis of bacterial vaginosis is determined if three of the following four sings (Ames's Criteria) are Present-

1. Presence of clue cells.
2. Homogenous white, non-inflammatory discharge that adheres to the vaginal walls.
3. pH of vaginal fluid >4.5

4. Fishy odor from vaginal discharge before or after addition of 10 % potassium hydroxide.[2]

Bacterial vaginosis is the syndrome thought to be the most prevalent cause of vaginitis. Several clinical diagnostic criteria, gram stain methods and biochemical markers have been developed to aid the diagnosis. Gram stain of vaginal secretion is relatively rapid, objective and in expensive method of diagnosing BV by identifying the characteristic change in the vaginal flora. It offers the advantage of allowing retrospective diagnosis.[3] The interpretation of Gram staining is done by Nugent's scoring[4] (Table 1).

Table 1: Nugent's scoring of gram stained smear for diagnosis of BV.

Bacterial Morphology	Non	Point score per Morphology			
		1+b	2+b	3+b	4+b
Large Gram Positive Rods	4	3	2	1	0
Small Gram negative/variable rods	0	1	2	3	4
Curved Gram negative/variable rods	0	1	1	2	2

a= Score 0 to 3 points NORMAL, 4 to 6 point INTERMEDIATE, 7 to 10 point BV

b= 1+, <1/1000x, 2+ 1 to 5/1000x 4+>30/1000x

BV were present in 122 smears of patients which is 40.66%.

The present study was conducted to know the prevalence of bacterial vaginosis in sexually active females coming with the chief complaint of vaginal discharge to Obstetrics and Gynaecological OPD, Chhattisgarh Institute of Medical Sciences, Bilaspur (C.G.).

METHODS

Three Hundred sexually active females attending these OPDs with complaint of vaginal discharge were selected at random. The study period was January 2013- March 2015. Vulva was cleaned with a saline soaked swab. A Sim's speculum was inserted into the vagina and type of discharge noted. A drop of discharge was taken on a glass slide and a drop of 10 % KOH was added to it to look for fishy odor and pH of the discharge was tested. A smear was obtained with a swab stick from the posterior vaginal fornix and the swab was rolled across a glass slide. The smear was air dried, fixed and Gram stained and examined under microscope (100x) for presence of clue cells i.e. vaginal epithelial cells whose borders are obscured by attached bacteria.

RESULTS

Out of 300 patients 122 (40.66%) were suffering from bacterial vaginosis. All these patients fulfilling 3 out of 4 Amel's criteria and also showed clue cells on gram staining with scores ranging from 7 to 10 suggesting BV (Table 2).

Table 2: Incidence of BV and vaginal flora morphology.

	Bacterial Vaginosis %	Intermediate %	Normal%
N=300	122 (40.66%)	83(27.6%)	95(31.65)

90 (73.33%) patients were having pH between 5-6 (Table 3).

Table 3: Correlation of BV and vaginal pH value.

pH	Bacterial Vaginosis n=122
5.0-6.0	90(73.77%)

Vaginal pH was in between 5-6 in 90 patients which is 73.77%.

12 patients out of 122 with BV were pregnant (9.83%).140 patients are between 15-24 years of age group, out of which 57(40.71%) are having bacterial vaginosis and 160 patients are between 25-49 years of age out of which 65 (40.62%) are suffering from Bacterial vaginosis. Amongst 44 illiterate patients, 24 (54.54%) were having BV. Incidence of BV is high among patients who were having unprotected coitus 48(42.85%). Within 64 IUCD users 19 (29.68%) are found suffering from illness. 64 patients with history of abortion 21(32.81%) were suffering from infection and 50 patients with history of family planning operations 14(28%) found positive. Partners consuming Alcohol and cigarette are having higher risk (38.77%) and (40.17%).Within75 patients with past history of RTI and STD, 32 (42.66%) are found positive. Amongst 33 VDRL positive patients 19 (57.51%) were having BV. Two patient were HIV positive and both of them suffering from BV (Table 4).

DISCUSSION

BV is a clinical condition caused by replacement of the normal hydrogen peroxide producing lactobacillus species in the vagina with high concentration of characteristic sets of aerobic and anaerobic bacteria. BV is the most prevalent cause of vaginal discharge or malodor. Although 50% of women who meet the criteria for the condition are asymptotic. BV is reported in 9-62% of the women and new evidence has shown association with maternal and fetal morbidity.

Table 4: Correlation between BV and various demographic and risk factors.

Characteristic		n	BV%	Intermediate%	Normal%
Age	15-24	140	57 (40.71)	40(28.37)	43(30.71)
	25-49	160	65(40.62)		
Religion	Hindu	220	92(41.81)	52(23.63)	76(34.54)
	Muslim	76	30(39.47)	22(28.94)	24(31.57)
	Christian	4	0	0	04(100)
Literacy	Illiterate	44	24(54.54)	12(27.20)	08(18.8)
	Just literate	140	54(38.57)	36(25.71)	50(35.71)
	Primary	70	28(40)	20(28.57)	22(31.41)
	H.S.C.	32	12(37.50)	10(31.25)	10(31.25)
	Graduate	14	02(14.28)	04(28.57)	08(57.14)
Location	Rural	152	52(34.21)	44(28.94)	56(36.84)
	Urban	148	48(32.43)	38(25.62)	62(41.89)
Contraceptive History	Unprotected	112	48(42.85)	35(31.25)	29(25.8)
	Tubal Ligation	50	14(28)	15(30)	21(42)
	IUCD	64	19(29.68)	16(25)	29(45.3)
	OC Pills	16	2(12.50)	4(25.12)	10(62.5)
	Condom	25	4(16)	7(28.1)	14(56)
	Withdrawal	33	9(27.27)	10(30.30)	14(42.42)
History of abortion	Yes	64(21.33%)	21(32.81)	20(31.25)	23(33.93)
	No	236(78.66%)	75(31.77)	53(22.45)	108(45.76)
Partner Risk ALCOHOL CIGARET	Yes	98(32%)	38(38.77)	29(29.59)	31(31.63)
	No	202(67.33%)	57(28.21)	61(30.10)	84(41.58)
	Yes	112(37.33%)	45(40.17)	38(33.12)	34(30.35)
	No	188(62.66%)	51(27.12)	55(29.25)	82(43.61)
Past History suggestive of RTIS STD	Yes	75(25%)	32(42.66)	24(32)	19(25.33)
	No	225(75%)	53(23.55)	61(27.11)	114(50.66)
VDRL	Positive	33(11%)	19(57.57)	8(24.24)	6(18.18)
	Negative	267(89%)	73(24.34)	69(25.84)	125(46.81)
HIV Test	Positive	2(0.66%)	2(100)	0	0
	Negative	298(99.33%)	102(34.22)	88(29.53)	110(36.91)

Studies have shown that during pregnancy spontaneous abortions, preterm delivery are increased because of infection with BV.[5] Amsel et al.[6] have found that intrauterine contraceptive device were associated with higher incidence of illness in a population of university students (18.81%). In our study we found 29.68% IUCD user had BV.

Levett et al. (28%)[8] , Ankirskrica al. (35.8%)[9], Sanchez (30%)[10], Mahadani (44.3%)[11], Paxtonatel (50.9%)[12], Fox et al. (09%)[13], Kharia et al.(40%)[14], Bisely et al.(62.9%)[19] reported incidence of illness. Worren et al.[15] found a positive correlation between HIV positive patients and BV. In their study out of 854 HIV positive patients 47% were also having BV. In our study two patients were HIV positive and both have BV. Puri et al.[16] reported incidence of bacterial vaginosis 40% and Vaginal pH value between 5-6 in patients. Incidence of illness in our study is 40.66% and 73.77% in patients with vaginal pH between 5-6.

William et al.[17] reported frequency of positive endometrial culture is higher among women with BV. Bhalla et al.[18] studied the prevalence of BV in the urban and rural communities in Delhi and to associate the presence of BV with demographic profile, risk factors and presence of other reproductive tract infection, RTIs and sexually transmitted diseases. They found incidence of BV in 32.8%. In our study 50% of syphilis positive patients and 57.57% VDRL positive patients was suffering from BV. Bhalla et al.[18] found 36% patients have past history of RTI STI while in our study it was 42.66%.

Table 5: Comparison of prevalence of BV in different studies.

Author	Year	Prevalence of Bacterial Vaginosis in %
Levetts[8]	1995	28%
Ankiskai et al[9]	1997	35.8%
Sachezet et al[10]	1998	30%
Mahaclani et al[12]	1998	44.30%
Paxtonel at el[12]	1998	50.9%
Fonck[13]	2000	9%
Georgijevic et al[1]	2000	(10-35%) (20-60%) STD Clinic
McGregor French[2]	2000	10-41%
Worren et al[14]	2003	40%
Khaira et al[15]	2001	47%
Puri et al[16]	2003	40%
William et al	2006	38%
Bhalla et al	2007	32.8%
Madhivanam et al	2008	19%
Baisely et al	2009	62.9%
Present Study	2013-15	40.66%

Madhivanan et al.[19], reported 19% incidence in Mysore, they found the illness is more prevalent in patients above 25 years of age (22.8%). They also reported high incidence with use of IUCD (21.2%). In our study we found 29.68% patients have illness among IUCD users. They also reported Hindu and Christian women had 1.9 times the odd of BV as compared to Muslim women. In their study they reported a positive correlation between BV and history of RTI, STD, Alcohol and Cigarette consumption by partners. In our study we have also found the same correlation. Baisely[20] reported 62.9% incidence of illness in Tanzania Africa out of which 37.1% were HIV positive.

Moreover because there is strong evidence in literature that bacterial vaginosis is associated with STIS including HIV, additional studies are required to understand the potential role of screening and treatment of illness in STI/HIV prevention program.

CONCLUSIONS

The study showed higher prevalence of Bacterial Vaginosis. There was significant correlation between vaginal pH, IUCD user, history of STD, RTI, VDRL and HIV positive patients and partner alcohol and cigarette consumption.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Approved by institutional ethics committee

REFERENCES

1. Georgijevic A, Cjukic-Ivancevic S, Bujko M. bacterial vaginosis, Epidemiology and risk factorship Arh Celok Lek. 2000;128:29-33.
2. Andrea J. Ries. Treatment of Vaginal Infection: Candidiasis, Bacterial Vaginosis and Trichomoniasis. Am Pharma Assoc. 1997;37:567-9.
3. Jessica L. Thomson, Robort J. Anderson, Sheldon M. Gelbart, et al. Simplified Gramstain interpretive method for diagnosis of bacterial vaginosis. Am J Obstet gynecol. 1992;167:16-9.
4. Hillier SL. Diagnostic Microbiology of bacterial vaginosis.Am J Obstet gynecol. 1993;169:455-9.
5. Mc gregor JA, French Jl. Bacterial vaginosis in pregnancy. Ostet gynecil survo.2000;55:57-79.
6. Amsel R, Totten PA, spiegal CA, et al non-specific vaginitis. Am J med. 1983;74-22.
7. George Lauri, riduan J. bacterial vaginosis and HIV infection. Sextraansm infect. 2000;76:3-4.
8. Levett PN. Aetiology of vaginal infections in pregnant and non-pregnant women in Barbados. West Ind Med J. 1999;44:96-8.
9. Ankirshaia AS, Murav'eva VV, Akopian TE, et al. Evaluation of sensitivity and specificity of methods of rapid diagnosis in bacterial vagonsis. Klim Lab diagn.1997;7:41-5.
10. Sanchez SE, Koutsky LA, Sanchez J, et al. Rapid and inexpensive approaches to managing abnormal vaginal discharge or lower abdominal pain: an evaluation in women attending gynecology and family planning clinics in Peru. Sex trans infect. 1998;1:85-94.

11. Mahadani JW, Dekate RR, shrikhade AV. Cyto diagnosis of discharge per vainum. Ind Pathol Microbial. 1998;41:403-11.
12. Paxton I.A. Sewankambo N, Gray R et al. Asymptomatic non-ulcerative genital tract infection in rural Ugandan population. Sex transm infect. 1998;74:421-5.
13. Fonck K, Kidula N, jaoko W et al. Validity of the Vaginal Discharge algorithm among pregnant and non-pregnant women in Narobi, Kenya. Sex transm infect. 2000;76:33-8.
14. Warren D, Klin RS, Sobel J, Kieke B, Brown W, Schuman P. A multicenter study of Bacterial Vaginosis in women with or at risk for Human immunodeficiency Virus infection. Infect Dis Obstet Gynecol. 2001;9:133-41.
15. Kaur KH, Puri KJ, Madan PS, Anita M, Bajaj K. Prevelence of Bacterial Vaginosis in sexually active females. J Obstet Gynecol Ind. 2003;53:178-80.
16. Puri KJPS, Harkiran K, Anita M, Bajaj Kiran. Evaluation of relationship between vaginal pH value and type of vaginal discharge among sexually active women age group 20-40 years. J Obstel Gynecol Ind. 2003;53:274-5.
17. William, Andrews, Hauth RS, Cliver SP, Conner MG. Association of asymptomatic bacterial vaginosis with endometrial microbial colonization and plasma cell endometritis in non-pregnant women. American Journal of Obstetrics and Gynecology. 2006;195:1611-6.
18. Bhalla P, Chawla R, Gang S, Singh MM, Raina U, Bhalla R. Prevalence of Bacterial Vaginosis among women in Delhi, India. Indian J Med Res. 2007;125:167-72.
19. Madhivanan P, Krupp K, Chandrasekaran V, Karat C, Arun A. Prevelence and correlation of Bacterial Vaginosis among young women of reproductive age in Mysore India. Indian Journal of Medical Microbiology. 2008;26:132-7.
20. Baisley K, Changalucha J, Weiss HA. Bacterial Vaginosis in female facility workers in north western Tanzania: prevalence and risk factors. Sex tragnsm infect. 2009;85:370-5.

Cite this article as: Jogi SR, Babbar K. Prevalence of bacterial vaginosis in sexually active females in Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh. Int J Reprod Contracept Obstet Gynecol 2015;4:963-7.