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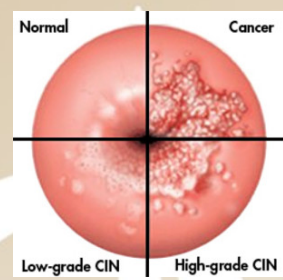
Human Papillomavirus (HPV) and Cervical Cancer

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Introduction:

Human Papillomavirus, otherwise known as HPV, is one of the most common sexually transmitted infections and certain strands have a strong correlation to the development of cervical cancer in women (Assoumou et al, 2015). Preventative actions are available to women, such as pap smear screenings, which can allow for early identification and treatment of abnormalities. As an advanced practicing nurse, it is essential to provide education to women surrounding HPV and the importance of routine screenings to avoid potential progression to cervical cancer.

Figure 1: Illustration of cervix progressing from normal to cancer



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Importance of topic:

According to the CDC (2018), "Each year, about 42,700 new cases of cancer are found in parts of the body where human papillomavirus (HPV) is often found. HPV causes about 33,700 of these cancers."

This topic was chosen as this author is interested in learning more about cervical cancer and the pathophysiology of HPV to assist in lowering the number of instances worldwide. As an advanced practice nurse it is important to assess the knowledge level of at risk individuals in the community to identify areas where gaps in comprehension may exist to provide further education.

In the role of an advanced practice nurse, it is crucial to advocate for vaccines against HPV and increase education regarding screening and prevention options, as efforts have proved to be effective.

Underlying Pathophysiology:

According to the American Cancer Society (2019), "HPVs are a large group of related viruses. Each virus in the group is given a number, which is called an HPV type." The U.S. Food & Drug Administration (2019) reports, "There are over 100 different kinds of HPV and not all of them cause health problems...Most problems are caused by types 6, 11, 16 or 18." "HPV16 is the most common genotype detected in invasive cervical cancer worldwide" (Onuki et al., 2018, p. 41).

There are two main categories of HPV, low-risk HPV and high-risk HPV. The ACS (2019) discusses low-risk HPV and states, "Some types of HPV can cause warts (papillomas) on or around the genitals and anus of both men and women. Women may also have warts on the cervix and in the vagina. Because these HPV types rarely cause cancer, they are called 'low-risk' viruses."

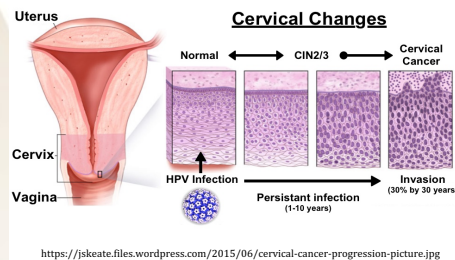
"Other types of HPV are called 'high-risk' because they can cause cancer in both men and women. Doctors worry more about the cell changes and pre-cancers linked to these types, because they're more likely to grow into cancers over time. Common high-risk HPV types include HPV 16 and 18" (American Cancer Society, 2019).

HPV is a very common type of infection. The bodies of most individuals who acquire HPV are able to clear up the infection on their own. However, it is when the virus doesn't improve that the occurrence of cancer is a concern.

Some facts about HPV and cervical cancer include:

- As stated by the NCCC (2019), "HPV is spread through skin-to-skin contact, not through an exchange of bodily fluid."
- The ACS (2019) reports, "HPV is a very common virus. Most men and women who have ever had sexual contact will get HPV at some time in their lives."
- "You cannot get HPV from: toilet seats; hugging or holding hands; swimming pools or hot tubs; sharing food or utensils; or being unclean" (ACS, 2019).
- "Regular screening, with Pap and HPV, will detect virtually all pre-cancerous changes and cervical cancers" (NCCC, 2019).
- "Cervical cancer most commonly takes 10 years to 20 years or more to develop; women who are no longer sexually active should still have Pap tests" (NCCC, 2019).
- "HPV vaccination could prevent more than 90% of HPV cancers—31,200 cases ever year—from ever developing" (CDC, 2018).

Figure 2: Illustration of cervical changes from a normal cervix versus a cervix infected with HPV.



<https://jskeate.files.wordpress.com/2015/06/cervical-cancer-progression-picture.jpg>

The ACS (2019) states, "Pre-cancerous changes in a biopsy are called cervical intraepithelial neoplasia (CIN). Sometimes the term dysplasia is used instead of CIN.

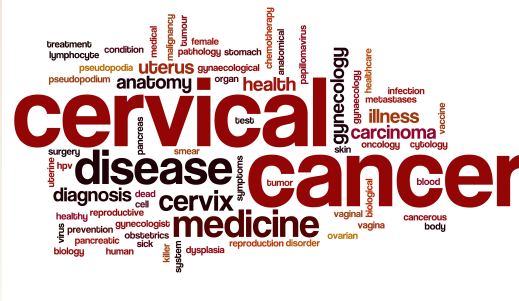
How HPV results are reported:

- In CIN1, not much of the tissue looks abnormal, and it is considered the least serious cervical pre-cancer (mild dysplasia).
- In CIN2 more of the tissue looks abnormal (moderate dysplasia)
- In CIN3 most of the tissue looks abnormal; CIN3 is the most serious pre-cancer (severe dysplasia) and includes carcinoma in situ."

Significance of Pathophysiology:

Recognizing the pathophysiology of HPV and cervical cancer plays a crucial role in identifying any abnormalities of the cervix and thus, determining the appropriate treatment route. As stated by Singh et al. (2018), "late detection due to nonexistent or inadequate screening options...has accentuated the problem of HPV infection in developing countries" (p. 233). In countries such as India, as well as the United States, approved HPV vaccinations (i.e. Gardasil and Cervarix) are available and should be encouraged. "Vaccination can offer protection to women without a current infection or disease, irrespective of previous viral exposure, and among those currently infected, can protect against further infections as well as reinfection with the same HPV type" (Xavier Bosch & Robles, 2018, p. 613).

Should an abnormal pap smear occur, additional testing options are available. An example is a colposcopy, in which a biopsy of the tissue is obtained and tested to determine if the sample is pre-cancer, a true cancer, or neither. Other imaging options are available if cancer is diagnosed to further look inside the body and see if the cancer has spread, which helps a physician create a treatment plan.



https://www.contemporaryobgyn.net/sites/default/files/Cervical%20Cancer%20%28%20breakstock%20-%20stock.adobe.com%29_0.jpeg

Signs and Symptoms:

"Most HPV infections are subclinical and many present unnoticeable or have mild symptoms" (Pereira et al., 2015, p. 2). Even women with early cervical cancer and pre-cancers typically are asymptomatic.

As stated by the American Cancer Society (2019), "symptoms often do not begin until the cancer becomes invasive and grows into nearby tissue." When this occurs, signs and symptoms commonly include:

- Abnormal vaginal bleeding, for example after sexual intercourse, post-menopausal bleeding, or heavy bleeding occurring between menstrual cycles
- Unusual vaginal discharge
- Pain during intercourse

Treatment:

"There is no cure for the virus (HPV) itself. There are treatments for the health problems that HPV can cause, such as genital warts, cervical changes, and cervical cancer" (FDA, 2019). Examples include:

- Pap tests - A procedure in which cells are removed from the cervix so they can be checked under a microscope for cervical cancer or cell changes that may lead to cervical cancer.
- HPV vaccine - "The HPV vaccine is approved for prevention of genital warts, cervical dysplasia, and cervical cancer" (Pereira et al., 2015, p. 8).
- Liquid biopsy - "HPV DNA can be quantitatively detected with the use of cfDNA. This has the potential to provide a clinically useful tumor marker for patients with cervical cancer that can aid in post-treatment surveillance and estimating the risk of disease relapse" (Cheung et al., 2019, p. 35).

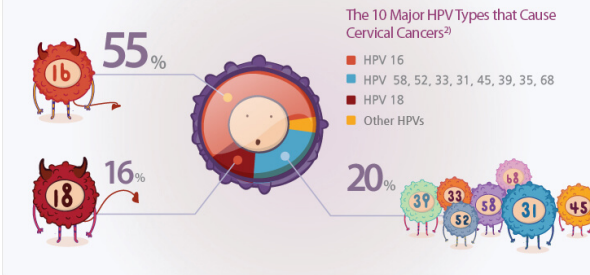
Presentation of Case:

Susan is a 54 year old female who recently moved to the United States from Ghana. She has not had regular healthcare or pap tests due to lack of availability. Susan's only known medical history is hypertension, but she is not on any medication for this diagnosis. She has smoked a pack of cigarettes per day for 25 years. Susan has 4 children, all of which were full-term and has had six sexual partners in her lifetime. She stated that her first pregnancy was at the age of 15. Her main complaint at this visit is spotting after intercourse. Susan assumes this is related to recently going through menopause, but decided to get established with an OBGYN to make sure everything is okay.

Due to Susan's lack of regular healthcare, it is crucial that the advanced practice nurse performs a pap test with HPV screening based off Susan's complaint. It is also important to provide educational information to Susan as she has risk factors for cervical cancer according to the American Cancer Society (2019) including: spotting after intercourse; smoking; having greater than 3 full-term pregnancies; and being younger than 17 for her first full-term pregnancy."

Initial appearance of Susan's cervix during the pap test showed moderate dysplasia. Due to these abnormal results, the treatment plan is to schedule a colposcopy to determine if the tissue is pre-cancer, true cancer or no cancer. Additional tests may be required based off those results. It is also recommended by the nurse practitioner to have a rescreen pap test in 1 year to continue to monitor and ensure worsening abnormalities does not occur.

Figure 3: Lists the 10 Major HPV Types and their prevalence.



https://cdn.zmescience.com/wp-content/uploads/2019/04/story3_3.jpg

Implications of Nursing Care:

It is important for the nurse practitioner to provide educational information to all patients about HPV and cervical cancer. There seems to be a knowledge gap in terms of how HPV is spread. Patient should be informed of preventative measures including:

- HPV vaccine - which can be used for both males and females and is strongly recommended in preteens and teens
- Pap smears and HPV tests
- Do not smoke
- Limit sexual partners
- Use condoms during sex (CDC, 2018).

Preventative care as a central focus will ultimately assist in lowering overall occurrences of HPV and cervical cancer. As an advanced practice nurse, in order to increase HPV vaccination rates one must assess a patient's access to services; the cost of vaccination and screening; a client's education level regarding HPV and cervical cancer; and possible outside factors deterring patients from receiving HPV preventative care.

Conclusions:

To date, Human Papillomavirus (HPV) and cervical cancer have become more prevalent among individuals. Due to this, it is critical that the APN understands the pathophysiology in order to properly identify and diagnose abnormalities when they occur.

The NCCC (2019) writes:

More than 13,000 women in the United States will be diagnosed with cervical cancer each year, and more than 4,000 of women will die. Cervical cancer is the fourth most common type of cancer for women worldwide, but because it develops over time, it is also one of the most preventable types of cancer.

With preventative care being the main focus, both providers and patients can seek out educational information and avoid risk factors in hopes of lessening the prevalence of both HPV and cervical cancer among all individuals.

References:

