Acute and Recurrent Bacterial Vaginosis

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Bacterial vaginosis (BV) is the most common cause of vaginal discharge in women of reproductive age. Although the condition is often asymptomatic, those with BV have an increased risk for complications during pregnancy and the postpartum period and for sexually transmitted infections, including HIV. Despite the availability of effective treatment regimens, recurrence is common and can lead to significant frustration in women who experience it. This article identifies some of the predisposing factors associated with, and recommendations for, management of acute and recurrent BV.

Bacterial vaginosis (BV) is the most common cause of abnormal vaginal discharge in women of reproductive age, with a prevalence in North America of 29.2% among women ages 14 to 49.1-3 BV is a condition in which the normal vaginal flora are altered, primarily due to a reduction in hydrogen peroxide–producing strains of lactobacilli. This leads to an elevated vaginal pH and increased levels of proteolytic enzymes (eg, sialidase), organic acids, and volatile amines.4 This change in pH allows an overgrowth of multiple types of anaerobic, mycoplasmic, and gram-negative bacteria.

In most cases of BV, the predominant microbe is the facultative anaerobe Gardnerella vaginalis. However, evidence from recent studies of the pathogenesis of BV suggests that this bacterium forms a biofilm in the vaginal epithelium that serves as a “scaf-
folding” to which other bacterial species adhere in a symbiotic fashion, colonizing the vagina. Though asymptomatic in at least half of affected women, this polymicrobial condition can produce a thin, white, homogenous discharge with a distinct “fishy” odor.

The changes in the vaginal flora seen in BV are associated with serious sequelae, such as preterm delivery, spontaneous abortion, postpartum endometritis, and increased susceptibility to HIV and other sexually transmitted infections (STIs). The polymicrobial nature of BV and its propensity for recurrence make treatment a challenge.

PATIENT PRESENTATION/HISTORY

The most common symptom of BV is increased vaginal discharge, which usually is thin and white or dull gray. Some women report a strong fishy odor, especially after sex. Vaginal pain, itching, or burning may also be present, especially if the discharge is copious. Dyspareunia and dysuria are rare, but possible, symptoms. Fever, malaise, and other systemic symptoms are not associated with BV and should prompt the clinician to consider other causes. About half of women with bacterial vaginosis have no symptoms.

The typical finding on physical examination is a homogeneous, off-white, creamy, malodorous discharge that adheres to the vaginal walls and pools in the vaginal vault. There are usually no or minimal signs of vaginal inflammation, and the vulva, labia, and cervix are typically normal. In some cases, BV can lead to cervicitis.

DIAGNOSIS

The diagnosis of BV can be made based on the history, physical examination, and microscopic examination of the vaginal discharge. Unlike with many other bacterial diseases, culture is not recommended for diagnosis of BV because many of the implicated organisms cannot be easily isolated in the laboratory, and because asymptomatic women also have small numbers of these flora in the vagina.

In 1991, Nugent et al described a Gram stain scoring system of vaginal smears to diagnose BV, which has a sensitivity and specificity of 96% and 96%, respectively; it remains the gold standard for diagnosis. However, because this method requires considerable time and skill, it is not routinely used in most clinic settings.

A widely used method of diagnosing BV is the Amsel criteria (see Table 1). The Amsel method has a sensitivity and specificity of 81% and 94%, respectively. The presence of clue cells is the most reliable indicator of BV (see figure on page 43). The positive predictive value of this test for the presence of BV is 95%. The Amsel method requires microscopy, which is not always available in clinics.

There are several commercially available point-of-care tests for BV that do not require microscopy. These include rapid antigen and nucleic acid amplification tests to detect elevated levels of G. vaginalis, as well as tests that detect the presence of bacterial amines, elevated vaginal pH, and bacterial sialidase. Compared with the Nugent and Amsel methods, one test that detects elevated vaginal fluid sialidase activity was shown to have a sensitivity of 88% and specificity of 91% to 95%. These point-of-care tests are most effective for diagnosing BV when the vaginal pH exceeds 4.5 and when they are used in conjunction with other clinical criteria.

continued on page 46 >>
Treatment is recommended for women with symptoms. The established benefit of therapy in nonpregnant women is relief of vaginal symptoms and signs of infection. Other potential benefits to treatment include reduction in the risk for Chlamydia trachomatis or Neisseria gonorrhoea infection, HIV, and other STIs. Table 2 includes the recommended and alternative treatment regimens for BV, according to the CDC’s 2015 treatment guidelines for sexually transmitted infections. 7 These regimens are also recommended by the American Congress of Obstetricians and Gynecologists (ACOG).16

Table 2

<table>
<thead>
<tr>
<th>Recommended Regimens for Treating Bacterial Vaginosis</th>
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<tr>
<td><strong>Recommended</strong></td>
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<tr>
<td>Metronidazole 500 mg orally bid for 7 d*</td>
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<tr>
<td>OR</td>
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<tr>
<td>Metronidazole gel 0.75%, one full applicator (5 g)</td>
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<tr>
<td>intravaginally, once daily for 5 d</td>
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<tr>
<td>OR</td>
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<tr>
<td>Clindamycin cream 2%, one full applicator (5 g)</td>
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<tr>
<td>intravaginally at bedtime for 7 d†</td>
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<tr>
<td><strong>Alternative</strong></td>
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<tr>
<td>Tinidazole 2 g orally once daily for 2 d</td>
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<tr>
<td>OR</td>
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<tr>
<td>Tinidazole 1 g orally once daily for 5 d</td>
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<tr>
<td>OR</td>
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<tr>
<td>Clindamycin 300 mg orally bid for 7 d</td>
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<tr>
<td>OR</td>
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<tr>
<td>Clindamycin ovules 100 mg intravaginally once daily</td>
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<td>(at bedtime) for 3 d</td>
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</table>

* Alcohol use should be avoided during treatment with metronidazole or any nitroimidazole, and for 24 h thereafter.
† Clindamycin cream and ovules are oil based and may weaken latex condoms and diaphragms, which should not be used for 72 h after the cream’s use (refer to clindamycin product labeling for additional information).


Treatment is also recommended for all symptomatic pregnant women. Older CDC guidelines noted a preference for oral therapy in pregnant women with BV, due to the possibility of subclinical upper genital tract infection.17 However, the 2015 CDC guidelines state that symptomatic pregnant women can be treated with either the oral or vaginal regimens recommended for nonpregnant women, as oral therapy has not been shown to outperform vaginal therapy in effecting cure or preventing adverse outcomes.7

Patient Education and Follow-Up
Patient preferences, possible adverse effects, drug interactions, and other coinfections should be considered when selecting a treatment regimen. Women should be advised to refrain from sexual intercourse or to use condoms consistently and correctly during treatment. Douching may increase the risk for relapse, and no data support its use for treatment or relief of symptoms. Follow-up visits are unnecessary unless symptoms do not resolve. Because recurrence of BV is common, however, women should be advised to return for evaluation if symptoms recur.1,4,18

When BV Reoccurs
Recurrence rates of 15% to 30% have been reported at three months,18,19 and of 28% when patients were tested cumulatively over six months,1 but few researchers have looked at long-term recurrence rates. In one observational study, recurrence rates of 51% were reported during a six-year follow-up period among women previously treated with oral metronidazole.20 Whether these high recurrence rates are due to treatment failure to eradicate the causative organism or to a reinfection from sexual partners remains unclear.21 Some studies have shown that treatment of male partners does not affect recurrence rates.21,22

Risk factors
Various research teams have identified risk factors associated with BV recurrence, but study results have been inconsistent. The strongest risk factor appears to be sexual activity, specifically with increased numbers of sexual partners and inconsistent condom use.1,23,24 Women who have sex with women also appear to be at increased risk for BV recurrence.9,10 BV tends to recur around the time of menstruation, and some suppressive therapies include administration of antibiotics during this time.1,8 Although reports conflict, other risk factors that may be implicated in recurrent BV include vaginal douching, cigarette smoking, and increased BMI.2,18 Use of an oral contraceptive may have a protective effect against BV recurrence.1

Caring for patients with multiple recurrences of BV can be challenging for many clinicians. Although a few studies have evaluated suppressive therapy for recurrent BV, there are no clear treatment guidelines.
for multiple recurrent infections. Sobel and colleagues evaluated twice-weekly use of metronidazole gel for 16 weeks and found a significant reduction in BV recurrence during treatment. 25 However, there was only a 34% to 37% probability of patients’ remaining clinically cured at seven months post-treatment. Similarly, Reichman et al evaluated suppressive therapy with oral metronidazole, topical boric acid, and metronidazole gel. They found an 88% to 92% initial cure rate, but a 50% failure rate at 36 weeks’ follow-up. 26

Management
Studies examining the use of probiotics for the prevention and treatment of BV have yielded mixed results. The theory is that probiotics containing lactobacillus organisms may protect women from infection by maintaining or restoring vaginal pH and preventing adhesion of bacteria to the epithelium of the vaginal walls. 27 Despite the conflicting results, no adverse effects have been reported and, as a consequence, many experts recommend probiotics to reduce the risk for recurrent BV. When discussing suppressive therapy options with patients, clinicians should be mindful of the limited data and the clinically unfavorable long-term cure rates demonstrated.

In addition to treatment limitations for recurrent BV, clinicians often find it challenging to effectively address the psychosocial implications of distress, embarrassment, and lack of control that are commonly associated with recurrent BV. 28 Beyond its impact on sexual activity, women have also reported refraining from their daily activities out of fear that others around them may detect their vaginal odor. Helping women take a proactive approach in the treatment and prevention of BV may ease some of this distress.

Women with recurrent BV are often eager to hear about measures they can take to reduce their risk for acute and recurrent infection. Patients should be counseled on the association of BV with douching, numerous sexual partners, unprotected sex, increased psychosocial stress, and cigarette smoking. 7,18,29-31 Patients may inquire about the potential

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- A. Each week a new quiz on a topic pertinent to PAs and NPs will be posted.
- B. You can see how you score against your peers
- C. Challenge yourself further by taking quizzes in other specialties—they’re all free
- D. All of the above

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risk for BV when they use feminine hygiene spray, panty liners or pads, and underwear made from synthetic fabrics; however, one longitudinal study\(^{30}\) showed no association between any of these hygienic behaviors and BV.

### CONCLUSION

Bacterial vaginosis is a common cause of vaginal discharge in women. Current recommendations for treatment are not very effective, with up to half of women experiencing recurrence. The likelihood of recurrence can result in significant frustration for both patient and clinician. Although recent studies have advanced our understanding of the pathophysiology of BV, further research is needed to develop more effective treatments that reduce recurrence. Addressing modifiable risk factors and considering the use of suppressive and/or probiotic therapy may improve quality of life for women affected by this condition.

### REFERENCES


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