

## BACTERIAL VAGINOSIS (BV)

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### I. INTRODUCTION

Bacterial vaginosis (BV) is a clinical syndrome that results from replacement of the protective H<sub>2</sub>O<sub>2</sub>-producing lactobacilli in normal vaginal flora with high concentrations of anaerobes, *Gardnerella vaginalis*, and mycoplasmas. The cause of this microbial alteration and concomitant increase in vaginal fluid pH is not well understood. Although a specific sexually transmitted pathogen has not been identified, women are at higher risk for BV when they have multiple sex partners or a new sex partner.<sup>1</sup>

BV has been associated with increased risk of acquisition and transmission of HIV,<sup>2-7</sup> and HIV-infected women may have more severe or persistent BV.<sup>8,9</sup> BV is also associated with adverse outcomes in pregnancy (see Section V. *Treatment of Bacterial Vaginosis in Pregnant Women*).

#### **Characteristics of Bacterial Vaginosis in HIV-Infected Women**

- May persist longer than in women not infected with HIV, especially in HIV-infected women with CD4 <200 cells/mm<sup>3</sup>
- May have more severe presentation in HIV-infected women with CD4 ≤200 cells/mm<sup>3</sup>
- Treatment regimens are the same for HIV-infected and non-HIV-infected women
- No difference in prevalence compared to women not infected with HIV

### II. PRESENTATION

The presentation of BV in HIV-infected women does not differ from that in women who are not infected with HIV. BV is often asymptomatic. When symptomatic, it is usually noted as a malodorous (“fishy”) vaginal discharge. In contrast to trichomoniasis or candidiasis, inflammation of vaginal or external tissues and painful symptoms such as dysuria and dyspareunia are uncommon. The symptoms may be more apparent during menses or after intercourse when vaginal pH is higher. Asymptomatic endocervicitis caused by BV can occur but is rare; purulent cervicitis should prompt evaluation for another etiology, such as gonorrhea or chlamydia. BV has high rates of persistence and recurrence in HIV-infected women and women who are not infected with HIV, despite appropriate treatment.

### III. DIAGNOSIS

#### RECOMMENDATIONS:

**A history of vulvar and vaginal symptoms should be obtained on all women presenting for care including: (AIII)**

- **Changes in vaginal discharge/vaginal malodor**
- **Vulvovaginal irritation, pruritus, burning, swelling**
- **Dyspareunia, dysuria**

**Amsel's criteria should be used to diagnose BV. Positive diagnosis requires the presence of three of the following four criteria: (AII)**

- 1) **Homogeneous thin white discharge coating the vaginal walls**
- 2) **Clue cells present on microscopy of vaginal saline preparation**
- 3) **Vaginal fluid pH >4.5**
- 4) **Positive whiff test (fishy odor of vaginal discharge with or without the addition of 10% KOH)**

Several commercially available tests have been developed recently and may be clinically useful; however, few published data exist on their performance, and none of the tests is currently FDA-approved. Although one study in HIV-infected women demonstrated that quantification of *Lactobacilli*, *G vaginalis*, and *Mycoplasma hominis* by PCR resulted in superior sensitivity to diagnosis than Amsel's criteria alone,<sup>10</sup> this is not the standard for evaluation and diagnosis in HIV-infected women. Culture of *G vaginalis* (invariably present in BV) is too nonspecific to be used for diagnosis of BV.

### IV. TREATMENT OF BACTERIAL VAGINOSIS IN NON-PREGNANT WOMEN

#### RECOMMENDATIONS:

**HIV-infected women with symptomatic bacterial vaginosis who are not pregnant should be treated with the metronidazole or clindamycin regimens specified in Table 1. (AI)**

**HIV-infected women with asymptomatic bacterial vaginosis should not be treated. (AI)**

<b>TABLE 1</b> <b>RECOMMENDED REGIMENS FOR TREATMENT OF BACTERIAL VAGINOSIS IN</b> <b>NON-PREGNANT HIV-INFECTED WOMEN</b>
<p><b>Metronidazole*</b> 500 mg PO bid for 7 days</p> <p style="text-align: center;"><i>or</i></p> <p><b>Metronidazole gel,*</b> 0.75%, one full applicator (5 g) intravaginally, once a day for 5 days</p> <p style="text-align: center;"><i>or</i></p> <p><b>Clindamycin cream,</b> 2%, one full applicator (5 g) intravaginally at bedtime for 7 days</p>
<i>Alternative Regimens</i>
<p><b>Clindamycin</b> 300 mg PO bid for 7 days</p> <p style="text-align: center;"><i>or</i></p> <p><b>Clindamycin</b> ovules 100 mg intravaginally once at bedtime for 3 days</p>

\* Patients should be advised not to consume alcohol during treatment with metronidazole. Abstinence from alcohol should continue for 24 h after completion of either oral or intravaginal metronidazole treatment.

Patients with symptomatic BV should be treated with one of the recommended metronidazole regimens (see Table 1). The regimens in Table 1 are equally efficacious. Once-daily intravaginal metronidazole gel has been shown to have a cure rate equivalent to twice-daily use. Oral metronidazole 2 g as a single dose has the lowest efficacy for BV and is no longer recommended.<sup>11</sup> Intravaginal clindamycin cream and ovules are comparable to each other.<sup>12</sup> Metronidazole 750 mg extended release (once daily for 7 days) and single-dose clindamycin cream are FDA-approved for treatment of BV, but no comparative data have been published. Re-establishing normal *Lactobacillus* flora is often unsuccessful, and treatment failures are common.

Clinicians should consider screening and treating asymptomatic women who are undergoing invasive gynecologic procedures, including surgery and placement of IUDs. Treatment with metronidazole prior to total abdominal hysterectomy has been demonstrated to reduce the risk for vaginal cuff infections,<sup>13</sup> and treatment with metronidazole prior to induced abortion may reduce the risk for post-operative upper genital tract infection.<sup>14,15</sup> Studies on other gynecologic surgical procedures have not been performed.

## V. TREATMENT OF BACTERIAL VAGINOSIS IN PREGNANT WOMEN

### RECOMMENDATIONS:

#### Clinicians should:

- Screen all HIV-infected pregnant women for bacterial vaginosis at their first prenatal visit (AII)
- Treat all HIV-infected pregnant women with symptomatic bacterial vaginosis (AI)
- Treat HIV-infected pregnant women who have asymptomatic bacterial vaginosis and a history of preterm labor (AIII)

**Clindamycin cream should not be used to treat bacterial vaginosis in HIV-infected pregnant women; instead, either oral metronidazole or clindamycin should be used** (see Table 2). (AI)

Complications of pregnancy associated with BV include preterm premature rupture of membranes, chorioamnionitis, preterm labor, preterm birth, postpartum endometritis, and post-caesarian wound infection.

Some studies have demonstrated a reduction of preterm delivery among asymptomatic women who had a history of preterm delivery and were treated with either clindamycin<sup>16</sup> or metronidazole<sup>17</sup> during the second trimester. However, other studies have not demonstrated such a reduction.<sup>18</sup> A meta-analysis found a reduction of preterm premature rupture of membranes and low birthweight among women with a history of preterm delivery who were treated for asymptomatic BV, although a reduction of preterm delivery was not established.<sup>19</sup> Some specialists prefer the use of systemic therapy to treat possible subclinical upper genital tract infections. CDC recommendations for treatment of BV in pregnant women are listed in Table 2.

<b>TABLE 2</b> <b>RECOMMENDED REGIMENS FOR TREATMENT OF BACTERIAL VAGINOSIS IN PREGNANT HIV-INFECTED WOMEN</b>
<b>Metronidazole<sup>a</sup> 500 mg PO bid for 7 days</b> <i>or</i> <b>Metronidazole<sup>a</sup> 250 mg PO tid for 7 days</b> <i>or</i> <b>Clindamycin<sup>b</sup> 300 mg PO bid for 7 days</b>

<sup>a</sup> Patients should be advised not to consume alcohol during pregnancy and that, additionally, treatment with metronidazole requires abstinence from alcohol. Multiple studies have not demonstrated teratogenic or mutagenic effects of metronidazole.

<sup>b</sup> The use of clindamycin cream during the second half of pregnancy has been associated with adverse events such as low birthweight and neonatal infection.

## **VI. MANAGEMENT OF SEX PARTNERS OF HIV-INFECTED WOMEN WITH BACTERIAL VAGINOSIS**

### **A. Management of Bacterial Vaginosis Exposure**

Recent studies support the possibility of sexual transmission of bacterial vaginosis.<sup>1,20-21</sup> However, routine treatment of male sex partners of women with BV does not affect rates of recurrence and is not recommended. A higher incidence of BV occurs in female sex partners of women with BV than in female partners of women without BV.<sup>22</sup> When symptomatic BV is suspected in a female sex partner, the partner should be screened and treated if indicated.

### **B. Management of HIV Exposure in Partners**

#### **RECOMMENDATIONS:**

**When HIV-infected patients present with a new STI, clinicians should encourage their partner(s) to undergo HIV testing at baseline, 1, 3, and 6 months. (AIII) In New York State, HIV diagnoses must be confirmed by a Western blot assay.**

**Clinicians should educate patients to be vigilant for any post-exposure acute HIV symptoms in their partners, such as febrile illness accompanied by rash, lymphadenopathy, myalgias, and/or sore throat. (AIII) If the partner presents with signs or symptoms of acute HIV seroconversion, a quantitative RNA PCR should be obtained, and consultation with an HIV Specialist should be sought. (AIII) Positive RNA tests should be confirmed with HIV antibody testing performed within 6 weeks of the RNA test (see [Antiretroviral Therapy: Acute HIV Infection](#), for more information about diagnosis and management of acute infection).**

**Clinicians should offer assistance with partner notification if needed, or refer patient to other sources for partner notification assistance (CNAP, PNAP). (AIII)**

Presentation of a new STI in HIV-infected patients suggests exposure of HIV to their partners. In this case, offering HIV nPEP to partners is usually not an option because the period prior to STI symptom onset is usually longer than the 36-hour window for initiating HIV nPEP. Therefore, sequential HIV testing of partners for early identification of potential HIV acquisition should be performed. However, if a patient with an HIV exposure does present within 36 hours, evaluation for nPEP should occur (see [HIV Prophylaxis Following Non-Occupational Exposure Including Sexual Assault](#)).

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