

Prevalence of Bacterial Vaginosis among Intrauterine Device Users in Thai Women attending Family Planning Clinic, Siriraj Hospital

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Objectives : To determine the prevalence of BV among IUD users attending at Family Planning Clinic, Siriraj Hospital. In addition, associated risk factors for BV were also explored.

Materials and Method : This study was carried out from August through November 2003 at the Family Planning Clinic, Department of Obstetrics and Gynecology, Siriraj Hospital. A total of 300 IUD users were enrolled. Bacterial vaginosis is defined by fulfillment of at least three of four findings according to Amsel's criteria. Prevalence and risk factors were determined.

Results : The overall prevalence of bacterial vaginosis according to the Amsel's criteria was 20.3% (95%CI 15.7-24.9%). The most common complaints were abnormal vaginal discharge (41.0%) and pelvic pain (41.0%), whereas 32% had no symptoms. The only significant factor associated with BV was duration of IUD use. Women with BV were more likely to have used IUD for a longer period than women without BV, especially more than 15 years. (19.7% and 9.2% respectively, $P = 0.017$)

Conclusions : Our findings showed rate of BV was prevalent among Thai women with IUD insertion. The only risk factor was long time duration of IUD insertion that health care providers should aware of the infection among these women. The influence of IUD use on the occurrence of vaginal flora changes and BV remained a controversial issue. Further study should be conducted to examine the issue in more detail, both among IUD users and other groups of women as well.

Keywords : Bacterial vaginosis, IUD, Prevalence

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The insertion of intrauterine devices (IUD) is one of the most prevalent and effective reversible methods of contraception worldwide and millions of IUDs are inserted yearly. However, it is used far less often than experts believe it should be, probably due to the concerns of risk of complications linked to its use, particularly pelvic inflammatory disease (PID) and subsequent sequelae⁽¹⁾. The most common medical reasons for early discontinuation of IUD are bleeding and/or pain along with genital infections⁽¹⁾.

Bacterial vaginosis (BV) is the most common vaginal infection among reproductive age women⁽¹⁾.

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Use of an IUD has been shown to be associated with BV in many studies^(2,3). It has been proposed that the tail of the IUD might favor vaginal growth of bacteria associated with BV. In addition, It has also been suggested that the presence of BV during the IUD insertion could also lead to an increased risk of complications in the first 3 months of use including PID⁽¹⁾.

However, studies on BV regarding its prevalence and complications especially among IUD users in Thailand are still limited. This study was aimed to determine the prevalence of BV among IUD users attending at Family Planning Clinic, Siriraj Hospital. In addition, associated risk factors for BV were also explored.

Material and Method

This study was carried out from August through

November 2003 at the Family Planning Clinic, Department of Obstetrics and Gynecology, Siriraj Hospital. A total of 300 IUD users who attended the Family Planning Clinic were enrolled. Participants were excluded from the study if they were menstruating or having vaginal bleeding, pregnant, using any vaginal suppository drug, previously diagnosed of human immunodeficiency virus (HIV) infection, having visible vaginal or cervical mass suspected cancer and within six weeks of post-abortion or postpartum.

A baseline survey which included questions about socio-demographic characteristics, reproductive history, history about sexually transmitted diseases and any abnormal genital symptoms was conducted. Then, pelvic examination was performed in each participant. An unlubricated speculum was inserted into the vagina and vaginal secretion was evaluated for the appearance. Samples of vaginal secretion were obtained with two dry cotton-tipped swabs from vaginal fornices. Vaginal pH was measured directly from one of the swabs, using an indicator paper (Merck, Germany; range 4.0-6.0), then mixed this swab into two drops of 10% potassium hydroxide on a glass slide and tested for the fishy amine-like odor. Another swab was mixed into two drops of normal saline solution in a test tube, which was subsequently examined for the presence of clue cells and other vaginal infections such as trichomoniasis and candidiasis.

Bacterial vaginosis is defined by fulfillment of at least three of four findings according to Amsel et al⁽⁴⁾: 1) a homogenous gray vaginal discharge, 2) a vaginal pH of greater than 4.5, 3) a positive amine test, 4) the presence of clue cell. Women with positive identification for bacterial vaginosis and/or other infections and/or IUD complications were counseled and received treatment as appropriate.

Descriptive statistics were used to describe patient's characteristics using mean standard deviation, number and percentage. Chi square test and student t test were used to determine the differences between groups as appropriate. A p-value < 0.05 was the significance level used for all analyses.

This study has been approved by ethical committee of Department of Obstetrics and Gynecology, Faculty of Medicine Siriraj Hospital, Mahidol University.

Results

A total of 300 IUD users attending at Family Planning Clinic, Siriraj Hospital, were recruited. The characteristics of the study population are shown in Table 1. The mean age was about 39 years. The majority

of women were married (96%). Approximately 40.3% were employee and 27% were housewives. Most of the women graduated lower than Bachelor degree (86.3%). Approximate 90% of women had less than three children and 73.0% of the women used IUD for less than ten years. Use of intravaginal douching was found in 31.0% of women. Almost 90% of women had only single sexual partner through their lifetime and only 1.0% reported prior history of sexually transmitted diseases.

Table 2 shows reported symptoms of all participants. The most common complaints were abnormal vaginal discharge (41.0%) and pelvic pain (41.0%), whereas 32% had no symptoms.

The overall prevalence of bacterial vaginosis according to the Amsel's criteria was 20.3% (61 of 300) (95% CI 15.7-24.9%).

Comparison was made between there with and without BV with regard to selected factors an the

Table 1. Characteristics of 300 IUD users enrolled in this study

Characteristics	N	%
Age (mean ± SD) (years)	39.3±7.2	
Marital status		
Single	7	2.3
Married	288	96.0
Divorced/separated/widowed	5	1.7
Occupation		
Housewife	82	27.3
Employee	121	40.3
Own business	56	19.7
Government	32	10.7
Others	6	2.0
Education		
Primary	148	49.3
Secondary	111	37.0
Bachelor degree or higher	41	13.7
Parity		
1	134	44.7
2	134	44.7
≥ 3	32	10.7
Duration of IUD		
≤ 10 years	219	73.0
10-15 years	47	15.7
≥ 15 years	34	11.3
Used intravaginal douching		
Yes	93	31.0
No	207	69.0
Lifetime partners		
1	267	89.0
≥ 2	33	11.0
Prior STD history		
Yes	3	1.0
No	297	99.0

results were shown in Table 3. The only significant factor associated with BV was duration of IUD use. Women with BV were more likely to have used IUD for a longer period than those without BV, especially more than 15 years. (19.7% and 9.2% respectively, $p = 0.017$)

No significant association was demonstrated between bacterial vaginosis and age, used intravaginal douching, lifetime partners, prior STD history, symptoms (abnormal vaginal discharge, vaginal malodor, vaginal itching, vaginal irritation, vaginal dyspareunia and pelvic pain) and associated infection (trichomoniasis and candidiasis).

Table 2. Symptoms of 300 users of IUD

Symptoms	N	%
No symptom	96	32.0
Abnormal vaginal discharge	123	41.0
Vaginal malodor	62	20.7
Vaginal itching	64	21.3
Vaginal irritation	32	10.7
Vaginal dyspareunia	42	14.0
Pelvic pain	123	41.0

Table 3. Selected factors potentially associated with BV

Characteristics	BV present N = 61 N (%)	BV absent N = 239 N (%)	p-value
Age	39.6±7.6	39.3±7.2	0.736
Used intravaginal douching	20 (32.8)	73 (30.5)	0.758
Lifetime partners			
1	52 (85.2)	215 (90.0)	0.294
≥ 2	9 (14.8)	24 (10.0)	
Prior STD history	1 (1.6)	2 (0.8)	0.496
Symptoms			
Abnormal vaginal discharge	21 (34.4)	102 (42.7)	0.307
Vaginal malodor	13 (21.3)	49 (20.5)	0.861
Vaginal itching	11 (18.0)	53 (22.2)	0.600
Vaginal irritation	4 (6.6)	28 (11.7)	0.352
Vaginal dyspareunia	8 (13.1)	34 (14.2)	1.000
Pelvic pain	22 (36.1)	101 (42.3)	0.466
Duration of IUD use			
≤10 years	34 (55.7)	185 (77.4)	0.017*
10-15 years	11 (18.0)	36 (15.1)	
≥15 years	12 (19.7)	22 (9.2)	
Associated infection			
Trichomoniasis	0 (0)	2 (0.8)	1.000
Candidiasis	3 (4.9)	32 (13.4)	0.075

Discussion

The prevalence of bacterial vaginosis among IUD users in this group of women attending a Family Planning Clinic at Siriraj Hospital was 20.3% according to clinical Amsel's criteria. This rate is similar to those observed by others (19.7%, 24.1%)^(1,5). Josoeef et al⁽²⁾ found recently that BV was associated with IUD use and suggested that women with IUD and BV may be at a higher risk for PID, especially if BV is presented prior to insertion. The association between BV and IUD might probably due to the change in vaginal flora in favor of BV-associated bacteria⁽¹⁾.

Several studies have examined association between BV and high-risk sexual behavior such as higher numbers of lifetime partners, higher rates of partners change and having a history of bacterial sexual transmitted infections^(6,7). However, we failed to demonstrate such significant association. It is possible that the numbers of high-risk women in this study were not enough to yield the power of significance.

Although BV had unique characteristics of vaginal discharge and malodor⁽⁴⁾ we did not find any correlation between the occurrence of BV and any vaginal symptoms.

Vaginal douching have been shown to be an independent risk of BV by several other studies^(8,9). The influence depends on several factors e.g. douching frequency, recentness, reasons for douching, preparations of solutions. Ness et al⁽⁸⁾ found that douching at least once per month, recent douching within 7 days and douching for symptoms or hygiene was associated with BV. Rajamanoharan et al⁽⁹⁾ found the strong association to the applications of commercial antiseptic products to vulva mucosa, even without intravaginal use. However in this study, vaginal douching was not significantly associated.

Interestingly, our study demonstrated only duration of IUD insertion was significantly associated with BV especially more than 15 years. No previous studies showed correlation between prevalence of BV with duration of IUD insertion. It has been proposed that the tail of the IUD might colonize bacteria and favor vaginal growth bacteria. Therefore the longer use of IUD might increase the risk of BV.

One limitation of our study was that we did not screen the women prior to inserting the IUD. Another limitation was the fact that there was no matched control group. Therefore, these is not data that details the status of the vaginal microflora and possible cervical infection prior to IUD insertion, Thus,

we cannot make any inference about the possible influence of IUD insertion and presence to the development of upper genital tract infection.

In summary, our findings showed rate of BV was prevalent among Thai women with IUD insertion. The only risk factor was long time duration of IUD insertion that health care providers should aware of the infection among these women. The influence of IUD use on the occurrence of vaginal flora changes and BV remained a controversial issue. Further study should be conducted to examine the issue in more detail, both among IUD users and other groups of women as well.

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การศึกษาความชุกของภาวะแบคทีเรียลวาจิโนสิสในสตรีไทย ที่ใส่ห่วงอนามัย ณ คลินิกวางแผนครอบครัว โรงพยาบาลศิริราช

ดารินทร์ หริการภักดี, กรกฎ ศิริมัย, อรวรรณ ศิริวัฒน์, ดิฐกานต์ บริบูรณ์หิรัญสาร

วัตถุประสงค์ : เพื่อศึกษาถึงความชุกของภาวะแบคทีเรียลวาจิโนสิส และปัจจัยเสี่ยงของการติดเชื้อดังกล่าว ในสตรีที่ใส่ห่วงอนามัย ณ คลินิกวางแผนครอบครัว โรงพยาบาลศิริราช

วิธีการศึกษา : ทำการศึกษาในสตรีที่ใส่ห่วงอนามัย จำนวน 300 ราย ซึ่งได้เข้ามารับการตรวจ ณ คลินิกวางแผนครอบครัว โรงพยาบาลศิริราช ระหว่างเดือนสิงหาคม ถึงเดือนพฤศจิกายน พ.ศ.2546 การวินิจฉัยภาวะแบคทีเรียลวาจิโนสิส ใช้เกณฑ์วินิจฉัยของAmsel ทำการวิเคราะห์หาความชุกและปัจจัยเสี่ยงต่าง ๆ ของการติดเชื้อแบคทีเรียลวาจิโนสิส

ผลการศึกษา : พบความชุกของภาวะแบคทีเรียลวาจิโนสิส ในสตรีที่ใส่ห่วงอนามัย 20.3% (95% CI 15.7-24.9%) อาการของโรคที่พบบ่อยที่สุดคือ ตกขาวผิดปกติ (41%) และปวดท้องในอึ่งเชิงกราน (41%) ในขณะที่ 32% ไม่มีอาการของโรค สตรีที่พบการติดเชื้อแบคทีเรียลวาจิโนสิส มีแนวโน้มที่จะใส่ห่วงคุมกำเนิดเป็นระยะเวลานาน เมื่อเทียบกับผู้ที่ไม่มีอาการติดเชื้อ โดยเฉพาะเมื่อใช้นานกว่า 15 ปี (19.7% และ 9.2% , $p = 0.017$)

สรุป : ความชุกของภาวะแบคทีเรียลวาจิโนสิส ในสตรีที่ใส่ห่วงอนามัย 20.3% โดยพบปัจจัยเสี่ยง เพียงปัจจัยเดียวเท่านั้นคือการใส่ห่วงอนามัยเป็นระยะเวลานาน ดังนั้นจึงควรเฝ้าระวังการติดเชื้อ ที่อาจจะเกิดขึ้น ในผู้ป่วยกลุ่มนี้ ความเชื่อว่าการใส่ห่วงอนามัย มีผลต่อการเปลี่ยนแปลงเชื้อปกติที่มีอยู่ในช่องคลอด ยังเป็นที่ถกเถียงกัน ดังนั้นควรมีการศึกษาต่อไป เพื่อให้ได้รายละเอียดที่มากขึ้น ทั้งในกลุ่มสตรีที่ใส่ห่วงอนามัย และกลุ่มอื่น ๆ ของประชากรไทย