Screening for sexually transmitted infections and cervical cancer in young women

By Paul M. Krueger, DO

Women between the ages of 19 and 25 are at risk for a great number of sexually transmitted infections (STIs), including chlamydia, gonorrhea, human immunodeficiency virus (HIV), and genital herpes simplex virus (HSV). Human papillomavirus (HPV) is the most common STI among women in this age group. The federal Centers for Disease Control and Prevention (CDC) estimates that 80% of women in the United States become infected by HPV by the time they are 50 years of age.1 This infection rate is high because many young adult women continue to engage in the risk-taking sexual behaviors of adolescence. Counseling such women about safe sexual practices is discussed on page 10 in this issue of AOA’s Women and Wellness.

The United States Preventive Services Task Force (USPSTF) recommends that all sexually active females aged 25 or younger be screened annually for chlamydia and gonorrhea. According to USPSTF guidelines, screening for chlamydia should be performed by using nucleic acid amplification technology (NAAT), a commonly available test based on the analysis of deoxyribonucleic acid (DNA). Because of the increasing antibiotic resistance of Neisseria gonorrhoeae, the causative agent of gonorrhea, the USPSTF recommends the use of a culture to screen for this microorganism.2

Many clinicians prefer the convenience of using polymerase chain reaction (PCR) technology in screening for both chlamydia and gonorrhea, as well as in reflex testing for oncogenic strains of HPV. If the clinician chooses to use PCR for these purposes, he or she should also test for gonorrhea by culturing—in order to differentiate antibiotic resistance from reinfection.

High-risk populations

The CDC recommends that women who are 25 years of age or older be offered annual chlamydia/gonorrhea screening if they are at high risk of infection. Among women at high risk of chlamydia/gonorrhea infections, as listed by the CDC, are those who are substance abusers; those with histories of STIs; those with more than one sexual partner in a single year; those living in correctional facilities; and those living in communities with high rates of STIs.3 The CDC also recommends that high-risk women receive annual serological testing for syphilis. Furthermore, because individuals who have positive results on tests for STIs are often difficult to locate for subsequent treatment, presumptive antibiotic therapy for high-risk women is recommended.3

The CDC notes that heterosexual HIV transmission is now “responsible for the most rapidly increasing subset of US AIDS cases.”3 This statement is true for all groups of women and is particularly striking in regard to African American women.3 Thus, screening for HIV should be offered to all at-risk women. In other words, if a clinician is considering testing for chlamydia and gonorrhea because of a female patient’s sexual behavior, the clinician should also discuss HIV testing with that patient.

Women between the ages of 19 and 25 will sometimes request testing for STIs because of concerns stemming from their own sexual activity or that of a sexual partner. Reasonable testing in this population group includes screening for chlamydia (using NAAT), gonorrhea (using culture), syphilis (using serological testing), and HIV.2,3 Screening for hepatitis B should be performed in these women as well. However, screening for hepatitis C is not indicated unless the woman is immunocompromised.3

Some clinicians test the cervical secretions of young female patients for HSV using PCR technology—even if the patient has never been diagnosed with a genital herpes infection. Such testing is done to identify women who are asymptomatically shedding HSV. The subsequent initiation of antiviral therapy in these women de-
creases the risk of spreading the infection to their sexual partner(s).

**Screening for HPV and cervical cancer**

Papanicolaou (Pap) smears are performed to save the lives of women from cervical cancer. In the 1920s and 1930s, cervical cancer was a common cause of death in women, and it was the leading cause of women’s cancer-related deaths. After George N. Papanicolaou, MD, PhD, published his landmark research on cervical cytology in the early 1940s, deaths from cervical cancer plummeted. The American Cancer Society estimates that 11,150 new cases of invasive cervical cancer were diagnosed in the United States in 2007. However, only 3,670 deaths were attributed to cervical cancer during that same year.

The Pap smear has been called the “ideal” screening test. However, it is actually ideal only for cervical cancer screening. It should not be used as the primary screening tool for STIs or endometrial or ovarian carcinoma. Nor should it be used as the primary method for etiologic analysis of vaginal infection or work-up testing for dysfunctional uterine bleeding.

Cervical cytology screening of a patient should begin within three years after she commences sexual activity, but no later than age 21 years. Screening should continue annually until the patient reaches age 30 years, after which it can be performed every two or three years in low-risk women. Therefore, all women between the ages of 19 and 25 require an annual Pap smear.

It is not clear whether the use of liquid-based cytology (LBC) improves the sensitivity and specificity of Pap smear cervical cancer screening. However, LBC does decrease the number of inadequate Pap smear results, and it allows for reflex testing for oncogenic HPV DNA without the need of a second office visit by the patient.

The report on cervical cytology testing of a patient consists of two main parts: a statement of test adequacy and the test results. Inadequate Pap smears need to be repeated. The older terminology used in Pap smear reports—“satisfactory, but limited by...”—is no longer utilized. The cytologist will sometimes note the presence of vaginal candidiasis (ie, yeast infection) or bacterial vaginosis in a report. However, the sensitivity of Pap testing for these infections is low, and treatment should be based on clinical findings only. Some physicians are comfortable treating a patient for trichomoniasis on the basis of Pap smear results, but others prefer to confirm the diagnosis with a wet-mount examination before initiating treatment.

- Atypical squamous cells of undetermined significance (ASCUS)
- Atypical squamous cells, cannot exclude high-grade squamous intraepithelial lesions (ASC-H)
- Low-grade squamous intraepithelial lesions (LSIL)
- High-grade squamous intraepithelial lesions (HSIL)
- Squamous cell carcinoma

Most patients with LSIL will have cervical intraepithelial neoplasia (CIN) grade 1 (previously called mild dysplasia) revealed on biopsy. Patients with HSIL most commonly will have CIN grades 2 or 3 on biopsy. Squamous cell carcinoma is rarely reported in Pap smear results. Of course, if a clinician sees a visible tumor on the cervix, a biopsy should be performed.

Women with a diagnosis of ASC-H, LSIL, HSIL, or squamous cell carcinoma without a visible tumor should undergo a colposcopic examination. Treatment of these women should be based on multiple biopsies taken during the colposcopic examination. The management of a patient’s glandular cell abnormalities is more complex than the previous conditions and is...
usually referred to a gynecologist.9

There are three appropriate ways to manage a patient’s ASCUS result from a Pap smear: repeat cervical cytology screening every six months for two years; a colposcopic examination; or testing for HPV DNA.10 The latter option is clearly preferred if the Pap smear was performed with a liquid-based medium, because no repeat office visit will be required of the patient.

Use of liquid-based cytology
Many clinicians prefer the ease of reflex testing for oncogenic strains of HPV in patients who have ASCUS Pap smear results. These clinicians have, therefore, adopted the routine use of a liquid-based medium for cervical cytology screening. With the use of LBC, the lab can simply perform testing on all patients with ASCUS Pap smear results and discard the specimens of all patients with other Pap smear results. A patient with an ASCUS Pap smear result who also has positive results for oncogenic HPV DNA should undergo an immediate colposcopic examination. A patient with an ASCUS Pap smear result who has negative results for oncogenic HPV DNA should undergo a repeat Pap smear in no sooner than one year.9 More frequent screening is unnecessary.

It should be noted that the use of HPV DNA testing with Pap smears is not appropriate for primary screening in women aged 19 through 25. HPV DNA testing is most commonly used in women who are older than 30 years of age to help identify those patients who need cytologic screening at less frequent intervals.11

Treating patients diagnosed with CIN
Patients who are diagnosed with CIN grade 1 can be treated by conducting careful follow-up testing or by immediate use of a diagnostic excision procedure (eg, loop electrode excision procedure or cold-knife cervical conization). The choice of treatment option depends on the patient’s age, cytologic abnormality, and likely adherence to a treatment plan. Patients with CIN grades 2 and 3 are typically treated with either a diagnostic excision procedure or ablation of the cervical transformation zone.9

Hysterectomy is reserved for patients with cervical adenocarcinoma in situ who do not desire future pregnancy, and for patients who have recurrent disease or an uncertain diagnosis in which uterine carcinoma cannot be ruled out.

Final notes
Women who are between the ages of 19 and 25 require annual cervical cytology screening and effective management of the results, based on ASCCP algorithms. Routine testing for chlamydia and gonorrhea should be performed annually in women aged 25 years and younger. Women who are older than age 25 should be screened for STIs based on their risk factors. If a woman is at high risk, she requires not only testing for chlamydia and gonorrhea, but also testing for HIV, syphilis, and hepatitis B. Many clinicians also perform testing for HSV in high-risk women.9

References


Paul M. Krueger, DO, is associate dean for Academic Affairs and professor of Obstetrics and Gynecology at the University of Medicine and Dentistry of New Jersey—School of Osteopathic Medicine in Stratford. In addition, Dr Krueger is a member of the Editorial Advisory Board of JAOA—The Journal of the American Osteopathic Association. He can be reached at (856) 566-6031 or via email at kruegeru@umdnj.edu.