



Prevalence of Bacterial Vaginosis and associated factors among non pregnant women

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Abstract

Bacterial vaginosis is one of the common causes of vaginal infection and abnormal vaginal discharge among sexually active women. This study was conducted in the department of Obstetrics and Gynaecology, Vinayaka Mission's medical College and Hospital, Karaikal, union territory of Puducherry during January 2018 to December 2018. The Main objective of this study is to determine the prevalence and the association of risk factors for bacterial vaginosis. All the patients who attended gynaecology OPD with complaints of vaginal discharge were investigated for evidence of bacterial vaginosis. A comparison is made between the characteristics of the women who had bacterial vaginosis and the women who don't have it. Out of 5130 patients who attended the gynaecological OPD, 1534 came with complaints of vaginal discharge and 422 among them were positive for bacterial vaginosis by Amsel's criteria. 1112 women didn't have. The overall prevalence of bacterial vaginosis was 27.5% among symptomatic patients with abnormal vaginal discharge. Bacterial vaginosis prevalence is more in age group 30-40 years, women who are illiterate and farmer by occupation. Contraceptive user on anatomical sites (IUCD and Barrier method) were more prone to bacterial vaginosis than who didnot use contraceptives on anatomical sites. The higher prevalence of bacterial vaginosis indicates that periodic screening and prompt intervention to prevent adverse outcomes should be done.

Keywords: Abnormal vaginal discharge, Bacterial vaginosis.

Introduction

Bacterial vaginosis is one of the common vaginal conditions. Bacterial vaginosis is not included as a sexually transmitted infection. It is not a bacterial infection of the vagina, but presence of abnormal flora of bacteria, outnumbering the normal flora

many times. The vaginal PH becomes less acidic making the vagina susceptible for infections and STI. women in the reproductive age group are the candidates for bacterial vaginosis. It mostly affects the poor and disadvantaged populations. Bacterial vaginosis has been associated with

various adverse pregnancy outcomes like preterm delivery, low birth weight infants, intrauterine infections and also PID, STIs and reproductive problems. Risk factors and behaviours associated with Bacterial vaginosis includes more number of lifetime male sexual partners, lower age of first intercourse, unemployed, working as a sex worker, smoking, failure to use condoms, multiple partners at same time, use of IUCD, vaginal douching. Previously many studies have been done to assess the association of risk factors and bacterial vaginosis but there are inconsistencies in results. Therefore this study was carried out to assess the prevalence in this institution and association of risk factors with Bacterial vaginosis.

Aims

1. To estimate the prevalence of bacterial vaginosis in non-pregnant women attending gynaecology outpatient department
2. To assess the sociodemographic characters and risk factors in women suffering from bacterial vaginosis

Material and Methods

This study was conducted in the department of obstetrics and gynaecology, Vinayaka missions medical college and hospital, Karaikal, union territory, Puducherry. The institution is a tertiary care hospital, on the east coast of south India, catering mainly to fishermen and farmers, poor low literate unorganised work force. All the women attending the gynaecology OPD with abnormal vaginal discharge during the calendar year 2018 were the subjects of study.

In addition to routine history taking, special emphasis was made on socioeconomic status, occupation, education, age of marriage, marital status, obstetric outcome, contraceptive techniques, and vaginal douching, associated STIs. In view of the sensitive nature, the history of premarital, extramarital contacts of the women and their partners was not elicited as a routine.

General and gynaecological examination was done. Women with cervical cancer and tumours in the vagina were excluded from the study. In all the cases of abnormal vaginal discharge, PH was determined with a PH paper. Vaginal swab from the posterior fornix was taken for the diagnosis of bacterial vaginosis. Every swab was subjected to wet mount microscopy of grams staining and was scrutinised by the consultants of Gynaecology and if needed by clinical pathologists. Routine investigations, blood sugar was done in all cases. STI profile was done in suspicious cases. After a basic course of Ofloxacin, metronidazole, fluconazole and miconazole vaginal tablets as per necessity, they were reviewed after a week with investigations. Pap smear was done.

Specimen collection and evaluation: At the time of speculum examination, the nature of the vaginal discharge was noted. Two Specimens were collected from the posterior fornix with sterile swabs. One swab was used for clinical bed side testing. Another swab was placed in a standard bacterial culture. Clinical bed side testing was done by the consultant in OBG. In an indeterminate specimen, bacterial culture specimen was used by the clinical pathologist for confirmation.

The swab is touched on a PH paper to assess vaginal PH. The material on the swab was extracted by dipping in a few drops of saline solution. A drop of the extract was placed on a glass slide and a drop of 10% KOH was added and observed for fishy odour. A drop of the extract was placed on another glass slide, covered with coverslip and examined with 400X magnification for presence of clue cells.

For the diagnosis of bacterial vaginosis, Amsel's criterion was used. Milky, homogenous vaginal discharge; Vaginal PH greater than 4.5 ; Presence of clue cells in the vaginal fluid; Release of fishy odour after addition of 10% KOH to the vaginal fluid. Presence of any three of these four criteria is necessary for the diagnosis of bacterial vaginosis

The results were tabulated and analysed with 1.Age. 2. Education. 3. Diet. 4. Occupation.

5.Marital status .6. Contraceptive usage. 7. Douching

Results

During the calendar year 2018, 5130 new patients were examined for gynaecological problems in the OPD of VMMCH, Karaikal. 1534 patients had abnormal vaginal discharge as primary complaint or one of the complaints. These 1534 women were screened for bacterial vaginosis using Amsel's criteria. 422 women were diagnosed as having bacterial vaginosis.

In the gynaecology outpatients 30 % had abnormal vaginal discharge. 27.5 % of the women who had abnormal vaginal discharge were diagnosed to have bacterial vaginosis. Over all in gynaecology outpatients 8.2 % were diagnosed to have bacterial vaginosis

Table1: Age wise distribution

Age	Abnormal vaginal discharge	Bacterial vaginosis Positive	Bacterial vaginosis Negative
18 – 20	140	31 (22.1%)	109(77.8%)
20 – 30	318	83(26.1%)	235(73.8%)
30 – 40	723	247(34.1%)	476(65.8%)
40 – 50	252	46(18.2%)	206(81.7%)
50 – 60	101	15(14.8%)	86(85.1%)
	422		1112

In this study the highest prevalence of bacterial vaginosis was seen among 30-40years age group (34.1%)followed by 20-30 years age group (26.1%), 22-1% in 18-20 years age group (22.1%) and 18.2 % 40-50 years age group (18.2%). The least prevalence was in 50-60 years age group(14.8%).

Table 2: Occupation wise distribution

Occupation	Abnormal vaginal discharge	Bacterial vaginosis Positive	Bacterial vaginosis Negative
Farmer	201	72(35.8%)	129(64.17%)
Home maker	983	256(26.04%)	727(73.95%)
Daily wagers	265	78(29.4%)	187(70.5%)
Student	85	16(18.8%)	69(81.1%)
Total	1534	422(27.5%)	1112(72.5%)

In our study the prevalence of bacterial vaginosis was more in farmers (35.8%)followed by in daily wage workers (29.4%), in home makers (26.04%)and least among students (18.8%)

Table 3: Distribution as per diet

Diet	Abnormal vaginal discharge	Bacterial vaginosis positive	Bacterial vaginosis Negative
Vegetarian	478	80(16.7%)	398(83.2%)
Non vegetarian	1056	342(32.3%)	714(67.6%)
Total	1534	422(27.5%)	1112(72.5%)

In our study bacterial vaginosis was more prevalent among non vegetarians (32.3%) than vegetarians (16.7%).

Table 4: Distribution as per educational status

Educational status	Abnormal vaginal discharge	Bacterial vaginosis Positive	Bacterial vaginosis Negative
Illiterate	1124	338(30%)	786(69.9%)
Primary level	258	61(23.6%)	197(76.3%)
Secondary level	112	17(15.1%)	95(84.8%)
Bachelor degree	40	6(15%)	34(85%)
Total	1534	422(27.5%)	1112(72.5%)

In our study the prevalence of bacterial vaginosis is more in illiterate group of women (30%) followed by primary level (23.6%), higher secondary level (15.1%) and prevalence is low in women with bachelor degree (15%)

Table 5: Distribution as per marital status

Marital status	Abnormal vaginal discharge	Bacterial vaginosis Positive	Bacterial vaginosis Negative
Married	1474	412(27.9%)	1062(72%)
Widow	50	10(20%)	40(80%)
Divorced	10	Nil	10(100%)
Total	1534	422(27.5%)	1112(72.5%)

In our study the married women are more prone to BV (27.9%) than widowed women (20%)

Table 6: Distribution as per contraceptive usage

Contraceptive usage	Abnormal vaginal discharge	Bacterial vaginosis Positive	Bacterial vaginosis Negative
IUCD	252	138(54.76%)	114(45.23%)
OC pills	54	5(9.25%)	49(90.74%)
Barrier method	342	130(53.71%)	112(46.28%)
Tubectomy	786	116(14.75%)	670(85.24%)
Non users	200	33(16.67%)	167(83.33%)
Total	1534	422(27.5%)	1112(72.5%)

In our study the highest prevalence of bacterial vaginosis was found among women who use IUCD (54.76%)and barrier method of contraceptives (53.7%)followed by women who

underwent tubectomy (14.7%), the prevalence was least in women who use OC pills (9.2%)

Table 7: Association of condom use and bacterial vaginosis

Condom use	Abnormal vaginal discharge	Bacterial vaginosis positive	Bacterial vaginosis Negative
Never	1292	322(24.9%)	970(75%)
Daily	48	26(54%)	22(45.8%)
Sometime	194	74(38.1%)	120(61.8%)
Total	1534	422(27.5%)	1112(72.5%)

In our study it is observed that bacterial vaginosis is more among women who use condom daily (54%) and occasionally (38.1%) then who never use condom (24.9%).

Table 8: Vaginal douching and bacterial vaginosis

Douching	Abnormal vaginal discharge	Bacterial vaginosis Positive	Bacterial vaginosis Negative
Never	1347	394(29.3%)	953(70.7%)
Daily	3	1	2
Sometimes	84	27(32.1%)	57(67.9%)
Total	1534	422(27.5%)	1112(72.5%)

Discussion

In our study, the prevalence of bacterial vaginosis is 27.5% in women with abnormal vaginal discharge and in 8.2% of women attending the OPD of gynaecology. Similar results with prevalence rate of 24% is reported in Modak et al (3).

In our study the prevalence of bacterial vaginosis among age group 30-40 years is highest 34.1% and least among 50-60 years (14.8%). Similar results were reported by Bhattarai⁽²⁾ from Nepal. The highest prevalence in thirties might be due to this age being the most sexually active age group. In our study the married women are more prone to have bacterial vaginosis (27.9%)

In our study illiterate women had the highest prevalence (30.07%) and least among women with bachelor degree 15%. Differing from this Ibrahim et al⁽⁷⁾ recorded highest prevalence in women with primary level education

In our study highest prevalence of bacterial vaginosis seen among farmers (35.8%) and least among students (18.8%). Similar results were reported by Garba et al⁽⁵⁾.

This study points out that the bacterial vaginosis is more prevalent in non vegetarians (78.8%) than vegetarian (43.9%). Even though it is not statistically significant there is a theory that high fat intake may increase vaginal pH so increases bacterial vaginosis occurrence.

In our study women using condom daily (54%) more prone to bacterial vaginosis than who never use condom (24.9%). The only possible reason may be these women are sexually active or may be irritation caused by condom makes the vagina colonised by bacteria.

Vaginal douching is never done by Indian women as a routine. Some may do on the advice of a medical personnel or by media influence.

This study clarifies that the chance of acquiring bacterial vaginosis is more in women who use IUCD (54.7%) and barrier method (53.7%) as contraceptives. It is less prevalent in women using OC pills, since oestrogen increases the glycogen content of vaginal epithelial cell activity and in turn inhibits in vitro growth of certain bacteria leading to lower risk of bacterial vaginosis

Conclusion

Bacterial vaginosis is a common condition in sexually active age group women. It is under diagnosed or with the diagnosis of some other symptomatic condition, bacterial vaginosis is ignored. To prevent long term complications of the disease, investigation for bacterial vaginosis is to be undertaken in all women with abnormal vaginal discharge as a routine

Conflict of interest: Nil

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