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Original Article

Prevalence of Bacterial Vaginosis among the PID Patients in Bangladesh

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Abstract

A cross sectional study was conducted on patients attending at the outpatient department of Gynaecology and Obstetrics of Dhaka Medical College Hospital, Dhaka during the period of July, 2007 to December, 2007. Two hundred sexually active female in the age group of 15-45 years, with vaginal discharge and itching, were selected for the study. Among them 143 having only vaginal discharge and itching without PID (Pelvic inflammatory disease) and 57 patients having vaginal discharge and itching with PID. A detailed history and a thorough clinical examination of all the cases were done. After making the clinical diagnosis of BV (Bacterial vaginosis) by Amsels criteria, diagnosis also carried out with Acridine orange staining, Gram stain Nugent criteria. Out of 200 women, 48 (24%) cases were diagnosed as having bacterial vaginosis by applying Amsel's clinical criteria. The rate of detection of bacterial vaginosis was 23% by Gram stain Nugent criteria and 24.5% by acridine orange staining. In this study BV was diagnosed in 31(54.39) cases among the PID patients and 17(11.89) among the women having only vaginal discharge and itching. This study shows the increased association of BV in PID patients of Bangladesh.

Key words: Bacterial vaginosis, Sexually Transmitted Diseases

Introduction

Bacterial vaginosis is a common cause of vaginitis in women of child bearing age[1]. The normal flora of vagina, *Lactobacillus*, which under physiologic condition produces an acidic milieu by transforming glycogen into lactic acid through hydrogen per oxide production; this lactic acid suppresses the growth of other organisms. Change in the normal vaginal flora causes change in p^H which allows Bacterial Vaginosis (BV) associated organisms like *Gard. vaginalis* and other anaerobes to overgrow and causes chronic infection and discharge[2]. Symptom of BV depends on concentration of *Gard. Vaginalis*[3]. Almost 50% of BV patients remain asymptomatic. Although symptoms occur, the manifestation of BV is mild, so usually overlooked in developing countries like Bangladesh. Diagnosis of BV is important for its serious complications such as premature rupture of membrane, miscarriage, development of pelvic inflammatory diseases, increase risk of acquiring STD (Sexually transmitted disease) such as HIV and also increase genital tract HIV shedding[4].

Prevalence of BV varies with age, ethnicity, education and poverty[5]. Among different study population such as US, Europe and South East Asian countries, prevalence varies from 5-50%[6-11]. In United States, 29% of women of reproductive age group are positive for BV. In UK, prevalence of 12% is found in pregnant women and 30% in women undergoing termination of pregnancy[5]. Risk factors for BV include douching[12]. Douching decreases *Lactobacilli* thus facilitating BV associated bacteria and douching during menses may lead to acquisition of BV[13]. Race is also implicated as a risk factor for BV[14].

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It is more common in young women who are African American and those who smoke[12]. Evidence for sexual transmission of BV is controversial. Remaining with a regular sex partner after treatment rather than acquiring a new sex partner is significantly associated with less recurrence of BV[15]. BV associated organisms are isolated from urethra of male partner of women with recurrent BV[16]. BV is not regarded as sexually transmitted diseases but it is generally higher amongst sexually active women than virgin. Other factors including use of non barrier contraceptive method, recent abortion and in vitro fertilization is also associated with increase incidence of BV[17].

In this study we have investigated the prevalence of BV among PID patients of Bangladesh, the association of BV with PID patients which can help in proper diagnosis and treatment of BV and prevention of its complications.

Materials & Methods

This was a prospective study carried out in the department of Microbiology, Dhaka Medical College. Two hundred patients attending to gynaecology outpatient department of Dhaka Medical College Hospital and Maternal and Child Health Training Institute, Azimpur, Dhaka with history of abnormal characteristic vaginal discharge and itching suspected to have BV were included in the study.

Procedure:
Under all aseptic precaution, vaginal examination was done. At the time of speculum examination, the presence of vaginal discharge was noted, the vaginal P^H was recorded and amine test was done and diagnosis of BV was done by Amsel's clinical criteria, Gram stain Nugent criteria and Acridine orange test.

Diagnosis of PID:
PID patients were diagnosed clinically by classic triad such as pelvic pain, cervical excitation pain, adnexal tenderness and often in the presence of fever.

Laboratory diagnosis of PID by-
Raised ESR,
Raised total leucocyte count,
Features of endometritis diagnosed by presence of inflammatory cells in pap's smear.
On USG, presence of tubo-overian mass and collection in the Pouch of Douglus.

Result

All BV cases were diagnosed using the presence of clue cells and two or more of the other three Amsel's criteria.

Of the 200 patients, 48(24%) were positive for BV by Amsel's clinical criteria, 46(23%) patients were positive for BV by Gram stain Nugent criteria, 49(24.5%) were positive by acridine orange staining and 51(25.5%) were culture positive for *Gard. vaginalis.*

Out of 49 acridine orange staining positive patients, 48 were positive by Amsel's criteria and one was negative. All the patients who were positive by Amsel's clinical criteria were positive by Acridine orange staining. Out of 46 cases detected by Gram stain Nugent criteria, one was negative by Amsel's clinical criteria. Amsel's criteria detected additional 3 cases of BV who were negative by Gram stain Nugent criteria, Of the 51 women who were positive for *Gard. vaginalis* by culture, 5 were negative by Amsel's criteria. (Table-I)

Table I: Comparison of Amsel's criteria with Gram stain Nugent criteria, acridine orange staining and culture of vaginal fluid for Gard. vaginalis for diagnosis of BV

BV diagnosis by Amsel's criteria		Gram stain Nugent criteria		Acridine orange Staining		Culture for *Gard. vaginalis*	
		Positive	Negative	Positive	Negative	Positive	Negative
BV cases (n=48)		45 (93.75)	3 (6.25)	48(100.00)	0 (0.00)	46(95.83)	2 (4.17)
Non BV (n= 152)		1 (0.66)	151(99.34)	1 (0.66)	151(99.34)	5 (3.29)	147(96.71)
Total	200	46	154	49	151	51	149

Figures in parentheses represent percentage.

Table II: Distribution of bacterial vaginosis cases among patients having PID with vaginal discharge and patients having only vaginal discharge with itching.

No. of study cases	Bacterial vaginosis		Total
	Positive	Negative	
Women having only vaginal discharge and itching	17 (11.89)	126 (88.11)	143 (71.50)
PID patients having vaginal discharge and itching	31 (54.39)	26 (45.61)	57(28.50)
Total	48 (23.00)	152 (76.00)	200 (100.00)

Figures in parentheses represent percentage.

Table II Shows distribution of patients among women who had complained of only vaginal discharge and itching with women of PID having vaginal discharge and itching. Among 200 patients, 143(71.50%) had only vaginal discharge and itching without PID, 57(28.50%) patients had PID with vaingal discharge and itching. Out of 143 patients who had vaginal discharge and itching, BV was found in 17(11.89%) cases and out of 57 PID patients, BV was found in 31(54.39) cases. (Table-II)

Discussion

In this study, 17(11.89%) out of 143 women having only vaginal discharge and itching were positive for BV and 31(54.39%) of the 57 women who had chronic vaginal discharge itching associated with PID were positive for BV. Amsel's et al. reported that 23.9% of BV patients had previous history of trichomoniasis, 4.3% of BV patients had history of gonorrhea and 4.3% had history of herpes virus infection[18]. In this study, however, association of BV with gonorrhoea and herpes virus infection was not determined. A recent study of India estimated 31.2% of BV from asymptomatic women, 25.4% from symptomatic group of urban middle class[7]. The highest prevalence was reported as 50.9% in rural Uganda, among them, 80% patients were asymptomatic[8]. In Bangladesh among the symptomatic group, prevalence of BV is 37.2% in women who are not commercial sex worker but have history of contact with high risk for STD group like track driver[9]. Among the pregnant women in Bangladesh, prevalence of 17.7% was reported by ICDDRB[10]. Another study shows 23.25% prevalence of BV in a sample of health clinic attendees complaining of vaginal discharge among the women of reproductive age[11].

There are several limitation in this study. All the organisms associated with BV were not isolated because most of the organisms (*Bacteroides*, *Prevotella* and *Atopobium vaginae*) are anaerobic. The newly identified BV associated organism such as *Atopobium vaginae* is not yet isolated, only detected by PCR. Sample of this study were taken from two hospitals in Dhaka city the result of which does not reflect the original picture of BV of whole country. So further research is needed to better understand the BV associated organism with a large randomized sample. Despite these limitations possible link of BV with PID patient warrant further investigation to reduce high burden of reproductive morbidity and poor birth out come in Bangladesh. Furthermore because there is strong evidence in this study that BV is associated with reproductive tract infection. So screening of BV should be done in all women of reproductive age and specially during antenatal period.

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