Frequency distribution of *Bacterial vaginosis* in women referred to health centers in Yazd city

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ABSTRACT

Introduction: Vaginal discharges constitute a considerable problem for many women causing discomfort, anxiety affecting women's quality of life and consuming considerable resources. Bacterial vaginosis (BV) was recognized as sexual transmitted diseases (STD).The objective present cross-sectional study was undertaken to Frequency Distribution of Bacterial virginalis in women referred to health centers in Yazd city. Materials & Methods: Three of vaginal swabs were obtained for pH testing, KOH and wet mount examination, Gram staining and culture at the time of speculum examination.BV. Results: Finally all of 360 women that observed and tested, 55 patients had BV (15.6%). there was not any coincidence of infection in one patient. Measurement of vaginal pH in the clinic was the single most useful clinical finding for directing empirical therapy. No single specimen was found ideal for all pathogens; a vaginal swab is needed for BV. Conclusions: Vaginaitis our finding manifest less infection in Yazd because infection factors do not like to live in hot and dry environment. This study confirmed previous study that vaginal environment is natural place for BV and everything disturbs it. To achieve STD control in this and similar populations, public health programs must target asymptomatic infections.

Keywords : Bacterial vaginosis, Frequency distribution, Yazd, Women.

INTRODUCTION

Bacterial vaginosis (VB) is characterized by the substitution of the vaginal flora, normally dominated by lactobacilli. Recent research suggests that bacterial vaginosis, a common genital tract infection which has been linked in pregnant women to premature labor and low birth weight, may also be associated with HIV risk. It is the commonest cause of abnormal discharge in women of childbearing age. BV is characterized by an overgrowth of predominantly anaerobic organisms in the vagina, leading to replacement of lactobacilli and an increase in pH from less than 4.5 to as high as 7.0. Spontaneous onset and remission of BV can occur (Fig.1 A & B). Whilst BV is not regarded as a sexually transmitted disease, the prevalence is generally higher amongst sexually active than non-sexually active women. VB is more common in black women than white, those with an intrauterine contraceptive device, and those who smoke (1, 2, 3 and 4). In recent years BV

has further emerged as a global issue of concern due to its association with ascending genital tract infection and with sexually transmitted infections. Infections related to BV may broadly be categorized as opportunistic infections with BV-associated bacteria and as infections due to sexually transmitted agents. In the first category, ascending genital tract infection with BVrelated pathogens has been associated with post abortion. Epidemiological surveys show that between countries and within countries in the same region, the Incidence and prevalence of genital tract infections may vary widely even in similar population groups. In developing countries, patients with genital tract infections often bypass seek care in the informal sector and formal healthcare services (5, 6, 7 and 8). The prevalence found for BV has varied, ranging between 8% and 75%; Women with BV may be at increased risks of sexually transmitted disease (STD), HIV, and a number of other adverse reproductive outcomes (8, 9, 10 and 11). Vaginitis is a medical term used to describe various conditions that cause infection or inflammation of the vagina. The six most common types of vaginal infections are: Candida or "yeast" infections, Bacterial vaginosis, Trichomonas vaginitis, Chlamydia vaginitis, viral vaginitis and Non-infectious vaginitis. Although each of these vaginal infections can have different symptoms, it is not always easy for a woman to figure out which type she has. In fact, diagnosis can even be tricky for an experienced doctor. Part of the problem is that sometimes more than one type of infection can be present at the same time. And, an infection may even be present without any symptoms at all (Table 1.Comparison of types of vaginitis). Behavioral factors such as vaginal douching or menstrual hygiene practices have been suggested as important factors that might influence vaginal flora composition, but little data is available from Iranian populations. Therefore, the aim this study was carried out to determine Frequency distribution of *Bacterial vaginosis* in women referred to health centers in Yazd city, Yazd province, Iran.

**Table 1.**Comparison of types of vaginitis*

	Candida	Bacterial vaginosis	Trichomonas
Symptoms	Pruritus	Gray discharge	purulent Discharge
White discharge	Odor	Odor	
	Dyspareunia	-	Dyspureunia
Vaginal pH	4.0- 4.5	>4.5	4.0- 6.0
Sign erythema	Vulvar erythema	Discharge	Vulvovaginal
Wet mount	Psudohyphae	Clue cells	**WBSs
	WBCs	-	Trichomonas
Amme test	Negative	Positive	Variable

  * May have Mixed Infection   **WBC=White Blood Cells

A. Bacterial vaginosis
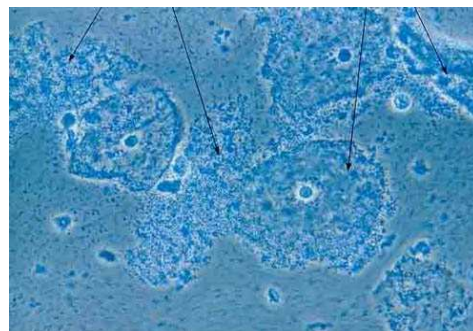
B. Squamous cells of the cervix covered with Rod-shaped Bacteria vaginalis (arrows)

In this paper, we documented the prevalence one of the most common genital infections in the enrolled population and determined the association between laboratory evidence of infection and self-reported symptoms of discharge and dysuria. The objective present cross-sectional study was undertaken to frequency distribution of Bacterial virginalis in women referred to health centers in Yazd city.

MATERIALS AND METHOD

After providing written informed consent, a cross- sectional comparative and prospective study of genital infections was conducted in health centers university-affiliated teaching in Yazd city, Iran. A total of 360 women were recruited. The collection of material for diagnosis is ideally performed during a comprehensive pelvic examination using a speculum. At the time of speculum examination, an evaluation of the nature of the discharge is made by the clinician, and a specimen from the lateral vaginal wall and posterior fornix can be taken with a sterile swab. The classical BV discharge is thin, homogeneous and grey/yellow in color. However, absence of the classic discharge does not rule out disturbed vaginal flora. . For the purposes of laboratory based testing, the swab can be placed in a standard bacterial culture transport medium to maintain moistness or can be smeared onto a slide and air dried for later Gram stain. Transportation for either of these transport systems (acculturates or dried slide) can be at room temperature or 4°C. This clinical diagnosis requires that three of the following four criteria be met: first, a vaginal pH of greater than pH 4.5; second, the presence of clue cells in the vaginal fluid; third, a milky, homogeneous vaginal discharge; and finally, the release of an amine (fishy) odor after addition of 10% potassium hydroxide to the vaginal fluid. The pH can be determined directly with the use of pH sticks placed on the vaginal wall or with the use of a swab which is touched on pH paper in the range covering pH 4.0 to pH 6.5. The swab is then extracted into 0.2 mL of physiological saline either on a glass slide or in a test tube; a drop of the extract is then placed on a glass slide. A drop of 10% potassium hydroxide is placed on another glass slide. The swab is then stirred in the 10% potassium hydroxide and immediately evaluated for the presence of a fishy odor. Both drops are then covered with a cover slip and examined at 400x magnification with a light microscope. Clue cells are identified as vaginal epithelial cells with such a heavy coating of bacteria that the peripheral borders are obscured. If three of four criteria are met, then a clinical diagnosis of BV can be made.

RESULT AND DISCUSSION

Overall, a total of 360 women that observed and tested 55 patients had BV (15.6%). there was not any coincidence of infection in one patient. Measurement of vaginal pH in the clinic was the single most useful clinical finding for directing empirical therapy. No single specimen was found ideal for all pathogens; a vaginal swab is needed for BV. The subjects' age ranged from 18-24 years with a mean of 47.18 Most of the subjects (260 cases, 47.18%) belonged to the age group 18-24, followed

by 186 cases (33.91%) to 25-34 year and 105 cases (18.91%) to 35-45 year. Most of them (280 cases, 50.81%) were in the third trimester of pregnancy. Regarding literacy, most of the subjects 243, (44.1%) had diploma degrees, 172 (31.21%) had primary or secondary school certificate, 84 cases (15.24%) had university degrees, and the least of them, 52 Cases (9.43%) were illiterate. Husbands of the studied women were in the age group 20-54 years, mostly being craftsmen, employed and literate (table 2).

Table2. Characteristics of study women on Bacterial vaginosis

Characteristic	Number	percent
Age range (yr)		
18-24	260	**47.18**
25-34	186	**33.91**
35-45	105	**18.91**
Literacy	**Number**	**percent**
Uneducated	52	**9.43**
Primary-High School	171	**31.21**
Diploma	243	**44.1**
Academic	84	**15.24**

Clinically, 305 cases out of 360 subjects (84.72%) lacked any type of clinical symptoms. The rest of the subjects showed clinical demonstration of which 120 cases (15.28%) had vaginal discharge. Since this discharge lacked microscopically visible pathogens, this group was also added to the group of healthy pregnant subjects. Hence, there were totally 240 healthy subjects. In 55 subjects (15.28%), a

Positive test result for infection was added to clinical topical symptoms such as inflammation, gray discharge, irritation and itching, Unpleasant odor, and clue cell (Table 3).

Table 3. Clinical features of Bacterial vaginosis

Clinical observation	Number	Percent
1-Negative:	305	**84.72**
Asymptomatic	210	58.30
Symptomatic	95	26.39
2-Positive:	55	**15.28**
Inflammation	54	98.20
Gray discharge	49	98.10
Irritation & itching	51	92.73
Unpleasant odor	52	94.50
Clue cell	46	64.00

Finally, there was a statistically significant correlation between BV and its diagnostic method (P value <0.05) in that 94% of the cases with clinical symptoms whose vaginal discharge was stained and directly tested, the test result was positive in the culture method (Tables 4 and 5).

Table 4: Results of testing for *Bacterial vaginosis*

Positive Specimens	Direct methods		
	>4.5	Clue cell	Whiff test
28	+	+	+
17	-	+	+
8	-	-	+
	Positive [a]		

[a]of 360 tested specimens, 55 were positive by all methods.

Table.5 Distribution of subjects by age

Age(years)	Symptomatic Women N=120 (%)		Asymptomatic Women N=240 (%)	
≤19*	N=8	5	N=11	4.2
20-29	N=31	25	N=39	16.25
30-39	N=49	40	N=111	46.25
40-49	N=24	20	N=61	25.42
50 and above	N=12	10	N=18	7.5
Total	N=120	100	N=240	100
*Females less than 18 years were excluded since parental consent for examination was required.				

Today, Mere microscopic diagnosis should be avoided since inexperienced pathologists readily mistake white or colorless vaginal discharge for semen and sure methods are more sensitive, innovative and more specific methods should be used aadditionally, obstetricians and midwives should instruct their patients in this regard and notify the sexuality transmitted disease pathogens to medical lab personnel. The main objective of this study was Frequency distribution of *Bacterial vaginosis* in women referred to health centers in Yazd city, Iran and to relate this to sexual and vaginal hygiene behaviors and sociodemographic characteristics. Despite peoples' concerns, accurate epidemiologic data on sexual transmitted diseases (STD) are scarce and existing information yields a widely varying STD that ranges from 20% to 70%.14 In comparison with other similar studies, using the same diagnostic method, the results from this study were considered to be slightly higher but also, in some cases, lower prevalence. In a study conducted in the rural area of Shandong province in China, the prevalence of BV, trichomoniasis and Candidiasis were 6.6, 2.9 and 3.9% respectively. In another study performed in Hamadan province, Iran, the prevalence of Candidiasis, Trichomoniasis, and BV was 17.2, 18.1, and 28.5%, respectively. Among women referred to hospital in Vientiane, the capital of Laos, the prevalence of BV, Trichomoniasis and Candidiasis were 24.5, 3.7 and 39.5% respectively (12 and 13).

CONCLUSION

Changes due to BV infection, the most common cause of vaginitis especially during pregnancy, should not be neglected as they may lead to infertility, premature birth, and low weight Offspring. Sampling the vaginal discharge, especially if voluminous and fetid, is necessary for studying BV. Mere microscopic diagnosis should be avoided since inexperienced pathologists readily mistake

white or colorless vaginal discharge for semen. Additionally, obstetricians and Midwives should instruct their patients in this regard and notify the sexually transmitted disease pathogens to medical lab personnel's.

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