Human Papillomavirus and Cervical Cancer: Not Just a Sexually Transmitted Disease

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Clinical studies have confirmed that the human papillomavirus (HPV) is the cause of virtually all cancers of the cervix, the fourth most common cancer in women in the United States. HPV is sexually transmitted, and the lifetime risk of contracting the virus is estimated to be 75%–90%. New methods of detecting HPV infection and cellular changes (dysplasia) caused by HPV can greatly reduce the mortality associated with this virus. More than 100 types of HPV exist and may be classified as low-, intermediate-, or high-risk in terms of causing cancer. The virus can cause genital warts, subclinical dysplasia, and cancer. Nurses play an important role in educating patients regarding HPV and preventive measures as well as in screening and treatment. Most women diagnosed with HPV need emotional support and factual information provided in a supportive, nonjudgmental manner. Nurses can meet this challenge and make a difference in reducing the incidence and mortality of cervical cancer.

Key Words: papillomavirus, cervix neoplasms

What Is Human Papillomavirus?

HPV is a small, double-stranded DNA virus that is epitheliotrophic, meaning it has a special affinity for epithelial cells (see Figure 1). HPV infects specific types of epithelium, such as the epithelium in the genital area and head and neck. Of the more than 100 types of papillomaviruses, about 40 affect the genital tract. The rest infest skin on other areas of the body, such as the hands and feet (Park, Fujiwara, & Wright, 1995).

Most individuals who get an HPV infection never know they have it because symptoms often do not develop. External genital warts (condylomata acuminata) seen as small, flat, flesh-colored bumps or tiny, cauliflower-like bumps appear in a small percentage of those infected with HPV. This is associated with two HPV types, numbers 6 and 11. The time frame from HPV exposure to development of genital warts is six weeks to eight months, but HPV can remain latent for years or decades before warts or cervical disease is evident. Subclinical HPV infection (skin changes not visible to the “naked” eye) is 10–30 times more common than apparent infections. Thus, determining exactly when or from whom the exposure to the virus occurred often is not possible (Brentjens, Yeung-Yue, Lee, & Tyring, 2002; Wiley, 2002; Wiley et al., 2002; Wilson, 2002).

The various subtypes of HPV hold different levels of oncogenic potential. Types 6 and 11 (associated with genital warts) are examples of low-risk types, which rarely, if ever, are found in cervical cancer. These low-risk types are associated with benign lesions or low-grade dysplasia (i.e., abnormal changes in the size, shape, and organization of mature cells). In low-grade dysplasia, variability exists among cells, although the variability is less than in high-grade dysplasia. A low-grade dysplasia is unlikely to transform into cancer (Apgar, Spitzer, Brotzman, & Ingnatavius, 2002; Magnusson, Lichtenstein, & Gyllensten, 2000; Park et al., 1995).

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