Cervical Cancer

Key Facts

Cervical Cancer

Cervical cancer is a cancer that affects women of different ages and backgrounds in the United States and across the world. It begins in the cervix, which is the part of the uterus, or womb, that opens to the vagina. Cervical cancer typically develops slowly over time and can eventually spread into the surrounding areas.

Prevalence of Cervical Cancer

Worldwide, about 500,000 women are diagnosed with cervical cancer and more than 270,000 women die. Every two minutes, a woman dies of cervical cancer somewhere in the world.

Without a significant improvement in the prevention of cervical cancer, there will be approximately one million new cervical cancer cases every year globally by 2050.

In the United States, an estimated 11,000 women will be diagnosed with cervical cancer in 2007, and nearly 4,000 will die. Furthermore, approximately 2 million precancerous lesions are diagnosed each year in the United States. Cervical cancer strikes women in the prime of their lives, often while they are working and responsible for their children and extended family. After breast cancer, cervical cancer is the second most frequent cancer in women ages 20 to 39. Relatives, colleagues and friends are all impacted when a woman's life is prematurely lost as a result of cervical cancer. The psychological effect on these women and on their families can be devastating.

The Cause of Cervical Cancer

Cervical cancer is caused by persistent, or continuous, infection with an extremely common and contagious virus called human papillomavirus. There are more than 100 identified types of the human papillomavirus, most of which are harmless. However, some are more serious and can lead to cancer.

There are up to 18 oncogenic, or cancer-causing, virus types that can lead to cervical cancer. Some of the most common include types 16, 18, 45, 31, 33, 52, 35 and 58. Types 16 and 18 together cause at least 70 percent of all cervical cancer cases worldwide.

Women of all ages are at risk for cervical cancer due to infection by cancer-causing virus types.

Human Papillomavirus **Transmission**

Up to 80 percent of women will acquire a genital human papillomavirus infection by the age of 50, and nearly half of those will acquire a type of virus infection that could cause cancer. The risk starts the first time a woman engages in sexual activity.

Cancer-causing virus types are transmitted through sexual activity but do not depend on intercourse. It may occur simply from skin-to-skin contact in the genital area. As such, condoms do not fully protect women from acquiring an infection from cancer-causing virus types, which may lead to cervical cancer.

Cervical Cancer **Progression**

Most cancer-causing virus infections clear within two years. However, for every one million women who are infected with cancer-causing virus types, approximately 10 percent (100,000) will develop abnormal and precancerous cervical cell changes known as cervical dysplasia. About 8 percent of women (8,000) with abnormal and precancerous cervical cells will develop early cancer confined to the outer layers of the cervical cells and 1,600 of these women will go on to develop invasive cervical cancer.

Few women know they have a cancer-causing virus because they seldom have noticeable symptoms. In most cases, the progression from a cancer-causing virus infection to cervical cancer takes place over many years.

Regression is possible in the early stages of cervical cancer, but becomes less likely once cells begin to display more pronounced abnormalities. A number of factors appear to contribute to the persistence of a cancer-causing virus infection and, therefore, the development of cervical cancer, including:

- Cigarette smoking
- High number of pregnancies
- Long-term use of birth control pills
- Sexual activity at an early age
- Other sexually transmitted infections (e.g., HIV, chlamydia)

Cancer-causing virus infection is the necessary cause of cervical cancer; it is present in nearly all (99.7%) cases of cervical cancers.

Treatment of Cervical Cancer and Precancers

If abnormal cells are found on the cervix through screening methods, such as a Pap smear, the woman may be referred for further tests, examinations or treatment. In most cases, a colposcopy (a procedure using a special binocular microscope to look at the cervix) is performed after an abnormal Pap smear to confirm cell changes or lesions. A biopsy is then taken if the cervix appears abnormal in any way. If the biopsy confirms precancerous lesions on the cervix, then treatment is initiated.

Treatment of cervical cancer can have more profound and lasting physical effects, like early menopause or loss of fertility. Women who become pregnant may experience complications, including premature delivery, low birth weight babies and the need for C-section.

It is estimated that up to 80 percent of women will acquire a human papillomavirus infection by the age of 50.

There are tremendous personal and social costs associated with every stage of cervical cancer. Emotional distress and anxiety begins with abnormal Pap tests and continues with precancerous lesions and the advanced stages of the disease. These costs cannot be measured in dollars. For women of childbearing age, anger and anxiety over lost fertility can be particularly significant.

Current Prevention Methods / **Screening**

In 1943, the Pap smear was introduced to detect abnormal cells from the cervix, which can lead to cancer, as a secondary prevention method. Cells for a Pap smear are collected during a routine pelvic exam. The test is recommended every one to three years for women aged 21 and older or within the first three years of sexual activity. Women age 30 and over are also encouraged to get the human papillomavirus DNA test, which checks for the presence of specific cancer-causing virus types.

Screening programs help identify the presence of abnormal and precancerous cells on the cervix, preventing possible progression to cervical cancer. Pap smears have helped with early identification of the most common type of cervical cancer, known as squamous cell.

There are nearly three million abnormal Pap smears each year, which may require additional follow up and treatment.

Abnormal Pap smear results, and follow-up testing and examinations, can cause emotional and physical stress for the women affected and a strain on the healthcare system. The cost to evaluate and treat women with abnormal Pap smears in the U.S. has been estimated at six billion dollars annually.

Screening programs are an important monitoring tool, but they do not detect all precancerous lesions or cancer. More importantly, screening programs do not prevent cervical cancer. Even in countries that have screening programs, including the U.S., a significant number of women die from cervical cancer. Issues, such as difficulty accessing care or lack of follow-up, are contributors.

Vaccines: The Future of Cervical Cancer Prevention

Current screening technologies are important and improving. However, they are only about 80 percent effective in detecting abnormal or precancerous cells to prevent cervical cancer.

Cervical cancer is one of the first cancers to be targeted by vaccines. Vaccination promises a brighter future for millions of women who may otherwise die as a result of the disease.

Research has estimated that a vaccine that includes cancer-causing virus types 16 and 18 could potentially prevent 70 percent of cervical cancers worldwide.

Every 2 minutes, a woman dies of cervical cancer somewhere in the world.

Conclusion

Vaccinating against cervical cancer offers the potential to eliminate cervical cancer in women.

- 500,000 women diagnosed annually worldwide
- Over 270,000 women die each year
- Second most frequently occurring cancer in women, after breast cancer, in women ages 20 to 39
- Human papillomavirus is the necessary cause of cervical cancer
- There are up to18 high-risk virus types that can lead to cervical cancer
- Most common cancer-causing virus types are types 16, 18, 45, 31, 33, 52, 35 and 58
- Types 16 and 18 together cause at least 70% of all cases worldwide
- Up to 80% of women will get a genital human papillomavirus infection by the age of 50
- Nearly 50% of women will get a type of virus infection that is potentially cancer-causing
- For every 1 million women who are infected with cancer-causing virus types:
  - Approximately 100,000 will develop abnormal and precancerous cervical cell changes
  - About 8,000 of these women will develop early cancer confined to the outer layers of the cervical cells
  - Around 1,600 of these women will go on to develop invasive cervical cancer

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