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Cancers [1]

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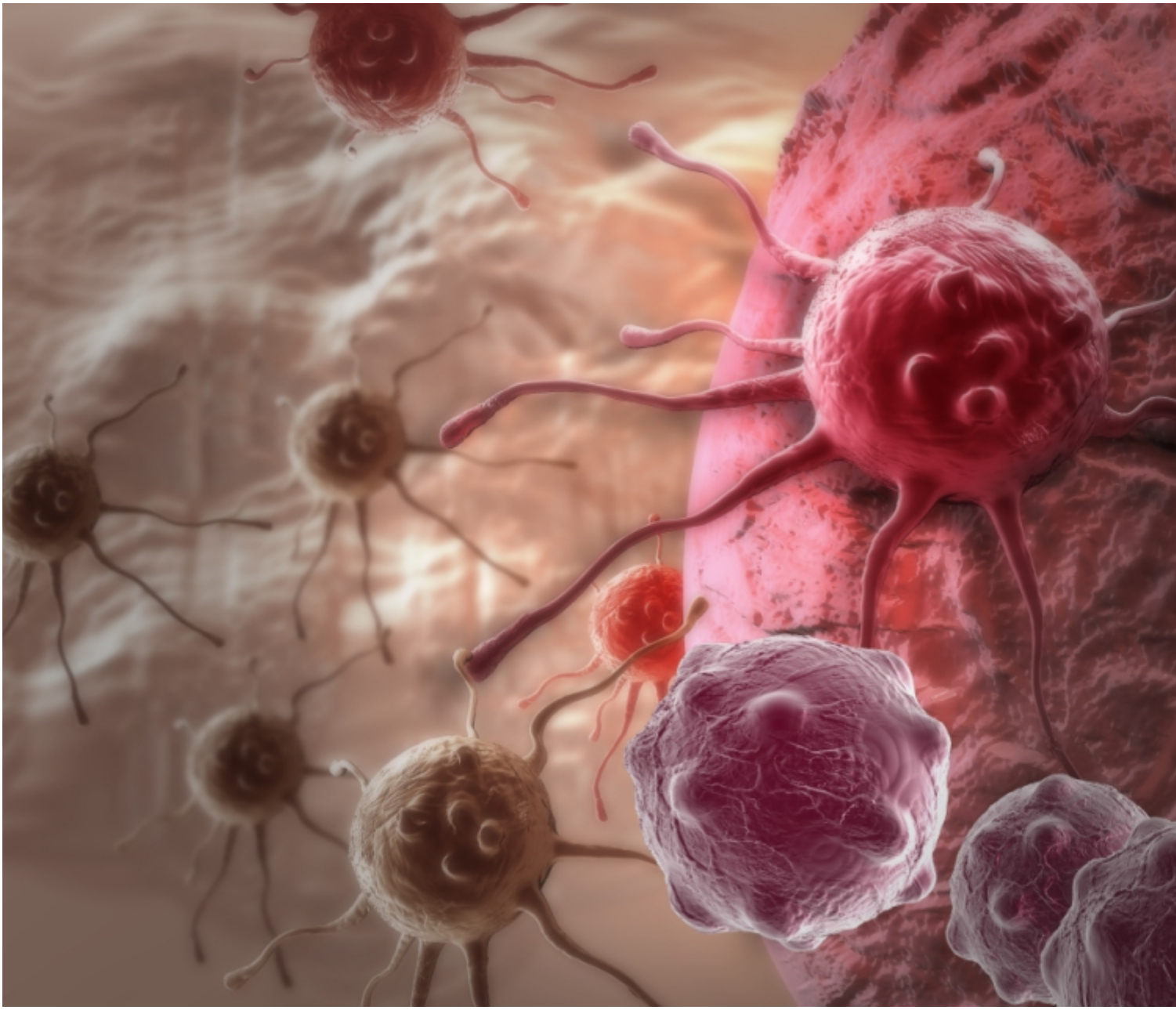

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What Is Cancer?

Cancer refers to the abnormal and uncontrolled growth of certain cells that can get in the way of normal body functions. Cancer can spread (metastasize) from where it starts growing to other organs and parts of the body. Cancer can destroy healthy cells and cause illness and death.

A healthy immune system [2] helps to prevent cancer. Because those living with HIV (HIV+) have weakened immune systems, it is easier for people living with HIV to be infected with viruses that can lead to cancer. These viruses include:

- Human papilloma virus [3] (HPV): there are several types of HPV; certain types can cause cervical and anal cancer, as well as vaginal, vulvar, penile, and head and neck cancers
- Epstein Barr Virus (EBV): EBV can cause both non-Hodgkin's and Hodgkin's lymphomas
- Hepatitis B [4] and Hepatitis C [5] viruses: these can cause liver cancer
- Human herpesvirus 8 (HHV-8), which can cause Kaposi's sarcoma

The following types of cancer lead to an AIDS diagnosis [6]: Kaposi's sarcoma, certain types of lymphoma, and cervical cancer. Other non-AIDS defining cancers for which people living with HIV are at increased risk include anal, liver, and lung cancer. All of these are explained in detail below.

Kaposi's Sarcoma (KS)

KS was one of the most common opportunistic infections [7] (OIs) in the early days of the AIDS epidemic.

HHV-8 is the virus that causes KS. It is transmitted through sexual contact or blood products. KS has always been less common in women than in men, but is less common in all people with HIV since the use of newer, more effective HIV drug combinations.

A recent study found that some people living with HIV who have KS find that their KS gets worse after starting HIV drugs. This is most likely due to IRIS (immune reconstitution inflammation syndrome [8]), which happens when your immune system acts so strongly and so quickly that it causes lots of inflammation that can actually make your symptoms worse. KS-IRIS usually happens more often in people living with HIV who have higher HIV viral loads, higher KS viral loads, and more advanced KS disease.

KS on the skin is not life threatening. However, if KS spreads to other parts of the body, especially the lungs, it can cause serious problems. An oncologist (a doctor who specializes in cancer) usually suggests treatment options based on factors such as the size, number, and location of KS tumors. However, the first treatment for KS is to begin HIV drugs. Your HIV provider and other specialists (e.g., radiation oncologist, dermatologist) may be involved as well.

Symptoms (by location)

- Skin (most common site of KS):
  - Flat or raised, and usually painless lesions that do not itch or drain
  - Lesions may be pink, red, purple, or brown ? or resemble "blood blisters"
  - There may be swelling, especially in the legs (lymphedema)
- Oral cavity (inside the mouth):
  - Lesions as described above
  - Trouble eating and swallowing
- Gastrointestinal tract tumors:
  - Diarrhea [9] (loose or frequent stools)
  - Cramping
  - Bleeding
- Lung tumors:
  - Breathing problems
  - Bad cough

Diagnosis

- Usually made by biopsy (sample of tissue taken and examined under microscope)

Treatment

- HIV drug therapy alone may make lesions or tumors shrink or disappear (go into remission)
- Depending on the location of the KS, cancer specialists will recommend some combination of chemotherapy and radiation therapy

Lymphoma

Lymphoma involves the uncontrolled growth of lymph cells that may spread to other organs, including bone marrow, the brain or spinal cord (central nervous system, or CNS lymphoma), and the gastrointestinal tract (GI lymphoma). The lymph system is a key part of the immune system and is part of the circulatory system as well. The Epstein-Barr virus (EBV) may play a role in the development of lymphomas.

The two major types are:

- Non-Hodgkin's lymphoma (NHL)
- Hodgkin's lymphoma (also called Hodgkin's disease)

Lymphomas can be more advanced and harder to treat in people living with HIV, especially CNS lymphoma.

Symptoms

- Swollen lymph nodes
- Fever, chills, sweats
- Weight loss
- Belly pain or swelling; nausea; gassy or bloated stomach (GI lymphoma)
- Headache; changes in vision, alertness, or personality; confusion; problems with balance (CNS lymphoma)

Diagnosis

- Biopsy of affected part of the body (e.g., lymph node, lung, intestine, etc.)

Treatment

- Depending on the size, type, and location of the lymphoma, cancer specialists will recommend some combination of chemotherapy, radiation therapy, and surgery

Cervical Cancer

Cervical cancer is strongly linked to the human papilloma virus (HPV) [3]. HPV is the most common sexually transmitted infection [10] in the US. Different strains of HPV cause warts or abnormal cell growth (dysplasia) near the anus or cervix (entrance to the womb).

Abnormal cell growth is more common in women with advanced HIV disease and low CD4 cell counts. It is often more severe and difficult to treat than in HIV-negative women. Untreated dysplasia can lead to cervical cancer, which can be life threatening. HPV may also cause cancer in the vagina, vulva, and anus.

The good news is, when dysplasia is found and treated early, cervical cancer can be prevented. Cervical screening tests are used to look for changes in the cervix, including dysplasia and cervical cancer. Cervical cancer usually takes years to develop, and it does not usually have symptoms until it is quite advanced. This is why getting screened for cervical cancer on a regular basis is important; screening can catch potential problems before they get worse. For more information on getting a gynecologic exam, see our article on Caring for a Woman's Body [11].

Prevention

The other good news is that there are three widely used HPV vaccines: Gardasil (made by Merck; also known as Silgard), Gardasil-9 (also made by Merck), and Cervarix (made by GlaxoSmithKline). These vaccines protect against the types of HPV that cause the most cervical cancers and genital warts. Pregnant women [12] should not receive the vaccine, although it is safe to get the vaccine while breastfeeding.

All three HPV vaccines have been approved by the US Food and Drug Administration (FDA), Health Canada, and the European Medicines Agency (EMA). Gardasil-9 is still awaiting approval in the UK. In the US, Gardasil products are approved for females and males ages 9 to 26, while Cervarix is approved for females ages 10 to 25. There are now demonstration projects that are bringing HPV vaccines to girls and women in low-income countries as well.

It is best if young people get all doses of the vaccine before their first sexual contact. This helps them develop an immune response before they are exposed to HPV. People who are infected with some types of HPV may still benefit from the vaccine's effects against other types of HPV. The US Centers for Disease Control and Prevention (CDC) recommends HPV vaccines for all girls and young women ages 11 through 26 and all boys and young men ages 11 through 21 (even if they have already become sexually active).

In Canada, the National Advisory Committee on Immunization (NACI) recommends Gardasil vaccination for females and males ages nine through 26, or vaccination with Cervarix for girls and young women ages nine through 26. In the UK, vaccination with Gardasil is offered to girls ages 12 and 13 through the National Health Service.

Symptoms

- Many women do not experience symptoms
- Bleeding between periods and bleeding after sexual intercourse are two signs of advanced cervical dysplasia

Diagnosis

Screening for dysplasia and cervical cancer is essential to find and treat early pre-cancerous changes and to prevent cervical cancer. Traditionally, the Papanicolaou test (Pap test or Pap smear) has been done. This test uses a small brush to collect a few cells to check for changes in the cervix. Now, liquid based systems to screen samples of cervical cells are much more common and are effective for finding abnormal cells.

Treatment for cervical cancer

Treatment depends on the type of cervical cancer and how far it has spread. Often, more than one kind of treatment is used.

- LEEP (loop electrosurgical excision procedure): Using a thin wire loop with an electrical current to cut away abnormal tissue
- Cryotherapy: Freezing the cells with liquid nitrogen
- Laser therapy: Using an intense light to destroy the cells
- Cold-knife cone biopsy (conization): Cutting the cells out
- In cases of mild dysplasia, your health care provider may just monitor the cervix by repeat Pap or HPV test
- Surgery: Hysterectomy (removal of the uterus, including the cervix)
- Chemotherapy: Drugs (pills and/or intravenous medications) are used to shrink or kill the cancer
- Radiation: High-energy rays (similar to X-rays) are used to kill the cancer cells

Anal Cancer

Anal cancer is on the rise, in men as well as women. It is also tied to specific strains of HPV. An anal Pap smear and physical examination are the best ways to detect anal dysplasia. It is important to ask your health care provider to perform these tests on a regular basis. Because some of the same strains of HPV that cause cervical cancer can cause anal cancer, getting vaccinated with one of the three FDA-approved HPV vaccines can help to prevent anal cancer, too.

Symptoms

- Anal bleeding or discharge
- Itching, pain, or pressure in the anal area
- A lump or swelling in the anal area
- Changes in bowel movements, including changes in the diameter of stool

Diagnosis

- Anal pap smear
    - Anal pap smears check for changes to the anus; some experts recommend that people living with HIV receive regular anal pap smears
    - Your provider may also perform a digital rectal exam (DRE). During this test, the provider inserts a gloved and lubricated finger into the anus to feel for lumps or abnormalities.
- Anoscopy
    - If you have an abnormal anal Pap, you may need an anoscopy (an exam of your anus using a microscope to look at the tissue more closely)
    - During the anoscopy, your health care provider may remove a tissue sample (biopsy) for laboratory examination to determine if the abnormal cells are cancerous

Treatment

- Infrared coagulation (IFC): Using short bursts of infrared light to cut off the blood supply to the affected area
- Laser therapy: Using an intense light to destroy the cells
- Electrocautery: Burning off the cells with an electrical current
- Trichloracetic acid: Burning off the cells with acid
- Surgery
- Chemotherapy with radiation

Liver Cancer

The increased risk for liver cancer among people living with HIV is strongly linked to infection with the hepatitis B [4] and/or hepatitis C [5] viruses (HBV and HCV, respectively). Researchers have also shown a direct link between having a low CD4 cell count and having an increased risk for liver cancer. Other factors involved in damaging the liver include opportunistic infections [7] (e.g., Mycobacterium avium complex, tuberculosis, cytomegalovirus, and cryptosporidium), excessive alcohol and recreational drug use [13], and even some HIV drugs.

Symptoms

- Many people have no symptoms until the disease is very advanced
- Weight loss
- Nausea and vomiting
- Upper belly pain
- Loss of appetite
- White, chalky stool
- Swelling of the belly
- Jaundice (yellowing of the eyes and/or skin)

Diagnosis

- Blood tests to check liver function
- Imaging tests (e.g., CT scan, ultrasound, MRI) to look for masses
- Biopsy: removing a tissue sample by inserting a needle through the skin and into the liver

Treatment

Depending on the size, type, and location of the liver cancer, your provider will suggest treatment, which may include:

- Chemotherapy
- Radiation
- Surgery to remove a part of the liver
- Liver transplant surgery to remove the liver and replace it with healthy liver from a donor
- Radiofrequency ablation: Using electrical current to heat and kill cancer cells

Lung Cancer

Although lung cancer is not an AIDS-defining cancer, people living with HIV have a greater chance of developing lung cancer than HIV-negative people. This difference is likely due to the weakened immune

systems of those living with HIV. Unfortunately, lung cancer is one of the deadliest cancers. In the US, it is the leading cause of cancer-related deaths among both women and men.

An increased risk of developing lung cancer is also strongly tied to smoking. Both the duration (how long) and amount (how much or how many per day) of smoking contribute to the risk for lung cancer. Second-hand smoke exposure (breathing smoke in the environment) also contributes to an increased risk for lung cancer.

Researchers recently reported that smoking is the single biggest risk factor for non-AIDS defining cancers among people living with HIV in the US. Smoking has more of an effect on the risk of a person with HIV getting cancer than having a low CD4 count, a non-suppressed viral load, hepatitis C, or an AIDS diagnosis.

The best way to prevent lung cancer is to avoid or stop smoking. For more information, see our article on Smoking and Tobacco Use [14].

Symptoms

- Cough, with or without phlegm or mucus
- Coughing up blood
- Shortness of breath
- Chest pain
- Fatigue
- Loss of appetite

Diagnosis

- Sputum sample for microscopic examination, which shows if abnormal cells are present in the lungs. Sometimes a person can cough up the sputum (mucus or phlegm). If not, a procedure known as bronchoalveolar lavage (BAL) can be done. In this procedure, sputum is obtained by placing a small tube down the windpipe.
- Bronchoscopy: insertion of a thin, flexible tube with a light on the end into the windpipe to look inside the lungs and possibly take a sputum or tissue sample for examination under a microscope
- Biopsy: removal of a tissue sample for examination under a microscope
- Imaging tests: chest x-ray, CT scan, PET scan, or MRI

Treatment

Depending on the size, type, and location of the lung cancer, cancer specialists will recommend some combination of chemotherapy, radiation therapy, and surgery.

Conclusion

Cancers can be very serious for people living with HIV. On-going medical care allows for early diagnosis and treatment, or even prevention, in the case of cervical and anal cancers.

Seeing your health care provider on a regular basis and taking your HIV drugs regularly can help keep your immune system strong and your CD4 cell counts up. This also helps fight off cancers.

Tags:

- Cancers in the HIV-Infected Population [15]
- Kaposi's sarcoma [16]

- tumors [17]
- cancer symptoms [18]
- cancer diagnosis [19]
- cancer treatment [20]
- Lymphoma [21]
- cervical cancers [22]
- pap smears [23]
- dysplasia [24]
- immune system [25]
- Opportunistic Infections [26]
- Cancer HIV [27]
- Cancer AIDS [28]
- KS HIV [29]
- anal cancer [30]
- cervical cancer HIV [31]
- cancer HIV women [32]
- lung cancer HIV [33]
- lymphoma HIV [34]
- liver cancer HIV [35]

Additional Resources

Select the links below for additional material related to cancers.
HIV Infection and Cancer Risk (NCI) [36]
HIV and AIDS-Related Cancer (American Society of Clinical Oncology) [37]
Cancer and HIV/AIDS (The Body) [38]
How Are HIV and AIDS Related to Cancer? (ACS) [39]
Cancer Vaccine Proves Effective in HIV Patients (NYT) [40]
KS-Associated IRIS Common Among People Starting HIV Therapy in Africa (AIDSmap) [41]
Cervical Cancer and HIV in Women (SAfAIDS) [42]
HIV-Positive Females Have High Anal Cancer Rates (Medical News Today) [43]
Non-HIV-Related Illnesses: Cancers (AIDSmap) [44]
What Can People with HIV or AIDS Do to Try to Lower Their Risk of Cancer or Find it Early? (ACS) [45]
As HIV Patients Live Longer, Some Cancer Risks Rise (WebMD) [46]

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Links:
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[3] http://www.thewellproject.org/hiv-information/human-papillomavirus-hpv
[4] http://www.thewellproject.org/hiv-information/hepatitis-b
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[42] http://www.safaids.net/content/cervical-cancer-and-hiv-women
[43] http://www.medicalnewstoday.com/articles/244151.php

[44] http://www.aidsmap.com/Non-HIV-related-illnesses-cancers/page/1254977/
[45] http://www.cancer.org/cancer/cancercauses/othercarcinogens/infectiousagents/hivinfectionandaids/hiv-infection-and-aids-lower-risk
[46] http://www.webmd.com/hiv-aids/news/20151005/as-hiv-patients-live-longer-certain-cancer-risks-rise-study