HPV and Cancer

This section has been reviewed and approved by the Cancer.Net Editorial Board, 08/2013

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Listen to the Cancer.Net Podcast: HPV and Cancer [1], adapted from this content.

Human papillomavirus (HPV) is a virus that is usually passed on during direct skin-to-skin contact, most commonly sex. In fact, HPV is the most common sexually transmitted disease in the United States. There are more than 150 different types of HPV. Most men and women are not aware they have an HPV infection because they do not develop any symptoms or health problems. Sometimes, specific HPV types can cause warts (noncancerous, abnormal growths on the skin) in various parts of the body. Other times, certain HPV types can cause precancerous lesions (areas of abnormal tissue) or cancer.

Types of HPV and how HPV spreads

Most types of HPV have the potential to cause ?common? warts, which grow on areas such as the hands and feet. However, more than 40 of the viruses are called ?genital type? HPVs. These viruses are spread from person to person when their genitals come into contact, usually during vaginal or anal sex. They can also be passed on through oral sex.

Genital HPV types can infect the genital area of women, including the vulva (outer portion of the vagina), the vagina, and the cervix (the lower, narrow part of a woman's uterus), as well as the genital area of men, including the penis. In both men and women, genital HPV can infect the anus and some areas of the head and neck. Sometimes ?low-risk? types of genital HPVs, most commonly HPV-6 or HPV-11, can cause genital warts or lesions to form on or around these locations. The growths can vary in size, shape, and number, but rarely lead to cancer.

HPV-related cancers

Genital HPV types that are more likely to cause cancer are called ?high-risk? HPVs. Usually the immune system of a man or woman infected with low-risk or high-risk HPV weakens the virus to the point it does no

harm or gets rid of the infection. However, some people develop a lasting infection that slowly, often over many years, causes changes to normal cells that lead to precancerous lesions or cancer. Cancers associated with HPV include:

Cervical cancer. Nearly all cervical cancers are caused by HPV infection. Strong scientific evidence shows that a lasting HPV infection is required for cervical cancer to begin developing. Whether a woman who is infected with HPV will develop cervical cancer depends on a number of factors, including the type of HPV infection she has. Of the cervical cancers related to HPV, about 70% are caused by two strains, HPV-16 or HPV-18. In women who have HPV, smoking may increase the risk of cervical cancer. Although almost all cervical cancers are caused by HPV, it is important to remember that most genital HPV infections will not cause cancer.

Oral cancer. HPV can cause oral cancer (cancer of the mouth and tongue) and oropharyngeal cancer (cancer of the oropharynx, the middle part of the throat located from the tonsils to the tip of the voice box) in men and women. These HPV-related cancers are increasing steadily in both men and women. Changes in sexual behavior, including an increase in oral sex, may be one reason for the rise.

Other cancers. HPV is also associated with less common cancers, including vulvar and vaginal cancers in women and penile cancer in men. The types of HPV that cause cervical cancer are also related to anal cancer.

Treatment

There is no cure for HPV, but health problems caused by the infection are often treatable. Warts and precancerous lesions can be removed through cryotherapy (freezing); loop electrosurgical excision procedure (LEEP), which uses electric current to remove abnormal tissue; or surgery.

Your doctor may prescribe topical medications (such as creams that are applied directly to the skin) for genital warts. However, removing genital warts does not mean a person no longer has HPV. Warts may return later because the virus may still be present in cells. A person with HPV who does not have any visible warts can still infect a sexual partner with the virus. In addition, an infection that is not active may become active when a person's immune system is weakened due to illness or other reasons.

Vaccines

Receiving an HPV vaccine reduces your risk of infection. The U.S. Food and Drug Administration (FDA) approved two vaccines that help prevent HPV infection: Gardasil and Cervarix. It is important to note that the vaccines cannot cure an existing HPV infection.

Purpose of the vaccines. The goal of HPV vaccination is to prevent a lasting HPV infection after a person is exposed to the virus. Gardasil, introduced in 2006, helps prevent infection from the two HPVs known to cause most cervical cancers and precancerous lesions in the cervix. The vaccine also prevents against the two low-risk HPVs known to cause 90% of genital warts. Gardasil is approved for the prevention of cervical, vaginal, and vulvar cancers in girls and women ages nine to 26. It is also approved to prevent anal cancer in women and men and genital warts in men and boys in the same age range. Cervarix, introduced in 2009, is approved for the prevention of cervical cancer in girls and women ages 10 to 25.

Effectiveness and safety of the vaccines. Data show the HPV vaccinations are safe and highly effective in preventing a lasting infection of the HPV types they target. Because it takes many years before a precancerous lesion develops into an invasive cancer, it will likely take several more years before there is evidence that the number of cancer cases in vaccinated individuals has been reduced.

Immunization schedule. It is not known how long a single series of HPV vaccinations will last, and if

revaccination is required, and how often. The studies following vaccinated individuals have been going on for six years, and the level of protection (immunity) upon exposure to the virus has not decreased. More follow-up of people who received a vaccine in clinical trials will provide important information about re-immunization.

Because a vaccine can only prevent infection, not cure an existing one, it is important that it be given to people before they become sexually active. People who are already sexually active and who may already be infected with HPV should talk with their doctor. The vaccine may protect them from types of HPV that they do not have.

Other prevention strategies

In addition to vaccination, women should protect themselves by having Pap tests [2], the most common test to help detect cervical cancer. Pap tests can find precancerous cells that can be removed before they turn into cancer. Researchers have found that combining a Pap test with a test designed to detect HPV in women provides the most accurate results. A woman should talk with her doctor about having a Pap test and possibly an HPV test. There is no recommended HPV test for men.

Limiting your number of sex partners is another way to reduce your risk because having many partners increases the risk of HPV infection. Using a condom cannot fully protect you from HPV during sex.

Questions to Ask Your Doctor

Learn more about HPV, including your risk of infection and ways to help prevent it, by asking your doctor these questions:

- What is my risk of getting HPV?
- How can I reduce my risk of getting HPV?
- Can I get genital HPV without having sex?
- What are some of the signs and symptoms of HPV?
- How soon after sex do HPV symptoms appear?
- Should I be tested to see if I have HPV?
- Should I receive an HPV vaccine? Why or why not?
- Which vaccine should I receive?
- Are the HPV vaccines safe? What are the potential side effects?
- How is an HPV vaccine given? Is more than one shot needed?
- How long does an HPV vaccine last?
- Does my health insurance cover the cost of an HPV vaccine?
- I am pregnant and have HPV. Can it harm my baby?

More Information

Guide to Cervical Cancer [3]

Guide to Head and Neck Cancer [4]

Guide to Anal Cancer [5]

Additional Resources

Centers for Disease Control and Prevention: Human Papillomavirus (HPV) [6]

National Cancer Institute: HPV and Cancer [7]

FDA: Human Papillomavirus Vaccine [8]

Links:
[1] http://www.cancer.net/hpv-and-cancer
[2] http://www.cancer.net/node/24638
[3] http://www.cancer.net/node/18674
[4] http://www.cancer.net/node/18909
[5] http://www.cancer.net/node/18462
[6] http://www.cdc.gov/STD/HPV/
[7] http://www.cancer.gov/cancertopics/factsheet/risk/HPV
[8] http://www.fda.gov/BiologicsBloodVaccines/Vaccines/ApprovedProducts/ucm172678.htm