Cervical Cancer Screening in Older Women

Carol Dallred, RNC, MSN, WHCNP

D.S., a 65-year-old woman, presented for a gynecologic examination stating that she wished to discontinue annual cervical cancer screening. Her physical examination was within normal limits, and a liquid-based Pap test with a broom and a cytobrush was obtained.

Her medical history was significant for stable multiple sclerosis, for which she takes glatiramer 20 mg subcutaneously daily. Her obstetrical-gynecologic history includes three pregnancies and three vaginal deliveries. Her menarche was at age 12, and menopause was at age 52. Her uterus and ovaries are intact. She was treated for external genital warts 15 years ago by cryotherapy.

She has a history of 10 pack years of tobacco use; however, she has not smoked for 25 years. She has a lifetime history of six sexual partners and has not been sexually active since the death of her husband three years ago.

Screening Guidelines

Recommendations for cervical cancer screening in older women vary. The American Cancer Society (ACS, 2005a) recommended regular cervical screening until age 70. Then, screening may be discontinued for women who have had three or more consecutive, technically satisfactory, negative (normal) Pap tests and have no history of an abnormal Pap test in the past 10 years. Women with a history of cervical cancer, diethylstilbestrol (DES) exposure in utero, HIV infection, or a weakened immune system should continue to be screened as long as they are in good health (ACS, 2005a). The U.S. Preventive Services Task Force (2005) “recommends against routinely screening women older than age 65 for cervical cancer if they have had adequate recent screening with normal Pap smears and are not otherwise at high risk for cervical cancer.”

The American College of Obstetricians and Gynecologists (2003) stated that not enough information is available about older women and Pap tests, so decisions regarding when and if to discontinue screening for cervical cancer should be made by clinicians based on medical history and other factors.

Screening for cervical cancer is important because early cervical changes (cervical neoplasia) can be detected prior to the development of cancer. If these early changes are treated, the disease process can be halted and cervical cancer avoided (Franco, Duarte-Francisco, & Ferenczy, 2001).

Rule Out Human Papillomavirus

The major risk factors for cervical cancer are listed in Table 1. Human papillomavirus (HPV) first was discovered in the 1930s, when it was linked with certain benign skin lesions in the cottontail rabbit (Shope & Hurst, 1933). In the mid-1970s, Harald zur Hausen, a virologist, hypothesized that HPV played a role in the development of cervical cancer (German Cancer Research Center, 2003). Since then, HPV has been studied extensively and more than 100 types have been identified based on DNA sequence relationships (Chen, Garcea, Godberg, Casini, & Harrison, 2000). Approximately 35 types are considered to affect the genital tissue. Of the 35, 15 types have been identified as oncogenic. Eighty percent of all genital cancers are derived from types 16, 18, 31, and 45, a proportion that is consistent throughout the world (Bosch et al., 1995). The relationship between HPV and cervical cancer is even stronger than the relationship between smoking and lung cancer.
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(Association of Reproductive Health Professionals, 2003), and many believe that HPV must be present for cervical cancer to develop.

HPV is prevalent in populations throughout the world. In the United States, approximately 1% of the population (1.4 million people) has overt genital warts at any point in time (“Human Papillomavirus Testing,” 2000). An additional 4%, or 5 million people, have subclinical infections: active lesions that are not visible without some clinical procedure, such as colposcopy, to make them evident. For another 10%, or 14 million people, HPV is present in the tissues but no evidence of disease exists: They are HPV positive but “colpo negative.” Finally, 60%, or 81 million, are serum positive for HPV antibodies but are negative for HPV in the tissues (“Human Papillomavirus Testing”). Figure 1 shows a graphical representation of these percentages.

Genital HPV is a sexually transmitted disease. Several studies have suggested that it also may be transmitted via a fomite (Burd, 2003), but the inability to grow HPV in a culture prohibits intense study and determination (Burkhart, 2004). HPV types 6 and 11 may be transmitted vertically during pregnancy, but scientists agree that transmission is primarily sexual.

The number of lifetime sexual partners has been identified as a major risk factor for HPV infection. However, other factors, including young age at first coitus, recent first sexual experience, multiple partners in the preceding year, and time since a woman’s first exposure to the virus have been found to be more important than the total number of partners (“Human Papillomavirus Testing,” 2000), which is seen in Figure 2.

Age also plays a factor in the development of cervical cancer. Although HPV infection is most prevalent in women in their 20s (Prendiville & Davies, 2004), the peak incidence of cervical cancer is much later. In the Netherlands, for example, the peak incidence is at 40 years of age (Prendiville & Davies). However, data from New Mexico indicated that cervical cancer peaks at age 60 and remains elevated thereafter (University of New Mexico, 2004). In addition, two of every three deaths from cervical cancer in Texas occur among women aged 55 or older (ACS, 2003).

The data show that the presence of HPV has a high positive predictive value for cancer as women age. Women who are older than 30 years who have normal cytology on a Pap test but are positive for high-risk HPV infection have a 116-fold risk for developing high-grade lesions compared with similar women who are HPV-negative (Melkert et al., 1993). Therefore, women older than age 30 who test positive for a highly oncogenic HPV type are at a greatly increased risk for developing cervical cancer.

Testing for high-risk HPV types is easy. A swab of cervical mucous is taken, placed into a solution provided for the purpose, and sent to a laboratory for testing. The sample also can be salvaged from the Pap test medium if the Pap test is liquid-based. The most common type of testing is called hybrid capture, which detects the most common high-risk HPV types (Melkert et al., 1993).

**Workup: When to Cease Testing**

D.S.’s risk factors are a history of multiple sexual partners, a history of smoking, and possible immunocompromise as a result of her history of multiple sclerosis.

Although D.S. has had six sexual partners, she had her first sexual encounter at age 18 and has been monogamous for 30 years. Because 47 years have passed since her first possible exposure to HPV and possibly 30 years have passed since she was exposed to a new HPV, the number of sexual partners is unlikely to be a factor.

A history of smoking increases the chances that D.S. could develop cervical cancer.

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**Table 1. Risks Associated With Cervical Cancer**

<table>
<thead>
<tr>
<th>RISK</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human papillomavirus (HPV) infection</td>
<td>Thought to be necessary for the development of cervical cancer</td>
</tr>
<tr>
<td>Sexual practices</td>
<td>Sexual behavior increases the chance of contracting an HPV infection.</td>
</tr>
<tr>
<td>• Sex at an early age</td>
<td></td>
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<tr>
<td>• Many sexual partners</td>
<td></td>
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<tr>
<td>• Sex with uncircumcised males</td>
<td></td>
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<tr>
<td>Smoking</td>
<td>Smoking or secondhand smoke doubles the risk.</td>
</tr>
<tr>
<td>HIV</td>
<td>An HPV infection may develop into cervical cancer more quickly because HIV damages the immune system.</td>
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<tr>
<td>Chlamydia infection</td>
<td>Studies suggest that women who test positive for past or present chlamydia infection are at increased risk for cervical cancer.</td>
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<tr>
<td>Diet</td>
<td>Diets low in fruits and vegetables may place a woman at increased risk.</td>
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<tr>
<td>Oral contraceptives</td>
<td>In one study, women who used oral contraceptives for more than 10 years had a fourfold increased risk.</td>
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<tr>
<td>Multiple pregnancies</td>
<td>Multiple full-term pregnancies increase risk.</td>
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<tr>
<td>Low socioeconomic status</td>
<td>Women with low incomes may not have access to screening programs and also may be undernourished.</td>
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<tr>
<td>Diethylstilbestrol (DES) exposure</td>
<td>One of every one thousand women whose mothers took DES during the pregnancy develops cervical cancer.</td>
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<tr>
<td>Family history</td>
<td>Some evidence exists of a familial risk, perhaps because of a decreased ability to fight HPV.</td>
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<tr>
<td>Age</td>
<td>Peak age of incidence is 55–60 years.</td>
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</tbody>
</table>

*Note. Based on information from American Cancer Society, 2005b.*

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**Figure 1. Human Papillomavirus Prevalence**

*Note. Based on information from “Human Papillomavirus Testing,” 2000.*
cancer. Studies have shown that active smoking increases the relative risk factor for cervical neoplasia to 2.6 and even passive smoke exposure increases the relative risk to 2.1 (Trimble et al., 2005).

The comorbidty of multiple sclerosis has not been shown to increase D.S.’s risk of developing cervical cancer. The medication that she is taking, glatiramer, also has not been related to an increased risk for cancer.

An HPV infection would put D.S. at increased risk. Even though D.S. has not been exposed to HPV recently, as evidenced by a lack of sexual intercourse, persistent infection has been shown to be present in women who have high viral loads of high-risk HPV types (Melkert et al., 1993). Performing HPV testing in D.S. before advising her to discontinue cervical cancer screening seems prudent in this case.

Case Study Follow-Up

D.S.’s workup included a Pap test and a DNA-based HPV test. Both were negative. Although D.S. had a history of cigarette smoking, this should not increase her risk of cervical cancer without the presence of HPV. D.S. was told she could cease cervical cancer screening; however, she was advised that if she resumed sexual activity with a new partner, she also should resume cervical cancer screening. In addition, D.S. was advised to continue receiving age-appropriate cancer screenings.

Author Contact: Carol Dallred, RNC, MSN, WHCNP, can be reached at csdallre@mdanderson.org, with copy editor at CJONEditor@ons.org.

References


Figure 2. Human Papillomavirus Risk: Number of Partners and Years Since First Sexual Encounter

Note: Based on information from “Human Papillomavirus Testing,” 2000.