Cervical Cancer

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The quality of life turned to be better than before. Nowadays people live in better conditions. They eat high quality food and receive all vitamins needed for health. The technology has high developed to facilitate human work, but comfortable life and new discoveries could not eliminate the human diseases. People get sick with different illnesses, and even sometimes the causative agent of it remain unknown. The main contributors to various disabilities are small living things that are so tiny that cannot be seen, but bring so many problems for humans. They are different bacteria, viruses and other microbes. They are like a huge army that fights against well being of people. Their main weapon is illnesses that invade humans. The most common diseases in these days are heart disabilities and cancer. Some of the most prevalent types of cancer are breast, lung and cervical cancer. Cancer of the cervix is the third most known cancer that affects women sexual organs.

Cervical cancer, called cervical carcinoma is the developing of an "abnormal tissue " in the cervix ("Cervical Cancer" 1). According to Reichmen, its causative agent is Human Papillomaviruse (HPV) that lives in the epithelium of the skin and mucous membranes (2). HPV is a group of viruses that make part of "Papillmavirus genus" of the group "Papovaviridae". Their size is 50 to 55 nm, they are naked and consist of "icosahedral capsides" that have 72 capsomers, including "a double-stranded, circular DNA genome" with 7900 base pairs (Reichmen 2). Bonnez and Reichmen state that DNA is composed from three functional parts: a region that regulates DNA reproduction, called regulatory region; "early region" (E1-E7) that contributes to "plasmids" reproduction and "late region" (L1-L2) (2). According to Bonnez and Reichmen HPV viruses are incubated in 3 to 4 months. They start to reproduce by entering in the "basal cells". After these cells are multiplied HPV DNA reproduces and it is copied. The new virus particles are collected in the nucleus and are delivered when "dead keratinocytes" are lost (30).

Illnesses caused by viruses are known for a long time. Dermody and Tyler report that at the end of 19th century Ivanovsky and Beijering discovered the first viruses. The development of technology led scientists to find more about the structure, shape, size and methods of their reproduction (2). However, HPV infections are not completely studied and understood. In the present more than 20 millions of people get contaminated with HPV. Women who are 50 years and older have more chances to be infected. In the USA about 6.2 millions residents get sick with HPV every year ("HPV Infections" 2). The CDC informs that there were 14,759 cases of cervical carcinoma between 1992 and 1999. The rate of it was 16.9 per 100,000 black females who were 30 years and older, and 8.9 per 100,000 white women. The rate of the disease increase to 52 percent in older people. Cervical cancer is more common in poor and developing countries (qtd. in "Study Finds Ethnicity Link" 4).

Bedard states that cervical carcinoma is divided into two groups: "preinvasive and invasive" (1). Prinvasive cancer consists in developing of abnormal cells on the surface of the uterus neck, and can be treated 75% to 90% if it is found early and it is used a correct method of cure (Bedard 3). In invasive cancer abnormal cells start to develop in the "cervical glands", and there are less chances for a complete cure. Every year about 8000 of women die from invasive carcinoma (Bedard 4).

Cervical Cancer is most prevalent in developing countries that do not have the access to testing that we do in the United States; 80% of the cervical cancer cases occur in developing countries (Cancer Facts and Figures, 27). In 2005 there will be a projected 490,000 new diagnosed Cervical Cancer cases worldwide (Cancer Facts and Figures, 27). In the year 2005 in the United States alone, the American Cancer Society projects that 10,370 new cases will be diagnosed (American Cancer Society, 3). Also in the year 2005, the American Cancer Society projects that 3,710 women will die from Cervical cancer (American Cancer Society, 3). This is compared to 4,092 women that died from Cervical cancer in 2001 (cdc.gov). This reduction in death rates is due to more women having access to a Pap test, the main test that is used to diagnose Cervical Cancer.

There is not a direct mode of transmission for cervical cancer, because cancer develops in cells. However, doctors are finding a very strong link from cervical cancer to HPV, a sexually transmitted disease. HPV stands for human papillomavirus and is a family of viruses, there are close to 100 different types of HPV (cdc.gov). Like many Sexually transmitted diseases, HPV suppresses the immune system and allows for cervical cancer cells to develop more rapidly. There are many ongoing research projects that are linking cervical cancer to HPV and the general consensus suggests that they may be directly correlated.

Cervical cancer generally starts to develop in the DNA in the lining of the cervix. Normal cells can be damaged and unable to be repaired, due to smoking or other causes. The damaged cells begin to multiply and continue to create more abnormal cells. Terms used to describe this process include, cervical intraepithelial neoplasia (CIN), squamous intraepithelial lesion (SIL), and dysplasia.

Cancer can grow and travel into surrounding parts of the body; the cells begin to replace normal, healthy cells. This process is called metastasis. All cancers grown and expand at different rates. The cells that cover the surface of the cervix are where 80% to 90% of cervical cancers occur. The other 10% to 20% occur in the mucus producing gland cells.

Once the precancerous cells begin to develop, cancer can fully develop anywhere from one to five years. Also this depends on what stage the cancer is at. Finding the correct stage will determine which form of treatment is appropriate to treat the cancer. Information that is gathered from Pap tests and diagnostic tests are used to find out how deep the affected cells go into the body. According to the American cancer society the stages of cervical cancer are as follows:

Stage 0- The cancer is only affecting surface tissue in the lining of the cervix.

Stage 1- There is only a small amount of cancer that can be seen via microscope. There are letters that go along with the stage numbers to determine the size of the cancer. IA1 would be for cancer cells that are 3mm deep by 7 mm wide. IA2 is 3mm to 5 mm deep and 7 mm wide. IB1 is less than 4 cm and IB2 is greater than 4 cm.

Stage 2- The cancer has spread beyond the cervix but has remained within the pelvic area. IIA indicates the stage that the cancer has spread beyond the cervix to the upper part of the vagina. IIB would be for when the cancer has spread into tissue next to the cervix.

Stage 3- The cancer has spread to lower parts of the vagina or pelvic wall and may be blocking the ureters. IIIA means that it has not yet reached the pelvic wall and IIIB is for when the cancer has reached the pelvic wall and is beginning to block urine flow to the bladder.

Stage 4- The most advanced form of cancer. This is when the cancer cells have spread to nearby organs and other parts of the body. IVA means that the cancer has spread to the bladder or rectum. IVB is for when the cancer has spread beyond the pelvic area into an area such as the lungs.
(American Cancer Society, 17).

There are not any tell tale signs and symptoms of cervical cancer. When the cancer has spread to nearby tissue and is in stage 2 or above, a sign might be abnormal vaginal bleeding. An unusual discharge, like light amounts of blood between periods or heavy periods would be another sign or symptom. Bleeding after intercourse of pain during intercourse could also be signs that cancer has developed. Having all of these sign and symptoms does not guarantee that you have cervical cancer; the only way to know for sure is to have a Pap test and exam done. (American Cancer Society, 14)

Our immune system acts as a constant protector of our body. When we get sick our immune system kicks in and fights whatever disease is causing the sickness. This is how a normal, healthy immune system operates. However, when the immune system is suppresses or comprised in some way, it has a very difficult time fighting those diseases. This is where a link between immune repressive diseases comes in with Cervical cancer. Having a STD like HPV suppresses your immune system, making it weak. When cervical cancer begins to develop the immune system tries to fight the abnormal cancer cells and cannot do an efficient job. This is how cervical cancer, and other cancers can develop so quickly without any notice. There has even been a link to Chlamydia because that is also a STD that suppresses the immune system. In general, the risk factors that are associated with STD's are also risk factors for Cervical cancer.

Smoking is a risk factor for cancer; women are two times more likely to develop cervical cancer is they smoke. The toxins that are introduced to the body via smoking damages the DNA of cells in the cervix. HIV is another risk factor because it suppresses a person's immune system making it easier for damaged cells to develop. Using an oral contraceptive for more that five years can increase a woman's risk for cancer as well as having multiple pregnancies.

Medical treatment depends on what stage that the cancer is at. Chemotherapy, radiation therapy, and surgery are the three main ways to treat cancer. Usually more

than one method will be used to make sure that the cancer is treated. There are four types of surgery; cryosurgery, laser surgery, conization and simple hysterectomy. Cryosurgery freezes the cancer cells by using a metal probe that is cooled with liquid nitrogen. Laser Surgery consists of using a laser beam to vaporize the cancer cells. Conization is where a cone shaped piece of tissue is removed from the cervix. Doctors can use a laser of a thin wire that is heated by electricity. A simple hysterectomy is the removal of the cervix via surgery. Only the cervix and the surrounding affected tissues are removed. This procedure results in infertility.

Cervical cancer is widespread throughout the population and there are serious complications related to HPV. However, people have poor knowledge about this disease and its pathogen. Even so, some medical students are lacking the information about HPV. Lambert and his coworkers made a research in which they interviewed 60 students about HPV and only 45% of the questions were answered correct (Saltmarsh 4). Therefore scientists realized that more informing programs should be done about cervical cancer and its causative agent to get people aware about its consequences (Saltmarsh 7).

Women from low-income families who do not have medical insurance are at a high risk to die from cervical cancer. The incompatibility to pay for screening test and for the cure make them to stay far away from medical assistance. That is why in 2000 in the law was introduced “Breast and Cervical cancer Prevention and Treatment Act” This act invests more than $990 million in a new health programs for poor women with breast and cervical cancer. (“Statement on Signing the Breast and Cervical cancer Prevention and Treatment Act of 2000” 1). This insurance option provides high quality care and treatment for low-income families.

Cervical cancer is a serious disease that spreads over 15,000 women each year. Many scientists and specialists struggle to find some effective ways to combat the disease and its agent. Researchers look for some new vaccines that will keep women safe from HPV. In the last years two immunization shots were discovered, but it will take a few years until it will be in pharmacies for sale (Stevens 5). Stevens informs that medical specialists are working on a “therapeutic vaccine” that would help the immune system of someone contaminated with HPV to eliminate the disease from the organism (6).

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