



AIDS HEALTHCARE
FOUNDATION

HIV/AIDS Related Illnesses Fact Sheets

Last Publication date: October 21, 2011

Table of Contents

Anal Cancer	1	Kidney Problems	63
Anemia	3	Lactic Acidosis	65
Asthma	4	Liver Disease	67
Bone Problems	7	Microsporidiosis	70
Buffalo Hump (Lipodystrophy)	9	Mycobacterium Aviumcomplex (MAC)	72
Cancers	11	Neuropathy	74
Cervical Cancer	13	Pneumocystis Carinii (Pneumocystis Jiroveci)	77
Coccidioidomycosis (Valley Fever)	15	Pneumonia (PCP)	
Cryptococcosis	17	Shingles	79
Cryptosporidiosis	19	Sinusitis	81
Cytomegalovirus (CMV)	20	Smoking and Lung Disease	84
Dementia	22	Thrush	86
Dental Problems	25	Toxoplasmosis	88
Depression and Anxiety	28	Tuberculosis (TB)	89
Diarrhea	31	Wasting	91
Encephalopathy	34		
Facial Wasting (Lipoatrophy)	36		
Fatigue	38		
Gastrointestinal Problems	40		
Hepatitis	43		
Herpes	46		
High Cholesterol	48		
Histoplasmosis	51		
Human Papillomavirus	53		
Illicit Drug Use	55		
Immune Reconstitution Syndrome	57		
Influenza	59		
Kaposi's Sarcoma	61		

Anal Cancer

Anal cancer is strongly linked to human papillomavirus (HPV). These viruses are usually harmless in people with healthy immune systems. People with HIV infection are 30 to 50 times more likely to have anal cancer than those without HIV.

HPV is a common virus with more than 100 forms. Some types cause warts. Five types have been linked to cervical cancer in women and anal cancer in both men and women.

Symptoms

The anus is the opening through which solid wastes pass out of the body. It is the opening from the rectum, which is the end of the large intestine. Signs of anal cancer include:

- Bleeding (even a small amount) from the rectum. (Some people with anal cancer mistake this bleeding for hemorrhoids.)

- Pain or pressure around the anus

- Itching or a discharge from anus

- Change in the diameter of the stool

- Change in bowel habits

- A lump near the anus

- Swollen lymph nodes in the anal or groin areas

Causes

In the past, it was thought that anal sex was the main way that HPV spread. However, studies -- of both men and women with HIV infection -- show that rates of anal HPV infection are higher in people with HIV no matter how they have sex.

Risk Factors

Several things may raise the risk of getting anal cancer. These include a history of sexually transmitted diseases and heavy tobacco use. A weakened immune system (having a low CD4 T cell count) raises the chance of getting anal cancer. This suggests that a weakened immune system allows HPV to grow

Prevention

HPV screening is an often-overlooked part of HIV care. Regular screening can help find and treat HPV infection before it becomes a life threatening condition.

Diagnosis

After noting the symptoms and taking a medical history, a doctor will do a physical exam. This will usually include a rectal exam. Wearing thin gloves, the doctor will put a greased finger into the rectum and gently feel for lumps. He or she might order a high-resolution anoscopy. This involves inserting a scope into the anus. The scope makes it possible to magnify the cells to check for abnormalities. A type of acid is also used to detect abnormal cells. Tissue is taken to be examined under a microscope in a lab (a biopsy).

Once the tissue has been analyzed, the cells will be graded as to the type of abnormalities and how widespread they are.

In some cases, a doctor will refer a patient to a proctologist (a specialist in diseases and disorders of the rectum, anus, colon and pelvic floor) or a surgeon.

Treatment

If anal cancer is found, other tests are usually done to see if the cancer has spread. These tests include:

Chest X-ray to see whether the cancer has spread to the lungs

Ultrasound, which uses sound waves and their echoes to produce a picture of internal organs or masses

Computed tomography (CT) scans, which use X-rays to produce many, detailed images as a scanner rotates around the body. A computer then turns the pictures into one image. Sometimes, a dye is used to make parts of the body show up better.

Magnetic resonance imaging (MRI) scans, which use radio waves and strong magnets to create an image of the body.

Positron emission tomography (PET) scan, which uses a type of sugar that has a radioactive atom. The cancer cells pull in a lot of this sugar. A special camera is used to detect the radioactivity.

The cancer will need to be staged before treatment is planned:

Stage 0. The cancer is only in the top layer of the anal tissue.

Stage I. The cancer has spread deeper, but is smaller than an inch.

Stage II. The cancer has spread beyond the top layer of anal tissue and is larger than an inch. It has not spread to nearby organs or the lymph nodes. (The lymph nodes are small, bean-shaped structures throughout the body. They produce and store infection-fighting cells.)

Stage III A. The cancer has spread to the lymph nodes around the rectum, bladder or vagina.

Stage III B. The cancer has spread to the lymph nodes in the middle of the belly or throughout the groin or the cancer has spread to both nearby organs and the lymph nodes around the rectum.

Stage IV. Cancer has spread to distant lymph nodes within the belly or to organs in other parts of the body.

Usually, the tumor is taken out with surgery. Several types of surgery can be done:

Removing only the cancer. Often, this saves the ring of muscle (the sphincter) around the anus that opens and closes it to release waste.

Removing the cancer, the anus and the lower part of the rectum. This surgery requires going in through the belly and the perineum (the space between the anus and the scrotum in men or the vulva in women). The doctor will make an opening to the outside of the body for waste to pass through. This is called a colostomy. The patient will then have to wear a special bag to collect body wastes. The bag sticks to the skin around the opening with special glue. It is thrown away after it is used. The bag doesn't show under clothing.

Today, radiation or chemotherapy (or both) is done after surgery. This makes treatment effective with less surgery. Radiation therapy uses X-rays or other high-energy rays to kill cancer cells and shrink tumors. One type is beamed through the body to the cancer from the outside. Another is done by putting radioactive materials (radioisotopes) through thin plastic tubes in the area where the cancer was found.

Chemotherapy uses drugs to kill cancer cells. The drugs are either given in pills or through a needle into a vein or muscle. The chemicals enter the blood stream to kill cancer cells throughout the body. Some of these drugs make cancer cells more sensitive to radiation therapy.

Anemia

When a person doesn't have enough red blood cells, he or she has anemia. Red blood cells in the blood carry oxygen to the body. With fewer red blood cells, it takes more work for the body to get enough oxygen. HIV infection and the drugs used to treat it can cause anemia.

Symptoms

Signs of anemia include:

- Feeling weak
- Headaches
- Irritability or moodiness
- Less (or no) interest in sex
- Lightheadedness or dizziness
- Confusion
- Pale skin
- Ringing ears
- Shortness of breath when active
- Tiring faster

With less oxygen in the blood, the heart beats faster to make up for it. Over time, this can damage the heart and other organs of the body.

Sometimes anemia causes pica. Pica is the habit of eating odd things such as ice, clay, cardboard, foods that crunch or raw starch.

Causes and Risk Factors

Anemia can be caused by blood loss or conditions that either kill red blood cells or interfere with the body's ability to make them. Having too little iron or certain B vitamins can also cause anemia. Infections – both HIV and those that take advantage of a weakened immune system – can lower the number of red blood cells. The more affected a person is by AIDS, the more likely he or she is to have anemia.

Anti-HIV drugs can also lead to anemia. This is especially so for AZT.

Diagnosis

It is important to know what is causing the anemia. A doctor will take note of the symptoms and the patient's medical history. He or she will order tests that count how many red blood cells are in the blood.

Treatment

Managing anemia helps a person with HIV live longer and better. Highly active antiretroviral therapy (HAART) can prevent or improve anemia in some HIV patients. Sometimes, transfusions are needed. This increases the red blood cells in the body.

Asthma

When a person has asthma, the airways in his or her lungs become blocked and swollen. The airways grow extra sensitive to particles in the air. This makes it hard to breathe and causes coughing or wheezing.

People with HIV infection often have asthma that isn't recognized by their doctors. People with HIV are more vulnerable to the bad effects of smoking. They may be at higher risk of developing lung-related disorders such as emphysema. All of these things can make asthma worse.

Symptoms

Symptoms of asthma can vary widely from person to person. Even in the same person, the symptoms may be worse sometimes than others.

The first signs of an attack are wheezing, coughing or being short of breath. The coughing usually doesn't produce mucus. A person having an asthma attack may feel tightness or pressure in the chest. It may be difficult to breathe.

During a serious attack, a person may have a rapid heartbeat and breathing rate. This happens as the body struggles to make up for the lack of oxygen in the lungs. During severe attacks, a person may not be able to speak. He or she may prefer to sit upright or lean forward. They may feel anxious and appear to be fighting for air.

At this point, carbon dioxide builds up in the blood. This may cause a person to become confused or lethargic. The lungs may start to fill up with mucus. The wheezing may appear to go away. This is a sign of a serious breathing problem that can be life threatening.

An attack of asthma can be set off by a variety of things:

- Crying, screaming or laughing
- Dust or other allergens
- Exercising
- Fumes such as chemical fumes or air pollution

Causes

A number of things can cause asthma, including:

- Swelling (inflammation) of the linings of the airways
- Spasms of the muscles that line the airways
- Injury
- An increase in the mucus made by the linings of the airways

In most people with asthma, the airways close up quickly when they are stimulated. It is not known why this happens. It may be due to changes that happen in the lungs. Cells in the airways may peel away. This may cause a person to lose the factors that help relax the squeezing of the muscles of the airways. The lining of the airways may get thicker. Sometimes allergic reactions cause the airways to swell up or produce more mucus.

Risk Factors

More black people die from asthma than white people.

Prevention

It is important to avoid anything that may trigger an attack. These include animal danders, dust, airborne molds, pollens and cockroaches. Foods that contain sulfites, such as red wine, beer or shrimp should be avoided if they tend to set off an attack. People with HIV may be more sensitive to these irritants than others.

It may be necessary to cover mattresses and box springs with a zippered covering to control triggers. Removing carpets and keeping the temperature and humidity controlled may also help prevent attacks.

A person with asthma should not smoke. Smoking by itself irritates the air passages. It also reduces the amount of oxygen in the blood and damages the lungs.

Diagnosis

The signs of asthma can be like those of other lung diseases and heart failure. A doctor will ask about the symptoms and do a physical examination. The doctor may also ask about other families members and whether they have allergies or lung conditions. He or she may also do some or all of the following tests:

A blood test. This can be used to check how much of various gases are in the blood. A blood test will also measure how much acid is in the blood.

Allergy tests to see how sensitive the person is to cigarette smoke or allergens from the environment.

Chest X-ray. This will show whether there is air trapped inside the chest. In children with asthma, the middle part of their right lung may be collapsed.

Exercise testing on a treadmill or a bicycle. People with asthma may have problems breathing after starting to exercise.

Looking at the sputum. In a person with asthma, the sputum may be sticky, rubbery and whitish. If there is an infection, the sputum may be yellowish.

Lung function tests. This check to see how blocked the passages is. They also monitor how the lungs react to allergens and irritants. These tests may be repeated over time to see how well a person with asthma is doing. Sometimes they are done before and after a person is given a spray to open up his or her airways.

Measuring whether an equal amount of air is entering the lungs and leaving the lungs. People who have asthma often take in a different amount of air than they breathe out.

Treatment

There is no cure for asthma. Whether a person with asthma has HIV or not, the treatment is the same.

Treatment focuses on preventing the symptoms, keeping the lungs working as well as possible and avoiding asthma attacks that can lead to going to the hospital.

Several types of drugs can be used to treat asthma. Different drugs act on different asthma-related problems. Some relax the muscles; some reduce swelling and some block allergic reactions. Most asthma drugs, including inhalers, don't have side effects when used with anti-HIV drugs.

During an attack, a person may be able to use a spray (given in an inhaler) that opens up the airways. In serious cases, a person may need to go to the hospital and have drugs that are given through a vein (intravenously). Sometimes, a person may need to be given oxygen to help them breathe and relax.

People who have HIV are prone to getting lung infections. It's important that these be treated as early as possible to avoid complications with asthma.

It is important that person with asthma and his or her family and friends learn as much as possible about the disease. Knowing what triggers an attack, what to do to prevent an attack from getting worse and what drugs to

take when are important. The more a person knows about asthma, the better.

Stage I. The cancer has spread deeper, but is smaller than an inch.

Stage II. The cancer has spread beyond the top layer of anal tissue and is larger than an inch. It has not spread to nearby organs or the lymph nodes. (The lymph nodes are small, bean-shaped structures throughout the body. They produce and store infection-fighting cells.)

Stage III A. The cancer has spread to the lymph nodes around the rectum, bladder or vagina.

Stage III B. The cancer has spread to the lymph nodes in the middle of the belly or throughout the groin or the cancer has spread to both nearby organs and the lymph nodes around the rectum.

Stage IV. Cancer has spread to distant lymph nodes within the belly or to organs in other parts of the body.

Usually, the tumor is taken out with surgery. Several types of surgery can be done:

Removing only the cancer. Often, this saves the ring of muscle (the sphincter) around the anus that opens and closes it to release waste.

Removing the cancer, the anus and the lower part of the rectum. This surgery requires going in through the belly and the perineum (the space between the anus and the scrotum in men or the vulva in women). The doctor will make an opening to the outside of the body for waste to pass through. This is called a colostomy. The patient will then have to wear a special bag to collect body wastes. The bag sticks to the skin around the opening with special glue. It is thrown away after it is used. The bag doesn't show under clothing.

Today, radiation or chemotherapy (or both) is done after surgery. This makes treatment effective with less surgery. Radiation therapy uses X-rays or other high-energy rays to kill cancer cells and shrink tumors. One type is beamed through the body to the cancer from the outside. Another is done by putting radioactive materials (radioisotopes) through thin plastic tubes in the area where the cancer was found.

Chemotherapy uses drugs to kill cancer cells. The drugs are either given in pills or through a needle into a vein or muscle. The chemicals enter the blood stream to kill cancer cells throughout the body. Some of these drugs make cancer cells more sensitive to radiation therapy.

Bone Problems

Bone is a living, growing material. It is built out of protein and calcium. This frame holds up the body. The outer layer of bone has nerves and many small blood vessels. The inner bone is where red blood cells are made.

Old bone is replaced by new bone all the time. In young people, more new bone is added than old bone is taken away. After the age of 30, more bone is taken away than replaced. This makes bones more brittle even in healthy older people.

People with HIV infection are more likely to get two bone disorders:

Osteoporosis. This literally means porous bone. Osteoporosis happens when too much calcium is taken from the bones by the body. The bones then break easily. A similar but less severe bone disorder is osteopenia. People with HIV-infection are three times more likely to get osteoporosis than people without HIV.

Osteonecrosis. This literally means bone death. Osteonecrosis (also called avascular necrosis) happens when the blood supplying the bone is cut off. Tiny breaks appear in the bone. After a time, the bone collapses. This usually affects the thigh bone (the femur). It may affect other bones, too.

Symptoms

Many people only learn they have osteoporosis when a bone breaks. The hip, bones of the spine (vertebrae) and wrist break easily in people with osteoporosis.

Osteonecrosis causes joint pain, especially in the hips. Sometimes, the pain is felt in the groin. At first, the pain may only be felt when weight is put on the joint. A person may limp. It may be hard to fully extend a limb. The joint may feel like it's clicking when a person moves from sitting. If the osteonecrosis is in a joint that doesn't bear weight, such as the shoulder, the pain may be less. The pain is constant unless treatment is given.

Causes

It isn't yet known why people with HIV have unusually high rates of osteoporosis and osteonecrosis. The infection itself may increase the risks of developing these conditions. Antiretroviral drugs also may affect the bones. These drugs change the body's metabolism and how it stores fat. The longer a person has been infected with HIV, the more likely he or she is to have bone loss.

Most people lose bone calcium as they age. Factors that are linked to faster bone loss are:

Risk Factors

- Being Caucasian or Asian
- Being older than 50
- Being slender or lightweight
- Drinking a lot of caffeine or alcohol
- Having gone through menopause (in the case of women)
- Not being physically active.
- Not getting enough calcium or vitamin D in food
- Smoking
- Taking certain drugs such as corticosteroids like prednisone

Osteonecrosis is caused by a loss of blood supply to the bone. Injuries, excessive use of alcohol, and long-term use of corticosteroid drugs (to reduce inflammation) can cause osteonecrosis. Fat can clog blood vessels in the bone. In people who don't have HIV, there is a greater risk of developing osteonecrosis if the person has conditions such as Gaucher's disease, connective tissue disorders, diabetes, hardening of the arteries, a fatty liver or pancreatitis (inflammation of the pancreas).

Prevention

Osteoporosis can be prevented or delayed by:

Taking calcium supplements, especially calcium carbonate or calcium citrate. Vitamin D can help with calcium absorption.

A health care provider can give advice about the right amounts of supplements to take.

Doing more weight-bearing exercise (if you don't have joint pain).

Stopping smoking.

Cutting down on caffeine and alcohol.

Reducing the risk of falling. Clear walkways at home. Be careful on stairs or steep slopes.

Diagnosis

To diagnose osteoporosis, a doctor will order a test to measure the minerals in the bones. This is usually done with a Dual Energy X-ray Absorptiometry (DEXA) scan. The DEXA scan reports how many grams of mineral per square centimeter are in the bones.

When a person's mineral measurement is compared to the mineral density of a healthy 30-year-old of the same sex, it's called a T-score. The T-score reflects how much lower the person's bone mineral is from the peak. A T-score of -2.5 or less is diagnosed as osteoporosis. A T-score between 1.0 and -2.5 indicates osteopenia.

When a person's mineral measurement is compared to those of people of the same age and sex, it's called a Z-score.

To diagnose osteonecrosis, a doctor may order scans such as:

Magnetic resonance imaging (MRI), which uses radio waves and strong magnets to create an image of the body. This is the most common type of test to diagnose osteonecrosis. It can detect the condition earlier when it can be treated better.

Computed tomography (CT), which uses X-rays to produce many, detailed images as the scanner rotates around the body. A computer then turns the pictures into one image. Sometimes, a dye is used to make the picture clearer.

An X-ray, which can rule out advanced osteonecrosis. When the disease shows up on an X-ray, osteonecrosis can't be reversed.

The earlier osteonecrosis is diagnosed, the better the results from treatment.

Treatment

How osteoporosis is treated depends on what is causing it and how bad it is. Taking calcium is a good idea. In cases where the osteoporosis is caused by drugs, changes may be needed. It may be possible to use different anti-HIV drugs that don't harm the bones as much. If corticosteroids are the culprit, it may be necessary to switch to other drugs.

Surgery may be needed to treat osteonecrosis. This can help prevent hip and knee problems. Bone transplants may help support the hip as the body tries to restore blood flow to the bone. Sometimes the bone is cut. This changes how the joints work and takes pressure off the hip joint. Another option is to drill out parts of the hip. This reduces the pressure inside the bone. This may avoid a future hip replacement.

Buffalo Hump (Lipodystrophy)

A buffalo hump is a pad of fat on the back of the neck. It is a sign of lipodystrophy. Lipodystrophy refers to changes in the way the body makes, uses and stores fat. There are two types of lipodystrophy:

People with HIV infection are more likely to get two bone disorders:

- Fat wasting, where fat is lost from particular areas of the body, especially the arms, legs, face and buttocks, and

- Fat build up (hyperadiposity). In this form, fat builds up on parts of the body, especially the belly, breasts (in both men and women) and the back of the neck (buffalo hump).

Symptoms

Many conditions can cause a hump on the back of the neck. If the hump is caused by lipodystrophy due to HIV or drugs to treat AIDS, it will be made of fat. If the hump is caused by osteoporosis or spine curvatures, the hump will be mostly bone.

A cluster of symptoms occurs with lipodystrophy. Buffalo hump is one sign. Others include:

- Loss of fat (wasting) in the face, arms, legs and buttocks. The cheeks, temples and eyes become sunken. Veins stand out more on the arms and legs. Men with lipodystrophy are more likely to have this than women. (Women are more likely to have a build up of fat.)

- Fat build up on the belly. This is sometimes called protease paunch or crixivan potbelly

- Enlargement of the breasts (in both men and women)

- Lipomas, which are fatty growths on different parts of the body

- Other changes that come with lipodystrophy are higher than normal cholesterol, triglycerides and blood sugar.

Causes and Risk Factors

It was once believed that buffalo hump was a result of protease inhibitor therapy with drugs such as amprenavir or crixivan. Now it is believed that lipodystrophy is due to many other causes as well, including:

- Nucleoside reverse transcriptase inhibitors

- Age

- Race (whites have a greater risk of developing lipodystrophy)

- How long the HIV infection has been present

- Having gone through menopause (in the case of women)

- How advanced it is, and

- How long antiviral therapy has been going on.

The drugs amprenavir and agenerase used to treat HIV/AIDS can cause buffalo hump.

Prevention

Sometimes a doctor will measure how big around the arms, thighs, waist, hips and neck before the start of antiretroviral therapy and during treatment. This helps keep tabs on changes in the fat of the body.

Diagnosis

A doctor will examine the body for changes in how the fat is stored. The exam plus a medical history and review of antiretroviral drugs that may have been prescribed help the doctor make a diagnosis of lipodystrophy.

Several conditions or diseases can cause a buffalo hump, including Cushing's disease, pituitary tumors, having too much of the hormone insulin in your blood, kyphosis, excess weight and long term use of steroids.

If there's any reason to believe that there may be more than one condition causing the hump, other tests may be done. These include endocrine tests to measure hormone levels in the body, X-rays, computed tomography scans or magnetic resonance imaging scans. The hormone tests will help rule out pituitary tumors or Cushing's disease. The other tests will help rule out spinal or bone conditions.

Treatment

A number of things can be done to help deal with the effects of lipodystrophy. These include:

Making changes in anti-HIV drugs. Replacing protease inhibitors with nonnucleoside reverse transcriptase inhibitors (NNRTIs) may help. An example would be switching from Zerit(stravudine) to Ziagen (abacavir). This is a matter for discussion with a doctor. The effect of the change of drug may not be best for the treatment of HIV in individual cases.

Diet and exercise. Changing the diet may help cut down on fat build up. Exercise will help build up muscle.

Taking medications that treat other underlying causes of the lipodystrophy. For example, taking drugs that change the amount of insulin in the blood.

Taking drugs to treat high cholesterol and triglycerides. While this doesn't treat the lipodystrophy, it may prevent damage to the heart and blood vessels.

Surgery to remove fat build up, such as liposuction, is not yet approved by the FDA for persons with HIV-related lipodystrophy. may avoid a future hip replacement.

Cancers

Cancer is a group of diseases caused by cells that multiply out of control. People with HIV or AIDS have a higher risk of certain cancers than do people with healthy immune systems. In developed countries, four out of 10 people who have AIDS develop a cancer.

Some cancers are called AIDS-defining conditions. This means the cancer is due to having a weakened immune system. It is a sign that a person with HIV may be developing AIDS. AIDS-defining cancers are Kaposi's sarcoma, cervical cancer and non-Hodgkin's lymphoma.

People with HIV are also at a greater risk of developing cancers such as Hodgkin's disease, multiple myeloma (a form of leukemia) or cancers of the anus, brain, blood vessels, eye, liver, mouth, throat, lungs, testicles, connective tissues (leiomyosarcoma) or skin.

These cancers are not regarded as AIDS defining. Their appearance isn't related to a weak immune system. They may show up more often in people with HIV because of some other factor such as high-risk behaviors or sexual activity.

Symptoms

Having both HIV and cancer doesn't change the signs of cancer. These vary depending on the type of the cancer and the part of the body it affects. More information on Kaposi's sarcoma, cervical cancer, non-Hodgkin's lymphoma and anal cancer is available in other sections of this website. Some cancers are more aggressive in people with HIV.

Causes

It is not yet known what the connection is between HIV and certain cancers. Having a weakened immune system is a factor. Many viruses that are otherwise harmless may lead to cancer in a person with HIV. These include:

- Human herpes virus 8 (HHV-8), which plays a role in developing Kaposi's sarcoma

- Human papillomavirus (HPV), which plays a role in developing anal and cervical cancers

- Epstein-Barr virus (EPV), which possibly plays a role in developing lymphoma

- Hepatitis B virus (HBV) and hepatitis C virus (HCV), which play roles in developing liver cancer

With the wider use of antiretroviral therapy, the number of cases of some cancers, like Kaposi's sarcoma and brain lymphoma, has dropped. This could be because these cancers usually show up when CD4 cell counts fall. Antiretroviral therapy raises CD4 cell counts. Even so, some studies show that some cancers like non-Hodgkin's lymphoma are holding steady or even increasing. These cancers typically occur at higher CD4 cell counts.

Risk Factors

People with HIV who aren't on antiretroviral therapy have a greater chance of developing AIDS-defining cancers than do other people. Smoking, heavy drinking, some foods and exposure to certain chemicals can all increase the risks of getting some kinds of cancer. For example, spending a lot of time in the sun without protection can increase the risk of getting skin cancer.

Prevention

All people have some risk of getting cancer. Steps that can be taken to lower the risks include:

- Seeing a doctor for regular check-ups, blood tests and screening for early detection of cancer. These include tests such as a Pap test, which can screen for cervical cancer.

Self-exams of the breasts or testicles to look for unusual lumps

Being aware of any unusual bumps, sores or changes in how the body works, such as changes in bowel habits. These should not be ignored. They may require a doctor's attention.

Seeing a doctor about symptoms such as unexplained fever or weight loss.

Eating a balanced diet rich in vitamins, nutrients and fiber.

Regular exercise. This along with a good diet can help the immune system fight viruses that may cause cancer.

Not smoking. Smoking raises the risks of lung cancer.

Limiting alcohol use. Drinking too much alcohol puts a strain on the body. It also raises the risks of getting certain types of cancer such as mouth or throat cancer.

Avoiding recreational drugs. As with smoking and alcohol, using recreational drugs can put a strain on the body and the immune system. In particular, drugs put stress on the liver, which is the organ that processes drugs and other chemicals in the body. Drugs that are injected increase the risk of getting cancer-causing viruses.

Diagnosis

Some cancers can be diagnosed on the basis of the symptoms and a physical examination. Often X-rays or other types of scans are needed to check for tumors. Sometimes a sample of tissue is taken to check under a microscope. This is called a biopsy. How the diagnosis is done depends on the symptoms and what type of cancer is suspected.

Treatment

How cancer is treated depends on the type of cancer and how far advanced it is. Having AIDS makes treatment more difficult. Some treatments used for treating cancer can weaken the immune system even more. Treatment for cancer should be done by a doctor who specializes in cancer (an oncologist).

Being on highly active antiretroviral therapy can help fight cancer. It is helpful if the doctor treating cancer also has experience with HIV.

Common treatments for cancer and issues for a person with HIV to be concerned about include:

Chemotherapy. This uses chemicals that are either injected or taken as pills to kill cancer cells. Many of these chemicals focus on specific types of cancer. Studies have shown that antiretroviral therapy can improve a person's response to chemotherapy. This helps people with AIDS-related lymphoma live longer.

Radiation. This uses high-energy beams, such as X-rays, to kill the cancer cells.

Surgery. This removes tumors from the body. It is often used with chemotherapy and radiation therapy.

Drugs. Sometimes drugs can help keep cancer in check. An example is tamoxifen, which is used to treat breast cancer.

Cervical Cancer

The cervix is the mouth of the uterus, located inside the vagina. Cervical cancer causes cells to grow out of control on the cervix. Women who are infected with HIV are more likely to develop cell abnormalities that lead to cervical cancer. When a woman with HIV gets cervical cancer, her HIV infection has become AIDS.

Symptoms

Cervical cancer often has no signs until it is advanced. Sometimes, there is vaginal bleeding. In rare cases, there may be a lump or tumor. There may be some pain during sex and a vaginal discharge. In advanced cervical cancer, the cancer spreads to the lungs or other organs.

Causes

More than 90% of all cervical cancer is linked to the human papillomavirus (HPV). HPV is a common virus that is transmitted through sexual contact with infected partners. It causes genital and oral warts. Of the more than 100 types of HPV, five are linked to cervical cancer in women and anal cancer in men and women. People with HIV infection are more likely to also have HPV. It may be that when HIV weakens a woman's immune system, her body can't fight HPV as well.

Risk Factors

The chance of getting cervical cancer goes up in women who:

- Come from a family where other women have had cervical cancer
- Have been pregnant more than once
- Have chlamydia (a sexually transmitted disease)
- Have used of the drug diethylstilbestrol (DES)
- Smoke
- Take birth control pills
- Prevention

Regular Pap smears help check for abnormal cells that may be cervical cancer. HIV+ women should have Pap smears every six months, or once a year if the test results are normal. Some healthcare providers recommend that HPV testing should also be done at the same time.

Having highly active antiretroviral therapy (HAART) helps the body's immune system to fight HPV.

Diagnosis

Cervical cancer is diagnosed by taking a sample of tissue (a biopsy) to look at under a microscope. This often involves a colposcopy. This uses a scope that lets the doctor look at the cervix with magnification. Sometimes acid is used to highlight abnormal cells on the cervix.

If cervical cancer is found, the doctor will decide what stage it is:

- Stage 0. The cancer is only in the top layer of the cervical tissue.
- Stage I. The cancer has spread to the uterus, but not beyond.

Stage II. The cancer has spread beyond the uterus.

Stage III. The cancer has spread to the pelvic wall or the lower third of the vagina.

Stage IV. Cancer has spread to the bladder, rectum or other organs.

Treatment

The earlier cervical cancer is found and treated, the better. When precancerous cells are found, creams such as imiquimod can be applied to the area. The cells can be frozen with liquid nitrogen or removed with a laser or simple surgery.

If the cancer is advanced, the uterus is removed with surgery. Radiation is usually done after surgery. This is especially so in cases where a woman has many risk factors.

Radiation therapy uses high-energy rays such as X-rays to kill cancer cells and shrink tumors. It can either be beamed through the body from the outside or done by putting radioactive materials (radioisotopes) where the cancer cells were found (brachytherapy).

Chemotherapy uses drugs to kill cancer cells. The drugs are given as pills or through a needle into a vein or muscle. The chemicals enter the blood stream to kill cancer cells throughout the body. Some chemotherapy drugs make cancer cells more sensitive to radiation.

Women who have cervical cancer who also have CD4 counts of 500 or more do better than women whose CD4 counts are lower. Women with CD4+ counts of less than 50 are at high risk for the cancer coming back after treatment.

Coccidioidomycosis (Valley Fever)

Coccidioidomycosis is an infection caused by the fungus *Coccidioides immitis*. It is found in southern Arizona, central California, southern New Mexico, west Texas and parts of Central and Southern America. These are areas with a dry climate, alkaline soil, hot summers, few freezing temperatures in the winter and low levels of rain.

Infection occurs when a person breathes in the spores of the fungus. Once the spores are inside the lungs, they form ball-like cells called spherules. The infection they cause may stay just in the lungs or it may spread to other parts of the body and organs such as the brain and heart. About one out of four people who have coccidioidomycosis that has spread get meningitis, a serious disease of the linings of the brain and spinal cord that can be fatal.

Symptoms

This disease has three forms:

Acute pulmonary coccidioidomycosis is usually mild, has few or no signs and goes away without treatment. It occurs in one to three weeks after a person has been exposed to the fungus.

Chronic pulmonary coccidioidomycosis. This form of infection can spread pus between the lungs and the ribs. It can appear 20 or more years after exposure to the fungus.

Disseminated (widespread) coccidioidomycosis is a form of the infection that has spread to the bones, lungs, liver, linings of the brain and spinal cord (meninges), the brain, skin, heart and pericardium (the sac around the heart). Between a third to half of the people with this form of the disease develop meningitis. In people with HIV infection, the infection can spread quickly.

Symptoms of coccidioidomycosis can include:

Cough

Chest pain

Shortness of breath

Fever

Fatigue

Pneumonia

Skins spots including a rash made of red welts that sometimes have purple or blistered areas in the center (erythema multiforme); tender, red bumps on the skins (erythema nodosum) or ulcers. These spots have the fungus in them. They are a sign of widespread fungal infection. They are often found on the face.

Pain that moves from joint to joint

Chills

Night sweats

Blood-tinged sputum

If a person loses a lot of weight and has night sweats for three weeks or more along with the above symptoms, a doctor should be called. If coccidioidomycosis infects the brain or its linings, meningitis may be developing. Signs of this include confusion, problems concentrating, signs of a change in mental status or sensitivity to light. Anyone with these symptoms should be taken to a doctor or an emergency room immediately.

Causes

The infection happens when a person breathes in the spores of the fungus. Outbreaks of coccidioidomycosis rise after dust storms, earthquakes or heavy digging.

Risk Factors

The infection happens when a person breathes in the spores of the fungus. Outbreaks of coccidioidomycosis rise after dust storms, earthquakes or heavy digging.

Diagnosis

After doing an examination and taking a person's medical history, a doctor may do a sputum test, a blood test, a chest X-ray or a special skin test to check for signs of the fungus. In some cases, the doctor may need to get a sample from an affected organ or a skin eruption to look at under a microscope.

If there are signs that a person may have meningitis, a neurological examination may be done as well.

Treatment

Coccidioidomycosis is a serious disease that can be fatal for people with HIV infection. Treatment should be started as early as possible.

Drugs that fight fungi are used to treat coccidioidomycosis. Amphotericin B is often used first. It is a powerful drug, but it can cause kidney damage. Sometimes drugs like ketoconazole, fluconazole or itraconazole are used. Fluconazole and itraconazole are less likely to cause other problems. Treatment is usually continued for at least a year. Even so, the infection often comes back.

Cryptococcosis

Cryptococcosis is an infection caused by a fungus found in dirt. When it goes into the lining of the brain and the spinal cord, it's called cryptococcal meningitis. (Meningitis is when the lining of the brain and the spinal cord swell and become inflamed.) Cryptococcal meningitis is the most common brain and spinal cord infection linked to HIV.

The cryptococcal fungus can also infect the skin, lungs, kidneys, bone marrow, urinary tract and lymph nodes. Cryptococcus infections in the lungs can lead to pneumonia.

In people with weak immune systems, cryptococcosis can quickly cause coma and death without treatment. Once a person gets cryptococcal meningitis, he or she needs to be on drugs to keep it from coming back.

Symptoms

At first, signs of cryptococcosis may be like those of flu. The symptoms come on slowly. A person living with HIV may not be able to tell what is happening. Signs of cryptococcal meningitis may include:

- Severe Headache
- A high fever (over 100°)
- Confusion
- Nausea
- Pain from bright light
- Seizures
- Severe body aches
- Stiff neck
- Vomiting

A person who feels confusion, bad headache or seizures, should call his or her doctor right away or go to an emergency room. If fever, nausea, vomiting, body aches or pain from bright light go on for three or more days in a row, the doctor should be called.

If the infection spreads past the lungs, brain and spinal cord, it's called disseminated (spread out) infection. This causes spots on the skin (lesions). The spots will look different from one person to another. Sometimes these spots look like other skin conditions. Sometimes these spots are the first sign that a person has cryptococcosis.

Causes

A fungus found in dirt and bird droppings causes cryptococcosis. Healthy people can keep the fungus in check before it spreads past the lungs. The risk of this condition is highest when CD4 counts are below 100.

Prevention

Avoid breathing in dust. Stay away from places where birds roost or leave a lot of droppings.

Fluconazole (Diflucan®) can prevent cryptococcal meningitis. It also may lead to yeast infections like thrush or vaginitis that resist treatment with many drugs. When a resistant yeast-infection happens, it can only be treated with Amphotericin B. Fluconazole is usually given to people who have had cryptococcal meningitis once to prevent its returning.

Powerful anti-HIV therapy helps prevent infection by cryptococcosis.

Diagnosis

A doctor will take samples of blood and spinal fluid to analyze. One type of test looks for a protein (an antigen) that the cryptococcus makes. This test can detect about 95% of the people who are ill with cryptococcal meningitis. Sometimes a culture will be done. This is where the blood or spinal fluid is used to try to grow a sample of the fungus in the lab. This test is slower than the first one.

To get a sample of spinal fluid, a doctor will insert a needle in the middle of the back just above the hips (a spinal tap). The area will be numbed first. The needle is used to remove spinal fluid. At the same time, the pressure of the fluid can also be measured. If the pressure is too high, the doctor may drain some of the fluid. Some people get headaches for a few days after having a spinal tap. Sometimes lying down for an hour or two right after the spinal tap can prevent the headache.

Treatment

The sooner cryptococcosis is found, the better it can be treated. Less toxic drugs can be used to treat the infection when it is found early.

Several types of anti-fungal drugs are used to treat cryptococcosis. Usually amphotericin B is given at first, followed by fluconazole. Itraconazole is sometimes given to people who cannot take fluconazole. Some health care providers use a combination of amphotericin B and flucytosine capsules.

Amphotericin B is a very strong drug that can cause kidney damage. It can be given either as a shot or slowly through a vein (intravenous infusion). A newer form of the drug is wrapped in bubbles of fat (liposomes). This slows the process by which the body breaks down the drug. Lower doses of the drug can be used as a result. This also means there are fewer side effects.

Because meningitis causes the linings of the brain and spinal cord to swell, pressure develops on the brain. For some people, removing some spinal fluid every day helps reduce the pressure.

Cryptococcal meningitis comes back in about half the people who get it the first time. Continuing to take antifungal drugs such as fluconazole for life help prevent this. (Federal guidelines for treating infections such as cryptococcal recommend that fluconazole be continued even when the patient is also on antiretroviral drugs.)

Cryptosporidiosis

Cryptosporidiosis (crypto) is an infection by a parasite, *Cryptosporidium parvum*. Crypto can be found in animals, humans, soil and water. It grows in the gut and bile ducts.

About 15% to 20% of people with AIDS have this parasite. Only some of these infections are serious. A healthy person can recover from crypto in about a week. A person with a damaged immune system may not get rid of it for a long time. This usually happens when CD4 cell counts fall below 300. People who have HIV and crypto that lasts four or more weeks, have AIDS.

Symptoms

Crypto causes diarrhea, nausea, vomiting and stomach cramps. Diarrhea can make it difficult for the body to take in nutrients. If the diarrhea goes on for a long time, it can cause weight loss and wasting.

Causes

Crypto is spread by contaminated food or water, or direct contact with an infected person or animal.

Prevention

Washing the hands often is the best way to prevent infection by crypto. This means washing hands after using the bathroom, gardening, handling dirty laundry or animals or changing diapers. Crypto can be spread by contact between the mouth and the anus during sex through sexual practices such as "rimming." Avoid swallowing water when swimming, since the water may be contaminated. Avoid eating raw oysters.

Some cities have water that has crypto. Check with the local water department. A person with low a CD4 count living in a city with crypto contamination should take precautions. These include boiling cooking or drinking water for one minute or drinking filtered water. Filtered water should be filtered through a 1-micron filter or be labeled "Meets National Science Foundation (NSF) standard number 53 for cyst removal." Otherwise, distilled water is the best choice.

Diagnosis

Several diseases have signs like those of cryptosporidiosis. A doctor needs to rule those out before making a diagnosis. A doctor will usually check the stool (bowel movement) for parasites and their eggs. This is called an O and P (ova and parasites) test.

Treatment

There is no cure for crypto infection. Anti-HIV drugs will get rid of or lessen the symptoms of crypto. Diarrhea can be treated with Imodium, Kaopectate or other preparations. Serious, ongoing diarrhea is sometimes treated with Sandostatin. When diarrhea is present, it is important to drink a lot of fluid to keep from being dehydrated.

Cytomegalovirus (CMV)

Cytomegalovirus (CMV) is a common virus found in saliva, blood, urine, semen and breast milk. Between 50% and 85% of Americans tested have CMV by the time they are 40. A healthy immune system keeps it in check.

When the immune system is weakened, CMV can damage the eyes, digestive tract, lungs or other organs of the body.

One of the most common forms of CMV is CMV retinitis. CMV kills the cells in the back of the eye (the retina). Without treatment, it can lead to blindness.

With combination antiretroviral therapy, fewer people with HIV develop conditions due to CMV. Even so, about 5% of people with HIV develop CMV, even with anti-viral therapy.

Symptoms

The signs of CMV depend on the part of the body affected.

CMV retinitis causes moving black spots (floaters), light flashes, distorted vision or blind spots in the vision. CMV colitis causes diarrhea. CMV esophagitis makes swallowing painful and difficult. CMV myelitis causes numbness starting at the base of the spine. It can move to the legs and make it hard to walk.

In rare cases, CMV causes encephalitis or pneumonia. The signs of CMV encephalitis are like those of other brain infections. They include personality changes, having a hard time concentrating and headaches. The rare cases of CMV-related pneumonia cause shortness of breath and a dry cough.

Causes and Risk Factors

Cytomegalovirus is a member of the herpesvirus family. It usually isn't even be noticed in a person with a healthy immune system. When the immune system is weak, CMV can cause diseases that can be life-threatening.

The risk of developing illness due to CMV is highest when the CD4 cell count falls below 100. It is rare in people with a CD4 cell count above that.

Prevention

Highly active antiretroviral therapy (HAART) is the best way to prevent CMV-related diseases. HAART builds up the immune system. This in turn keeps the CMV in check. People who have low CD4 cell counts should get regular eye exams to check for CMV retinitis.

Diagnosis

A doctor will base a diagnosis on the patient's symptoms and medical history. In many cases, however, a tissue sample will be needed to look at under a microscope (a biopsy). This is especially so for CMV colitis or CMV esophagitis. If CMV myelitis is suspected, a small sample of spinal fluid will be tested.

Sometimes the virus can be grown from samples of blood or urine. This only shows that the virus is in the body. It doesn't show whether there is organ disease.

Treatment

Treatment of CMV has greatly improved. The first line of defense is HAART. Once a person's CD4 count is 100 to 150 and stays there for at least three months, he or she can stop taking anti-CMV drugs.

Drugs used to treat CMV include:

Ganciclovir, which is used to treat CMV in the retina and other parts of the body. A permanent tube (catheter) is placed in the chest so that daily infusions of the drug can be injected into the body. After two weeks, the ganciclovir may be taken as a daily pill. This drug can cause the number of white blood cells to drop as well as nausea, vomiting and low testosterone (a male hormone).

Foscarnet also treats CMV throughout the body. It requires a permanent catheter, too. This drug can disturb the balance of sodium in the body and cause dehydration. That may cause kidney problems or failure.

Cidofovir is used to treat CMV retinitis. It requires infusions into a vein every other week. (A permanent catheter is not needed for this.) This drug can cause kidney problems. It has to be given with a drug called probenecid to cut the risk of kidney failure.

Valganciclovir is a whole body therapy. It can be given through a vein or by pill.

Dementia

Dementia is a brain disorder that makes it hard for a person to think clearly and do daily tasks. Dementia happens most often in the late stage of AIDS, when the body is fighting many infections at the same time.

Symptoms

AIDS dementia complex -- dementia caused by HIV infection – causes changes in a person's:

- Ability to understand, process and remember information (cognition)
- Behavior
- Coordination
- Emotions or mood

It is easy to mistake signs of dementia for those of depression, drug side effects or opportunistic infections like toxoplasmosis or lymphoma. One person may experience mild symptoms while another person may have severe symptoms.

Symptoms of dementia may include:

- Memory loss
- Speech problems
- Poor concentration
- Poor judgment
- Taking longer to do complicated tasks
- Slowed thinking, eating or writing
- Not being able to do common activities of daily living
- Loss of bladder or bowel control
- Loss of feeling in and control of the legs
- Stiff, awkward or slowed movements
- Unsteady walking and balance
- Changes in handwriting
- Muscle weakness
- Difficulty holding objects
- Emotional changes such as irritability, apathy, withdrawal, depression, personality changes or excitability

Causes

Usually nerve or brain disorders are due to the death of nerve cells. HIV doesn't directly infect nerve cells. HIV may either infect or disturb cells (macrophages and microglia) that nurture and maintain the brain. The infected macrophages and microglia then produce toxins that set off a chain reaction that kill neurons (brain cells).

Risk Factors

AIDS-related dementia usually develops after years of HIV infection. It is linked to low CD4+ cells and high viral loads.

Dementia occurs more often in children with HIV than with adults. In children, dementia has similar signs but gets worse faster.

Prevention

Using highly active antiretroviral therapy (HAART) helps prevent or delay dementia. HAART may also improve mental function in people who already have dementia.

Diagnosis

Diagnosing dementia can be difficult. It is important to rely on experienced doctors. Specialists such as psychiatrists and neurologists may be needed if the symptoms aren't clear.

One important goal of diagnosing dementia is to rule out other possible causes of symptoms. These include depression, strokes, brain tumors, diabetes, low hormone levels, toxoplasmosis, progressive multifocal leukoencephalopathy (PML) or lymphoma.

Several tests are done to diagnose dementia complex:

A mental status exam. This helps pinpoint memory loss and problems of concentration and abstract thinking as well as mood swings.

Computed tomography (CT) or magnetic resonance imaging (MRI) scans. CT scans can show signs of destroyed brain tissue. An MRI may be done if the CT scan is not clear. Both can help rule out other conditions that might be causing the symptoms.

A spinal tap. This test removes some of the fluid that surrounds the brain and spinal cord to look at under a microscope.

Electroencephalography (EEG). This records the electrical activity of the brain. People with late stage dementia usually have slower brain activity. An EEG also is used to see whether a person is having seizures.

No lab test can confirm dementia. Lab tests can, however, rule out conditions that might cause similar symptoms.

Treatment

HAART, which helps control HIV infection, also protects many HIV-positive people from developing dementia. In some cases, HAART can partly or entirely reduce symptoms of dementia.

Drugs that cross the blood-brain barrier are helpful. They include: AZT, d4T (stavudine, Zerit), abacavir (Ziagen), nevirapine (Viramune), amprenavir (Agenerase) and to a lesser degree indinavir (Crixivan) and 3TC (lamivudine, Epivir).

Depression and behavioral disturbances can sometimes be helped with drug therapy. These include antidepressants or antipsychotics. (Antipsychotics help improve agitation, aggression, hallucinations or delusions.)

A doctor has to balance HAART with drugs to treat dementia. Sometimes these drugs interact badly when taken together.

A person with dementia needs to:

Stay active. Daily exercise helps the brain work better. It also reduces depression and anxiety.

Challenge the mind. Working puzzles, games, reading and safe hobbies and crafts are like exercise for the brain.

Stay socially active. See friends and relatives. This keeps the mind active and emotions balanced.

Eat a balanced, nutritious diet with plenty of fruits and vegetables. This helps keep weight at a healthy level. It also prevents malnutrition and constipation.

Give up smoking or using tobacco products. The nicotine in tobacco cuts down the flow of blood through the body. Smoking can be dangerous for someone who is forgetful or can't concentrate.

Dental Problems

Taking care of the teeth and mouth is important for people with HIV. Eating, drinking, talking, breathing, kissing or even touching the area around the mouth can bring elements of the outside world into the body. Those elements include life-giving food and water. They also include life-threatening germs, bacteria and viruses.

The mouth is the first stage of digestion. It has its own bacteria and organisms to help. Food that doesn't get swallowed can decay between the teeth. This can cause infections that spread to other parts of the body.

Among the reasons for taking good care of the mouth, gums and teeth are:

Problems with the mouth, tongue, throat, gums or teeth may be the first sign that HIV infection exists or is getting worse.

Regular visits to the dentist help find and treat infections and other conditions before they become serious.

Good mouth care can get rid of bacteria. This eases the strain on the immune system.

Open sores and exposed tissue inside the mouth help infections invade the body.

Symptoms

The most common mouth problems that a person with HIV may get include:

Canker sores. Nearly everyone gets these shallow, crater-like sores inside their lips or cheeks. In people with HIV, these sores may be slow to heal. They often grow to nearly half an inch. In HIV-positive people, the sores may appear on harder tissue such as the roof of the mouth. They can be mistaken for cold sores (an infection by herpes simplex). The sores can be quite painful. It can be hard to eat with the sores. This makes wasting or keeping up strength harder.

Dry mouth. Many people with HIV get a dry mouth, throat or both. This can lead to tooth decay and gum problems unless it is treated. Untreated cavities can lead to infections.

Gingivitis and periodontitis. This is gum disease. People with these conditions will have swollen, red, bleeding gums. The tissue and bones that support the teeth may also be affected. They may also have bad breath. Gingivitis and periodontitis cause gaps in the seal between the gums and the teeth. Periodontal disease can affect anyone. Two forms are mostly likely to be seen in people with weak immune systems. Linear gingival erythema causes a red, band-like lesion at the gum line. It is painful and bleeds. When it gets worse, it can become necrotizing ulcerative periodontitis. Necrotizing ulcerative periodontitis causes the soft tissue and bone around the teeth to erode. The teeth can become loose and fall out without treatment.

Hairy leukoplakia. This is a white, streaky spot on the sides of the tongue that looks hairy. It looks like thrush, but the spots can't be scraped away. It can appear in other parts of the mouth. This is believed to be caused by the Epstein-Barr virus, which is linked to infectious mononucleosis. It is rarely seen unless the CD4 cell count is low. It is much less common in people who are using combination anti-HIV therapy.

Herpes simplex infection. There are two main herpes viruses. Herpes simplex 1 affects the face, lips or mouth. (These are sometimes called cold sores or fever blisters.) Herpes simplex 2 affects the genital or anal area. A herpes outbreak usually shows up as blisters. Before the outbreak, a person may feel unwell or have a fever. In someone who is already ill, this may be hard to recognize. There may be itching or tingling feelings in the area where the blisters are going to appear. The blisters usually burst and then form a scab. People with HIV may get larger, more painful herpes outbreaks more often than people without HIV.

Human papillomavirus infection. This virus causes genital and other warts. People with HIV infection can get warts in the mouth, lips and sides of the tongue. These are raised, dull white and fleshy bumps. They can be smooth or rough and may look like tiny cauliflowers. These warts are harder to treat in people with HIV. More people with HIV may get these warts. There may be more of them in people who have HIV. One type of this virus, HPV-16, has been

linked to cancers of the mouth in throat, particularly when a person also smokes or drinks alcohol.

Kaposi's sarcoma. This is a tumor caused by blood vessels growing in an out-of-control tangle. This causes red, purple spots. These are often seen first in the roof of the mouth.

Non-Hodgkin's lymphoma. This condition can lead to a soft-tumor-like mass in the mouth. It may grow quickly.

Thrush (oral candidiasis). This shows up as white patches on the mouth and throat. When they are wiped, they leave a raw, red patch.

Causes

Different problems have different causes. Common problems and their causes include:

Canker sores: the cause is unknown.

Dry mouth: HIV-infection itself or anti-HIV drugs. Crixivan (indinavir) or Videx (didanosine or ddl) may cause dry mouth. Other drugs that may cause dry mouth are interferon alpha, used to treat chronic hepatitis B and C; some antidepressants; drugs used to lower blood pressure; antihistamines to fight allergies; antipsychotics to prevent mental disturbances such as hallucinations; and drugs to make the body let go of water (diuretics).

Not brushing and flossing the teeth often. Brushing cleans the surfaces of teeth of bacteria and left over food. Flossing removes left over food from between teeth and around the gums.

Not seeing a dentist regularly. A dentist can clean the teeth and gums more deeply than a person can at home. A dentist also checks for infections and treat cavities.

Thrush: a yeast infection

Risk Factors

HIV infection weakens the body's ability to fight off infections. Bacteria and other organisms that might not be a problem for a person with a strong immune system can become serious problems in someone with HIV. Failing to brush and floss the teeth regularly or see a dentist every six months makes the risks greater.

Prevention

Good habits help prevent dental, gum and mouth problems. These include:

Brushing the teeth often with a soft bristled brush and fluoride toothpaste. Brushing should be done in tiny circles from one side of the mouth to the other. The back of the teeth and the tongue need special attention. Tooth brushing should take at least two minutes.

Flossing the teeth at least daily. This should be done after meals and before brushing. The floss should be pushed gently between the teeth and gum to loosen food and decaying matter. At first, there may be some bleeding of the gums. This goes away the more often a person flosses.

Using a fluoride mouthwash. This helps prevent bacteria that cause cavities and gum disease. It should be used twice a day.

Visiting the dentist at least every six months. This helps keep tabs on possible problems before they become serious.

Not smoking. Smoking is linked to cancers of the mouth and throat. These are less treatable than other types of cancers.

Limiting alcoholic drinks. Alcohol is linked to cancers of the mouth and throat. They are common and less treatable than other types of cancer.

Practicing safe oral sex. This will help avoid human papillomavirus infection.

Diagnosis

Most mouth, teeth or gum problems can be seen on examination by a doctor or dentist. No blood tests or diagnostic scans are needed to diagnose them.

Treatment

A person with HIV should have any mouth, gum or teeth problems treated, no matter what his or her CD4 cell count is. Gum surgery, root canals, braces or retainers to straighten teeth, implants, bleaching and bridges can all be done safely and well, regardless of a person's CD4 cell count.

It is helpful if a person with HIV sees a dentist with experience treating people with HIV. Some conditions that go with having HIV can be mistaken for less serious conditions. In addition, some common conditions need special treatment in a person who has HIV.

Treatments for specific mouth, gum and teeth problems include:

Dry mouth. Sugar-free citrus candies like lemon drops may be helpful. Artificial saliva products can help in people with active tooth decay resulting in part from drug-related dry mouth.

Canker sores. These can be treated with a steroid rubbed on the sore. These include triamcinolone (Kenalog®) or fluocinonide (Lidex®) mixed with Orabase® ointment. A dexamethasone liquid rinse may also be used. Sometimes a steroid that works on the whole body is needed. This includes prednisone, although it has some risks. Thalidomide has recently been approved in the U.S. for treating canker sores. It can, however, make a person sleepy.

Linear gingival erythema gum disease. A mouth rinse that fights microbes should be used until a specialist in gum disease (a periodontist) can be seen. Sometimes an antibiotic will be given for up to a week.

Necrotizing ulcerative periodontitis gum disease. This may be treated with antimicrobial mouth rinses, antibiotics and pain medication when necessary.

Gum disease. In general, gum disease may be treated by getting rid of the dead tissue around a tooth, surgery or antibiotics. The earlier gum disease is treated the better. This helps prevent tooth loss. A person who smokes should quit to avoid making gum disease worse.

Hairy leukoplakia. This usually goes away on its own. Good mouth care helps prevent hairy leukoplakia.

Herpes simplex. Antiviral drugs such as acyclovir (Zovirax®), famciclovir (Famvir®), or valacyclovir (Valtrex®) may be given to keep herpes outbreaks from happening.

Human papillomavirus. The warts associated with this virus can be removed by surgery or burned away with an electrical current. The warts often come back. As a result, usually only the largest warts that get in the way of eating, talking or breathing are removed.

Kaposi's sarcoma. These spots may go away once antiretroviral therapy is started. Often no particular treatment is given for oral Kaposi's sarcoma unless it gets in the way of chewing or talking. In such cases, drugs such as doxorubicin (Doxil®) or paclitaxel (Taxol®) may be given. Chemotherapy aimed just at the spot itself may be used. Sometimes the spots are removed with surgery. If there are many spots, radiation may be used.

Thrush. All forms of thrush should be treated as soon as possible. Sometimes antifungal creams or pills are used. These include the cream clotrimazole (Lotrimin®) or the antifungal drug fluconazole (Diflucan®). If thrush keeps coming back after treatment, it may be a sign that the cavities (sinuses) beside and above the nose are infected. This may need treatment as well.

Depression and Anxiety

A serious, chronic health condition like HIV-infection or AIDS can be depressing. Between 5% and 10% of people in general get depressed. Among people with HIV, as many as 60% are depressed.

Depression is feeling sad, hopeless, worthless or guilty for more than two weeks. Anxiety is feeling worried, fearful or threatened without a cause for a long time. It can range from mild discomfort to a panic attack.

Some people and their caregivers think that depression is part of having HIV infection. In fact, depression can and should be treated.

Depression robs a person of the energy to stay as healthy as possible. It is easy to miss doses of medicine when it feels like nothing matters. When a person feels hopeless, they may see no reason to avoid substance abuse, unprotected sex or other high-risk behaviors.

Depression stresses the body. This can make HIV worse. Depression takes away a person's ability to enjoy life.

Symptoms

The signs of depression are often hard to pinpoint. Depression creeps up slowly. Some symptoms are:

- Feelings of guilt, worthlessness or hopelessness
- A racing heart
- A lack of energy or fatigue
- Having a hard time concentrating
- Loss of appetite
- Not enjoying activities that used to be fun or pleasurable; feeling blah
- Irritability
- Little or no interest in sex
- Muscle tension, aches or soreness
- Nausea, diarrhea, or other stomach problems
- Flushes, sweating, chills or cold, clammy hands
- Dizziness or lightheadedness
- Dry mouth
- Feeling anxious or edgy; startling easily; having a sense of baseless dread
- Problems either falling asleep or staying asleep
- Restlessness
- Shortness of breath or a feeling of not being able to breathe
- Skin rashes
- Trembling, twitching, or feeling shaky
- Trouble swallowing; a feeling of having a lump in the throat

Causes

Depression or anxiety can be caused by:

Life events, such as uncertainty about treatment, money issues, the death of a friend or partner or family problems

Chemical changes in the brain

Side effects of anti-HIV drugs. For example, the drug efavirenz (Sustiva®) can cause or make depression worse.

Physical disorders. Anemia or diabetes can cause symptoms like those of depression. So can substance use, low testosterone or a lack of vitamins B6 or B12. People infected with both HIV and hepatitis B or C are more likely to be depressed, especially if interferon is being used to treat the infections.

Risk Factors

Women, people who have a personal or family history of mental illness or people who have a history of alcohol or substance abuse are at a higher risk of developing depression.

Prevention

Having a healthy diet and lifestyle, daily exercise and a strong network of friends and supporters can help prevent or control depression. Depression can be a shield against overwhelming things. It is not a sign of weakness. Depression and anxiety should be taken seriously. Treatment is vital when the feelings don't go away and interfere with daily life.

Diagnosis

Many illnesses have symptoms like anxiety or depression. It is important to rule those out. A doctor may ask about the person's:

Drug and alcohol use

Family history

Caffeine intake

Use of prescription drugs, supplements or herbal preparations

Recent stressful events in a person's life

Blood tests may be done to rule out conditions such as anemia, infections, chemical imbalances, low thyroid or testosterone, and blood sugar levels.

Blood tests may be done to rule out conditions such as anemia, infections, chemical imbalances, low thyroid or testosterone, and blood sugar levels.

Treatment

Treatment helps people manage both HIV and depression. Treatment options include:

Using the mind and behavior to change feelings. This includes stress management, relaxation exercises, visualizations or guided imagery.

Psychotherapy. This allows the depressed person to talk through their fears and worries with a trained professional. It can be especially helpful if the therapist has experience with people with HIV infection.

Antidepressant drugs. These need to be given with care. People with advanced HIV disease are more sensitive to their effects. Some drugs given to fight depression mix badly with anti-HIV drugs. Ritonavir (in Norvir or Kaletra) and indinavir (Crixivan) interact the most with antidepressants. It is important that a person make sure that all of his or her doctors know what drugs and how much of each are being taken. Some drugs used to treat depression have

side effects such as a loss of sexual desire, not being able to sleep or stomach upsets. These drugs can take several weeks to build up and become fully effective.

Lifestyle changes help relieve depression, too. This includes getting enough sleep, regular exercise and time spent in the sunlight. Even 10 minutes of mild exercise can help relieve depression.

Vagus nerve stimulation is a new treatment approved by the Food and Drug Administration (FDA). A small, watch-size generator is put under the skin of the chest. It sends a signal to a part of the brain related to mood and anxiety.

It is important not to use alcohol or illegal drugs to cope with depression or anxiety. These can make depression or anxiety worse.

Some herbs such as St. Johns' Wort are said to help depression. However, St. Johns' Wort interferes with some HIV medicines. Do not take St. Johns' Wort if you are also taking antiretroviral drugs.

Diarrhea

Diarrhea is having loose, watery stools more than three times in one day. It happens more often in people with HIV. A person having diarrhea can lose a lot of water and nutrients the body needs. If the diarrhea isn't brought under control, it can lead to wasting.

Diarrhea can be a serious problem for HIV-infected people. They may have to stay near a bathroom because of the unpredictability of diarrhea. Sometimes, a person with diarrhea may fear eating. This can weaken the immune system more and cause infections and depression. Some people don't follow their program of highly active antiretroviral therapy (HAART) because they believe the medicines cause the diarrhea.

Symptoms

Along with the loose stools, there may be stomach cramping, bloating, nausea or an urgent need to use the bathroom. Depending on the cause, a person may have a fever or bloody stools.

One of the dangers of diarrhea is dehydration. This means that the body doesn't have enough water. The signs of dehydration are generally:

- Thirst
- Less frequent urination
- Dry skin
- Fatigue
- Light-headedness
- Dark colored urine

Causes

Diarrhea can be caused by many things, including:

Antibiotics that kill off the good bacteria in the gut.

Antiretroviral drugs, such as nelfinavir (Viracept®), ritonavir (Norvir®), Kaletra® (lopinavir plus ritonavir), ddI (Videx®), foscarnet (Foscavir®), tipranavir (Aptivus®) and interferon alfa (Roferon® or Intron®). Protease inhibitors are particularly likely to cause diarrhea.

Bacteria, which are sometime found in contaminated food or water.

Bowel disorders, in which the intestines do not work normally. Some people get diarrhea after stomach surgery or removal of the gallbladder.

Food intolerances. Some people can't digest some foods, such as the lactose (a sugar) found in milk.

Intestinal diseases, like inflammatory bowel disease or celiac disease.

Pancreas problems

Parasites, such as cryptosporidium or microsporidium. These problems don't happen as often because of combination antiretroviral therapy.

Reaction to medicines, such as antibiotics, blood pressure medications, and antacids containing magnesium.

Stress

Viral infections. Many viruses cause diarrhea, including rotavirus, Norwalk virus, cytomegalovirus, herpes simplex virus, and viral hepatitis.

Sometimes it isn't possible to find out what is causing the diarrhea. It can still be treated without a known cause

Prevention

Sound tips to follow to help avoid diarrhea include:

Washing your hands often, but especially before you eat

Applying good food safety practices. Keep hot foods hot and cold foods cold. Make sure food is fresh.

Avoid contaminated water by drinking bottled, boiled or filtered water.

Avoid foods the body reacts to badly. Milk, caffeine-containing drinks, high fat or fried foods, alcohol and high levels of vitamin C can all lead to diarrhea.

Taking care when traveling to avoid contaminated food and drinks

Diagnosis

Diarrhea usually isn't harmful. It can become serious or may be a sign of a more serious problem. A person should see a doctor right away if he or she has:

A fever of 102° F or higher

Bad pain in the belly or rectum

Blood in the stool or stools that look black and tarry

Diarrhea for more than three days

Signs of dehydration

A doctor will ask about a person's recent eating habits and the medicines or herbs he or she is taking. A physical examination will be done. If more information is needed, these tests may also be done:

A stool culture to check for bacteria, parasites, signs of disease or infection or signs that the body isn't handling fat well

Blood tests to rule out certain diseases

Food allergy or intolerance tests. A doctor may ask you to avoid certain foods for a time to see if the diarrhea goes away.

Tests that use special scopes to see inside the rectum or colon. These include a sigmoidoscopy or a colonoscopy.

A CD4 cell count. This will show how strong the immune system is. When the CD4 cell count falls below 200, the risk of getting an infection goes up.

Treatment

It is useful to know what is causing the diarrhea. Even if a cause can't be found, the condition can be treated. Treating diarrhea focuses on stopping the diarrhea itself and treating possible dehydration.

Dehydration can be dangerous. With diarrhea, a person can lose up to a gallon of water a day. With the water, a person loses minerals (electrolytes) that are important for the body to work. The main minerals are sodium and potassium. If dehydration isn't taken care of, the body can go into shock and possibly die.

To avoid dehydration, drink plenty of clear liquids. These include noncaffeinated teas, chicken broth, vegetable broth, ginger ale or soda. Plain water replaces fluids, but not electrolytes.

To stop the diarrhea, these may be helpful:

Calcium, if antiretroviral drugs cause the diarrhea. Studies have shown that taking calcium can help relieve diarrhea in people taking nelfinavir (Viracept). Either calcium carbonate or calcium citrate will work. A prescription isn't needed to buy calcium.

Over-the-counter medicines like Pepto-Bismol®, Kaopectate® and Imodium AD®. (Do not take these medicines if bacteria or a parasite causes the diarrhea. If it is, these medications will make the diarrhea last longer.)

Antibiotics to fight bacteria or parasites.

Products that add bulk to the stool with soluble fiber. Examples include Metamucil®, Citrucel® or other products that contain psyllium. Oat bran also adds bulk to the stool.

Changing the diet to avoid foods that contain dairy, fatty or spicy ingredients. Cutting back on raw fruits and vegetables, some grains and seeds.

Eating bananas, plain white rice, applesauce, plain noodles, boiled eggs, mashed potatoes or oatmeal may help.

Encephalopathy

Encephalopathy is the name of any one of several conditions of the brain associated with AIDS. These include:

HIV encephalopathy

HIV-associated progressive encephalopathy, which is seen in children

AIDS dementia complex is a group of nerve problems due to HIV infection

With the use of highly active antiretroviral therapy, these disorders are much less widespread and severe than they used to be.

Symptoms

The signs of encephalopathy affect thinking, behavior and movement. The symptoms include:

Apathy

Difficulty concentrating

Difficulty finding words when speaking

Forgetfulness

Loss of bladder control

Loss of interest in sex

Slow hand movements

Unsteady, clumsy movements of the arms, legs and torso

Withdrawal from hobbies or social activities

The symptoms at first are vague and easy to overlook. The symptoms grow worse and can lead to a vegetative state. An infant with HIV-associated progressive encephalopathy is slow to develop. In older children or teens, the signs are more like those of AIDS dementia complex.

Causes

Usually nerve or brain disorders are due to the death of nerve cells. HIV doesn't directly infect nerve cells. HIV may either infect or disturb cells (macrophages and microglia) that nurture and maintain the brain. The infected macrophages and microglia then produce toxins that set off a chain reaction that kill neurons (brain cells).

Another possibility is that the body's immune system attacks the brain and spinal cord (an autoimmune response). Yet another possibility is that HIV infection disturbs the release of chemicals that allow cells of the brain to talk to each other.

Prevention

The best defense against encephalopathy is highly active antiretroviral therapy.

Diagnosis

In addition to taking a medical history and doing a physical exam, a doctor will do a neurological evaluation. Several types of tests or scans may be done to help diagnose encephalopathy. They include:

A mental status exam. These are tests designed to show how well the thought processes are working. They focus on issues such as memory, concentration, coordination, learning ability, speech and language abilities and abstract thinking.

A spinal tap. A sample of the fluid that surrounds the brain and spinal cord is taken for study under a microscope. This not only helps pinpoint encephalopathy, it can rule out other possible reasons for the symptoms.

Blood tests

Computed tomography (CT) or magnetic resonance imaging (MRI) scans. CT scans can show signs of destroyed brain tissue. An MRI may be done if the CT scan is not clear. Both can help rule out other conditions that might be causing the symptoms.

Electroencephalogram. This test creates an image of the electrical activity in the brain. In the late stages of AIDS dementia, the activity of the brain slows down.

Treatment

The best way to prevent or treat encephalopathy is highly active antiretroviral therapy. Antiretrovirals that can cross the blood-brain barrier are preferred. They include lamivudine (Epivir®), stavudine (Zerit®), zidovudine (Retrovir®), efavirenz (Sustiva®), nevirapine and indinavir (Crixivan®).

Any infections, vitamin deficiencies, thyroid problems or liver and kidney problems need to be treated as well.

Depression and behavioral disturbances can sometimes be helped with drug therapy. These include antidepressants or antipsychotics. (Antipsychotics help improve agitation, aggression, hallucinations or delusions.)

A doctor has to balance HAART with drugs to treat dementia. Sometimes these drugs interact badly when taken together.

A person with encephalopathy needs to:

Stay active. Daily exercise helps the brain work better. It also reduces depression and anxiety.

Challenge the mind. Working puzzles, games, reading and safe hobbies and crafts are like exercise for the brain.

Stay socially active. See friends and relatives. This keeps the mind active and emotions balanced.

Eat a balanced, nutritious diet with plenty of fruits and vegetables. This helps keep weight at a healthy level. It also prevents malnutrition and constipation.

Give up smoking or using tobacco products. The nicotine in tobacco cuts down the flow of blood through the body. Smoking can be dangerous for someone who is forgetful or can't concentrate.

Facial Wasting (Lipoatrophy)

A medical summary about Facial Wasting (Lipoatrophy) as it relates to HIV/AIDS and is diagnosed as a health condition in people living with HIV/AIDS.

Symptoms

The loss of fat under the skin of the face makes people look older, tired or less well. The eyes, cheeks and temple appear to sink. Wrinkles or folds in the skin are more dramatic.

Wasting of the fat tissues of the face can cause person to:

- Lose self-confidence
- Be less willing to be socially active
- Lose interest in sex
- Have a lower sense of emotional well-being
- Feel less like sticking with treatment
- Be depressed

Causes

Fat is important for a healthy body. Fat makes chemicals that send messages to the immune and digestive systems. To work, fat cells need a special type of fuel. This is made by tiny parts of cells called mitochondria. When the mitochondria are damaged or can't reproduce, a fat cell stops working and dies. If the mitochondria in organs such as the liver are damaged as well, there will be more facial wasting.

Nearly all anti-HIV drugs change the way fat is made, used and stored in the body. Some raise cholesterol and others make the body less sensitive to insulin. The drugs vary in how great an effect they cause.

Risk Factors

Three things have been linked to both mitochondrial damage and lipoatrophy:

- Using nucleoside analog anti-HIV drugs, especially stavudine and to a lesser degree zidovudine
- Being older than 40, and
- Having high triglycerides
- Low CD4 count when starting antiretroviral drugs (ARVs).
- Diagnosing Facial Wasting

It is important to make sure that the symptoms are of lipoatrophy and not wasting syndrome. Lipoatrophy is a loss of fat under the skin. Wasting syndrome is the loss of both fat and muscle. Wasting syndrome usually follows 30 days or more of either diarrhea or weakness and fever with the unintended loss of more than 10% of a person's body weight. It is a sign that AIDS is progressing.

Treatment

Currently, it isn't possible to restore the fat. Sometimes changing anti-HIV drugs slows the fat loss. Stavudine often causes facial wasting. Sometimes it can be replaced by tenofovir, which fights AIDS without facial wasting.

Materials can be injected or implanted where the fat was lost. An example is Sculptra, which was approved by the FDA in 2004 to correct signs of facial fat loss from HIV infection.

Treatment consists of three to six rounds of small injections. This is done every two weeks. The doctor usually numbs the area first. The shots of Sculptra usually involve some pain (not severe). There may also be tenderness, swelling and bruising where the injections were done.

Sculptra causes scar tissue and fat to collect where it has been injected. The results depend on the doctor's skill and training. Sometimes small lumps occur after treatment. While these usually can't be seen, they can be felt.

The depression, avoiding social events, not having a sense of well being are also signs of low testosterone and response to having HIV. People with symptoms of facial wasting should also be checked for low testosterone and depression.

Fatigue

Fatigue is tiredness that doesn't go away even with rest. It can be physical fatigue that makes it hard to do things. It can also be psychological fatigue where it is hard to concentrate or be motivated to do things.

Fatigue, like pain, is a warning signal from the body. Fatigue often creeps up slowly. People don't notice how much it has changed their lives. People with HIV and fatigue together tend to get sicker than if they didn't have the fatigue.

Symptoms

Signs of fatigue tend to be general. They include:

- Being less active
- Difficulty falling asleep or staying asleep
- Having a hard time concentrating
- Losing a sense of well-being
- Losing interest in daily activities or hobbies
- Muscle soreness
- Not feeling rested
- Shortness of breath
- Sleepiness during the day

Causes

Many things can cause fatigue, including:

Active HIV infection. When HIV multiplies rapidly, the body uses a lot of energy to fight it. Taking antiretroviral drugs can help bring back energy.

Anemia. With anemia, the body has to work harder to get the same amount of oxygen to the cells. As many as 80% of people with HIV infection have anemia.

Depression, which saps the energy. This sets up a cycle of not wanting to be active or social, which means less stimulation for your mind and body.

Not getting enough sleep

Pushing the body further than it can go

Too much caffeine or alcohol, especially close to bed time

Infections. Even if there are no signs of infection, the body may be fighting parasites, bacteria, viruses or allergies. With treatment, energy should improve.

Lack of exercise. Being physically active may seem like the last thing a person who is fatigued wants to do. Often it is precisely the thing that brings back a person's energy and liveliness.

Low hormone levels. Especially in men, low levels of the sex hormone testosterone can cause fatigue. Low levels of other important hormones such as DHEA, cortisol or thyroid can also cause fatigue.

Poor nutrition. Because people with HIV are fighting an infection, they need more energy than healthy people. Some anti-HIV drugs can cut the amount of some vitamin and minerals the body takes in. It's important to eat enough of the right foods. Sometimes supplements may be needed.

Smoking

Prevention

Getting enough sleep, exercise and a balanced, healthy diet helps prevent fatigue.

Diagnosis

Fatigue is a common for people with HIV. It is important for a doctor to have as much information as possible about the fatigue to make an accurate diagnosis. Blood tests can identify causes such as anemia. Other possible causes are more difficult to find.

Treatment

Untreated fatigue can make HIV disease progress faster. If the cause can be found – anemia, infections, low hormone levels, etc. – it should be treated.

In some cases (such as with anemia), it may be necessary to change antiretroviral drugs. AZT, for example, can cause anemia. Changing to a different combination of drugs may get rid of the fatigue.

Managing lifestyle issues can help reduce fatigue and strengthen the body's ability to fight infections and HIV. This can include:

Eating properly. Well balanced diet with enough calories, protein, vitamins and minerals is important.

Taking supplements if necessary. These might include vitamins and minerals that may be lost because of antiretroviral therapy.

Getting enough sleep. Avoid drinking a lot of caffeine or alcohol, which can disturb sleep.

Getting support for emotional issues of things that are worrisome.

Getting enough exercise. This will improve sleep.

Gastrointestinal Problems

Gastrointestinal (GI) symptoms, which include diarrhea, nausea and stomach pain, are very common among people with HIV. These symptoms can be challenging to sort out because they may be side effects of HIV therapy, related to HIV, or from GI conditions unrelated to HIV. It's important not to ignore GI symptoms. They may need treatment to reduce symptoms, or more importantly, may be signs of a more serious underlying problem.

The GI tract is a long tube with one entrance (the mouth) and one exit (the anus), and problems can occur in any section. Keeping the GI tract healthy is important. It helps the body absorb medications, which leads to more successful HIV therapy. Controlling symptoms like nausea and diarrhea will improve quality of life and lead to better long-term treatment results.

If GI symptoms don't go away with standard therapy, it may be a sign of a more serious problem. A gastroenterologist, a specialist in diseases of the digestive system, can help find what is causing symptoms and treat them.

Some common GI problems that can affect a person with HIV include:

- Gastritis
- Gastroesophageal reflux disease, called GERD
- Heartburn
- Intestinal infections

The following GI problems are more serious for those with HIV, including:

- Anorectal infections
- Esophageal infection
- Gastrointestinal cancers
- HIV gastropathy
- HIV enteropathy
- Salmonellosis
- A toxic reaction to HIV medications

Symptoms

The symptoms of GI problems can range from mild to serious including:

- Heartburn
- Diarrhea
- Nausea and vomiting
- Painful swallowing
- Loss of appetite
- Stomach pain, cramping and bloating
- Weight loss

Causes

The causes of GI problems can be as simple as eating a spicy meal that leads to heartburn. Or, it can be as serious as HIV-related gastrointestinal cancer or a life-threatening reaction to HIV medications.

GI problems may be caused by many things, including:

- Infections, such as from salmonella bacteria or parasites, which pose greater risks for those with HIV and which require specific treatment.

- Side effects of HIV medications, which may require a change in medication or dosing.

- Use of non-steroidal anti-inflammatory drugs (NSAIDs) like aspirin and ibuprofen.

- Decreased stomach acid secretions.

- A direct infection of the intestine with HIV, called HIV enteropathy.

- Unprotected anal sex, which can lead to infections in the anus or rectum.

- Gastrointestinal cancers, two of which are specifically associated with HIV: Kaposi's sarcoma and non-Hodgkin's lymphoma.

- Colon cancer

- Dangerous, toxic side effects of HIV medications, which may be life threatening.

No GI symptom should be ignored, especially by someone with HIV, because it may be a sign of something serious. It's best to report any and all GI problems to a physician.

Prevention

Some common GI problems can be prevented by:

- Washing hands often, especially before eating.

- Cooking meat and eggs fully.

- Using healthy food safety practices. Keep hot food hot and cold food cold.

- Avoiding contaminated food and drinks when traveling.

- Eating as least three hours before lying down.

- Avoiding spicy, acidic or fatty foods.

- Drinking plenty of water when taking medications in pill form.

- Limiting use of NSAIDs.

- Limiting alcohol use.

It also is important to keep the GI tract healthy while undergoing HIV treatment. A healthy GI tract helps the body absorb medications.

Diagnosis

The range and seriousness of symptoms will help a physician decide what types of tests are needed. These may include blood tests for infections or imbalances, or procedures for looking inside the digestive tract.

Treatment

GI symptoms in HIV are extremely common. They may have a profound effect on treatment and quality of life. It is important to keep healthcare providers informed of symptoms and the use of any over-the-counter or prescription drugs to treat them. Some of these drugs may interact with HIV medications.

GI problems can be treated once diagnosed. Managing symptoms, treating infections and adjusting medications can lead to long-term treatment success.

HIV Medication Side Effects

Overall, HIV treatment improves GI disease by improving immune function and decreasing infections. However, there are some dangers associated with HIV medications that can be life threatening. GI symptoms are often the first clue; so it is important report them to a health care provider.

These dangerous side effects include:

Lactic acidosis is a condition linked with NRTIs, especially Videx® (didanosine), Zerit® (stavudine) and Retrovir®. NRTIs damage mitochondria, which increases the level of lactic acid in the blood. Lactic acidosis is more common in women, and may also include liver problems. Blood tests can check lactate levels if this is suspected.

Pancreatitis is a life-threatening inflammation of the pancreas. It occurs most often with Videx, Bactrim, and pentamidine.

Hepatic necrosis (sudden liver failure) has been caused by Viramune® (nevirapine), particularly during the first four-and-a-half months of treatment. Although very rare, women with CD4 counts above 250, men with CD4 counts above 400, pregnant women, and those with chronic hepatitis B or C are most at risk.

Hepatitis

Hepatitis is a swelling of the liver. It can be caused by viruses, opportunistic infections such as mycobacterium avium complex (MAC) or cytomegalovirus, antiretroviral drugs or poisons.

Viral hepatitis can be acute or chronic. Acute means that a person gets sick for a couple of weeks, but then recovers. Chronic hepatitis means that the liver might be inflamed for six months or more. Chronic hepatitis stays in the body. A person with chronic hepatitis can infect other people. His or her disease can become active again.

Without treatment, it can lead to scarring (cirrhosis) of the liver and liver failure, which can be fatal.

Because many anti-HIV drugs are processed by the liver, hepatitis can make treating HIV complicated.

Symptoms

There are seven known types of viral hepatitis. (They are hepatitis A, B, C, D, E, F and G viruses.) The most common are hepatitis A, B and C. Hepatitis B and C can lead to persistent or chronic infection. No matter what causes hepatitis, the signs are similar. They include:

- Dark, tea-colored urine and pale or clay-colored stools

- Loss of appetite

- Fatigue

- Abdominal pain or bloating

- General itching

- Yellowing of the skin or eyes

- Nausea and vomiting

- Low grade fever

- Weight loss

Many people with hepatitis don't seek help quickly because they think they have the flu. Without treatment, hepatitis can keep damaging the liver. This may lead to scarring of the liver (cirrhosis), liver failure or liver cancer. A person with these types of hepatitis may have more side effects from the anti-HIV drugs he or she takes.

How serious hepatitis is depends on its cause, other illnesses that may also be present and the type of hepatitis. Hepatitis A, for example, is generally short-lived, not leading to chronic liver problems.

Causes

Hepatitis can be caused by:

- Infections from parasites, bacteria or viruses (such as hepatitis A, B, or C). More than 90% of cases of hepatitis are caused by hepatitis A, B, or C. Other viruses such as cytomegalovirus, Epstein-Barr virus and yellow fever can also cause hepatitis

- Liver damage from alcohol, drug, or poisonous mushrooms

- An overdose of acetaminophen (Tylenol®), which is rare but deadly

- Immune cells in the body attacking the liver and causing autoimmune hepatitis

Liver-damaging drugs such as methyldopa (an uncommon drug for high blood pressure), isoniazid for tuberculosis, seizure medications (like valproate and phenytoin), drugs used to regulate the heart beat such as chlorpromazine and amiodarone and certain antibiotics, including trimethoprim-sulfamethoxazole and erythromycin. People taking these drugs are usually given liver tests to monitor their health closely.

Risk Factors

The chances of getting hepatitis go up if a person:

Uses injected drugs

Takes too much Tylenol. The recommended dose and a dangerous dose are close. Be careful to take Tylenol only as directed. Many prescriptions mix Tylenol with other drugs. It is easy for a person to be taking more than he or she realizes.

Has multiple sexual partners and unprotected sex

Eats contaminated foods

Travels to areas where hepatitis is common

Lives in a nursing home

Has a family member who recently had hepatitis A

Abuses alcohol

Has HIV or AIDS

Had a blood transfusion before 1990, before the hepatitis C blood test was available

Is born to a mother with hepatitis B or C. (The virus can be passed on during delivery.)

Works in health care in contact with blood, including dentist and dental hygienist

Has a tattoo

It also is important to keep the GI tract healthy while undergoing HIV treatment. A healthy GI tract helps the body absorb medications.

Prevention

The best way to prevent viral hepatitis is through cleanliness. Hands should be washed after going to the bathroom and before handling food. When traveling eat only well-cooked food and drink bottled water.

A person should avoid close contact with people (or their blood) that have been infected with hepatitis. Condoms can help prevent the spread of hepatitis B. Razors, needles or toothbrushes should not be shared with a person who has hepatitis. People getting piercings or tattoos should be cautious.

There are vaccines that can protect you against developing hepatitis A and B, even if you've already been exposed to them. A shot of immunoglobulin may also prevent infection. This is true even after you have been exposed:

It may be given soon after you have had close contact (like kissing or sharing utensils) with someone who was diagnosed with hepatitis A within the last two weeks.

It should be given right away, along with the hepatitis B vaccine, to an infant born to a woman with hepatitis B.

A person who has had sexual contact or shared needles with someone who may have one of the hepatitis viruses should get tested. Testing is important even if the person has no symptoms.

Diagnosis

The first step is to do a blood test to see how the liver is working. This measures the amounts of certain chemicals. If they are high, it may be a sign of hepatitis. Signs of viruses are also checked with the blood test. Sometimes it is necessary to take a sample of the liver (a biopsy) to look at under a microscope.

An ultrasound of the abdomen may be done to check for swelling in the liver. If the abdomen is swollen, fluid may be removed to check for infection.

Treatment

About half of those with hepatitis C end up with chronic liver disease, liver failure (cirrhosis) or liver cancer. Other complications include an infection of the fluid in the belly and bleeding in the throat.

There are several drugs used to treat hepatitis:

Interferon-alpha (used to treat hepatitis B and D)

Two anti-HIV drugs, Epivir® (lamivudine, 3TC) and Emtriva® (emtricitabine, FTC). They are used to treat hepatitis B and D. Some newer drugs being tested to fight HIV also show promise in helping to fight hepatitis B.

Adefovir dipivoxil (Hepsera®) was approved by the FDA in 2002 to treat hepatitis B

The liver needs to be working properly to break down most drugs. Drugs that didn't cause a problem when a person was healthy can make them very sick when they have hepatitis.

Anything that can be done to reduce strain on the liver is helpful against hepatitis. Anything that irritates the liver, such as alcohol, aspirin, recreational drugs and some herbal products should be stopped. People with hepatitis should make sure that their doctors and pharmacists know all the drugs, supplements and herbal products they are taking.

Some anti-HIV drugs increase the risk of liver problems. It's important to discuss all the drugs taken with a doctor and to be careful about not mixing drugs that can cause harmful impacts on the liver.

It can be helpful to:

- Eat most of the day's calories early

- Rest

There are no effective treatments for hepatitis A and E, but they usually only last a couple of weeks.

Herpes

Herpes is an outbreak of painful sores or ulcers in the mouth or on the genitals. A common virus, the herpes simplex virus, causes it.

Once a person is infected, the virus stays in the body for life. Most of the time, it is not active. A person may not even know that he or she is infected with the herpes virus. Without warning, the virus can become active. Flare-ups may be due to stress, a common cold, an infection or exposure to strong ultra-violet light.

About eight out of every 10 people with HIV are also infected with genital herpes. The open sores of herpes make it easier to become infected with HIV. People infected with both HIV and herpes may have herpes flare ups that happen more often, last longer and are worse. A person who has herpes sores for four or more weeks is considered to have AIDS.

People infected with both HIV and herpes simplex virus need to be very careful during a herpes outbreak. Their viral load usually goes up, which can make it easier to transmit HIV to others.

Symptoms

The sores that herpes causes around the mouth and the ones it causes on the genitals are actually caused by two different types of herpes virus.

Herpes simplex virus (HSV) 1 causes cold sores or herpes around the mouth. The signs of this type of herpes are tingling or painful spots on the edge of the lip where it meets the skin of the face. Sometimes, these sores can appear on the nostrils, the gums or the roof of the mouth.

HSV-2 causes genital herpes. This type of herpes can affect the genitals, the anus, the thighs or the buttocks. The signs of this type of herpes are:

- A sensation of numbness, tingling or itching. This is a sign that the virus is traveling up a nerve to the skin.

- One or more clusters of small fluid-filled blisters that are red and painful. The sores appear four to seven days after a person is first infected. They burst and crust over before they heal. It takes about a week in a person with a healthy immune system to go away. The outbreak is usually worst the first time. People with HIV usually have outbreaks that are more severe and last longer than people without HIV.

- Sometimes the herpes outbreak also brings fever, headache, muscle aches, swollen lymph glands in the groin and a feeling of not being well when a person is first infected

- Sometimes there is pain on urinating

- Some women have a fluid discharge from the vagina

The symptoms vary from person to person. Some people will get only a mild rash or small bumps on the skin that look like pimples. One person may have an outbreak once a year, while others have one every few weeks. Before an outbreak begins, a person may notice an itching, tingling, or burning sensation in the affected area. There may be sharp pains in the pelvis or down the leg. After the first outbreak, herpes is less painful and goes away sooner.

Herpes can occasionally affect the throat, colon and other organs including the liver, eye and lung. Herpes encephalitis is inflammation of the brain, causing headache, nausea, mental changes, loss of co-ordination and seizures; this is rare in people with HIV but potentially fatal if it does occur.

Causes and Risk Factors

The virus can be passed from person-to-person by contact between these lesions and mucous membranes. This can happen through kissing or sexual contact.

Herpes may also be spread when sores are not present. This can happen when the herpes virus is multiplying and infectious particles are being shed from the skin or moist (mucous) membranes of the body. The shedding happens more often in people with HIV.

More women than men get genital herpes.

Prevention

It is hard to keep herpes from spreading. Many infected people are not aware they have the virus. Others may know they have the virus, but not realize that they can spread it even without having open herpes sores.

While condoms can make it harder to spread herpes, they cannot prevent it. If people with herpes take anti-viral drugs such as valacyclovir every day, they can reduce the chance of spreading herpes to others.

Diagnosis

HSV is diagnosed by growing (culturing) the virus from a swab taken from a lesion, or by using a fluorescent screening test to detect the virus.

Treatment

Treating herpes is harder if a person also has HIV. Higher doses of antiviral drugs are needed. Acyclovir (Zovirax), valaciclovir (Valtrex) and famciclovir are all drugs used to treat herpes. Acyclovir must be taken five times a day for five to 10 days. The other two drugs are taken three times a day for five to 10 days.

Acyclovir may be taken regularly to prevent future outbreaks of herpes. Using the drug regularly, however, can lead to the virus becoming resistant to the drug.

Pregnant women with genital herpes need special care. Herpes can cause potentially fatal infections in babies. If a woman has active genital herpes when she is ready to deliver a baby will usually be given a cesarean delivery.

Taking salt baths can help relieve the pain of genital herpes.

High Cholesterol

Cholesterol is a waxy, fat-like substance. The body uses it to build cells and make hormones. It also helps the body make bile, which helps digest fats. It is also helps the body use fat-soluble vitamins, including vitamins A, D, E and K. It is carried in the blood.

The liver produces cholesterol from stored carbohydrates and fats. Certain foods can also add to the cholesterol in the body. These include meats, egg yolks, shrimp and dairy products.

When there is too much fat (such as cholesterol or triglycerides) in the blood, it is called hyperlipidemia. The cholesterol can build up inside the artery walls. This puts a person at greater risk of getting heart disease or pancreatitis. (Pancreatitis is a swelling of the pancreas).

Some of the drugs used to treat HIV infection can cause an increase in the cholesterol in the blood.

Cholesterol is carried through the body bonded to different kinds of lipoproteins. The best known are low-density lipoproteins and high-density lipoproteins. Triglycerides help transfer energy from food into the cells.

Symptoms

High cholesterol doesn't cause symptoms that can be felt. The only way it can be discovered is through a blood test called a lipid profile.

A doctor usually orders a lipid profile when a person starts taking anti-HIV drugs. The test may be repeated every three or four months to see if there are any changes in the cholesterol levels in your blood.

Causes

Some protease inhibitors can raise blood fat levels. Older protease inhibitors, such as Norvir®, are more likely to cause hyperlipidemia than many of the newer protease inhibitors, such as Reyataz®.

Sustiva® is a non-protease inhibitor drug that can also raise blood lipid levels.

Risk Factors

Several things raise cholesterol levels. Some can be controlled; some can't.

Risk factors that can be controlled include:

- Limiting the drinking of alcohol

- Increasing physical activity

- Avoiding too much saturated fat and sugar in food. (Fat raises cholesterol levels. Sugar and alcohol raise triglyceride levels. Saturated fat is fat that is solid at room temperature such as cheese.)

Other factors that increase the risk of high cholesterol include:

- Birth control pills

- Diabetes

- Family history (genetics)

- Having low thyroid levels

Preventing High Cholesterol

Prevention

It isn't always possible to prevent high cholesterol. This is especially true if high cholesterol levels run in a person's family. When anti-HIV drugs cause high cholesterol levels, the benefits of the drugs on HIV is greater than the bad effects of the high cholesterol.

Managing risk factors for high cholesterol as much as possible is helpful to anyone. This can be done by:

By eating a healthy balanced diet. This diet would include low-fat meats such as chicken and fish. It should contain very little fat from animal sources such as milk, butter, cheese or fatty meats. It should focus on lots of vegetables and fruits.

Getting exercise that raises the heart rate three to five times a week

Maintaining a healthy weight

Drinking only a limited amount of alcohol or none at all

Managing stress levels. Stress can raise cholesterol levels.

Diagnosis

A high cholesterol level is diagnosed with a blood test, a lipid profile. This is done after not eating or drinking anything for 12 hours.

A lipid panel measures:

Total cholesterol. It's desirable to have a cholesterol level of 200 milligrams per deciliter (mg/dL) of blood or lower.

Triglycerides, which are a type of fat that the body uses to store energy. A high triglyceride level paired with high LDL cholesterol increases the risk of heart disease. It is desirable to have less than 150 mg/dL.

High-density lipoprotein (HDL) cholesterol, which helps remove fat from the body. The higher the HDL is the lower the risk of developing heart disease. It is desirable to have an HDL level of more than 60 mg/dL. This level helps protect against heart disease.

Low-density lipoproteins (LDL) cholesterol, which carries fat to other parts of the body. The higher LDL levels are, the greater the risk of developing heart disease. It is desirable to have less than 100 mg/dL of LDL.

Very low density lipoprotein (VLDL) cholesterol, which distributes triglyceride produced by the body. High levels of VLDL make cholesterol build up in the arteries. It is desirable to less than 130 mg/dL of VLDL.

The ratio of total cholesterol to HDL. It is desirable to have a ratio of 5 to 1 or less. (This means 5 mg/dL of total cholesterol to every 1 mg/dL of HDL.)

The ratio of LDL to HDL

Treatment

The first step in lowering cholesterol levels is to make lifestyle changes:

Avoid or limit the amount of alcohol consumed

Get regular aerobic exercise. (This is exercise that raises your heart rate.)

Keep blood pressure under control
Lose weight if necessary to reach a normal weight

Quit smoking

Switch to a diet low in saturated fats and sugar

Increase the amount of fiber, especially water soluble fiber, in your diet. (Water soluble fiber gets soft or gummy

when it is in water.) This helps absorb cholesterol and remove it from the body.

If these steps don't lower cholesterol, it may be necessary to take cholesterol-lowering drugs.

There are several groups of drugs that can do this. Statins are commonly used to lower cholesterol. They include Zocor® (simvastatin), Mevacor® (lovastatin), Pravachol® (pravastatin) and Lescol® (fluvastatin) and Lipitor® (atorvastatin).

Some anti-HIV drugs raise the amount of some statins in the body. It is important that a doctor be aware of all the medications that a person with HIV is taking. It may be necessary to adjust the doses of either the statin or of anti-HIV drugs to get the right balance of good effects with the fewest side effects.

Another type of cholesterol-lower drug group is the fibrates. These include Lopid (gemfibrozil) and Tricor (fenofibrate). Like statins, they can have side effects. It is important that they be taken as directed by the doctor.

If a person on anti-HIV drugs has severe high cholesterol, it may be necessary to change some of his or her antiretroviral drugs. For example, it may be necessary to switch from protease inhibitors to another class of anti-HIV drugs. This might mean changing a person's entire drug regimen.

Histoplasmosis

Sometimes called Darling's disease, histoplasmosis is caused by a fungus, *Histoplasma capsulatum*. The fungus lives in dirt, especially dirt that is mixed with bird or bat droppings.

The fungus causes a short-term lung infection usually. However, the disease can spread to other parts of the body (disseminated histoplasmosis). In that form, it can be fatal. Even mild cases of histoplasmosis can cause a serious eye disease called ocular histoplasmosis syndrome that causes blindness.

Symptoms

Symptoms of histoplasmosis can range from being unnoticeable to being fatal. They vary greatly depending on the form of the disease.

When histoplasmosis affects only the lungs, the signs show up in five to 18 days after being exposed to the fungus. It usually takes 10 days for the symptoms to appear. They include tiredness, fever, chills, chest pains and a dry cough. When the lung infection is ongoing rather than short-term, histoplasmosis is like tuberculosis. This form appears mostly in people who already have lung disease. It can develop over months or even years. It leaves scars on the lungs.

The widespread version of the disease -- disseminated histoplasmosis -- is serious. It can affect all of the body's organs, the blood and the linings of the brain. The liver and spleen become enlarged. Sores develop in the mouth or the digestive tract. Other symptoms include fevers, headache, neck stiffness or joint pain. There may be sores, lumps or rashes on the skin. With treatment, a person with disseminated histoplasmosis will die.

Causes

People get histoplasmosis when they breathe in dust that has the fungus. The fungus is most likely to be found in dirt that has been mixed with bat and bird droppings. The histoplasmosis fungus in the United States is mostly found in the Midwestern and southeastern states and along the Ohio and Mississippi river valleys. It is, however, found around the world.

The fungus produces spores. These are hardy forms of the fungus that can live in the environment for a long time. When the spores get into the lungs, they turn into yeast. It is the yeast that causes histoplasmosis.

The disease is not spread from person to person. If plants fertilized with bat droppings are then burned, the smoke becomes infectious.

Risk Factors

Anyone can get histoplasmosis. Men are more likely to develop the chronic, lung infection form of the disease. This is especially so if they already have chronic lung disease. The widespread form occurs mostly in people with weakened immune systems. This includes babies, young children and people with HIV infection or cancer.

Prevention

Avoid areas where the fungus might be growing. This includes old chicken houses, in caves or other areas where bats live and around the roosts of starlings and blackbirds. Avoid disturbing dust or droppings in areas where there is a possibility of contamination. Dirt should be sprayed with water before it is disturbed.

When gardening or working in high-risk areas, wear a dust mask that covers the mouth and nose and disposable clothing.

Diagnosis

To diagnose histoplasmosis, a doctor will do a blood test or try to grow the fungus in the laboratory from a sample of blood, lung tissue, sputum, bone marrow or the fluid that surrounds the brain and spinal cord. (This is called a culture.) Tests for signs of a protein that shows the body is fighting histoplasmosis infection may be done on samples of blood, urine or spinal fluid.

An X-ray will show distinct patterns in the lungs.

Treatment

Without treatment, eight out of 10 people with widespread histoplasmosis will die. With treatment, three out of four survive.

People at high risk of getting the widespread form of histoplasmosis will be treated with fungus-killing medicines. Persons with mild disease usually get better on their own. Severe cases of acute histoplasmosis and all cases of chronic and disseminated disease are treated with fungus-killing medicines.

A person with HIV who is infected with histoplasmosis is usually treated first with amphotericin. This is a strong drug that can cause damage to the kidneys. This may be followed by treatment with itraconazole or ketoconazole.

Histoplasmosis can cause serious complications. These include inflammation of the sac that lines the heart (pericarditis) and of the joints (arthritis). It can also lead to fibrosing mediastinitis. This is a scarring in the chest that traps lymph nodes, the heart, the esophagus (which carries food from the mouth to the stomach) or the blood vessels that carry blood to and from the heart. Another serious complication is mediastinal granuloma. This is a swelling of the lymph nodes inside the chest. As they get larger, they can press on the esophagus or the blood vessels going to and from the lungs.

Human Papillomavirus and Genital Warts

The human papillomavirus (HPV) has more than 100 forms. It causes warts, abnormalities of skin cells and cervical cancer. Of its different forms, 30 can infect the genitals. Genital warts are single or multiple growths or bumps that appear in the genital area, and sometimes are cauliflower shaped.

Five forms of HPV have been linked to cervical cancer in women and anal cancer in both men and women.

HPV is one of the most common sexually transmitted diseases. People with HIV are especially at risk of being infected with HPV. A woman with both HIV and HPV is at much greater risk of getting cervical cancer. The cancer will be more aggressive if it occurs.

Symptoms

Most people infected with HPV don't know they have it. The virus lives in the skin or the moist (mucous) membranes of the body. It often causes no symptoms, especially in men.

Genital warts usually are soft, moist, pink or flesh-colored swellings. They can be raised or flat, appear singly or in clusters and be small or large. Some people get visible genital warts. Others may have pre-cancerous changes in the cells of the cervix, vulva, penis, anus, scrotum, groin or thigh.

The warts appear weeks or months after sexual contact with a person who has HPV. Sometimes warts never appear. Just because a person doesn't have genital warts, doesn't mean they don't have HPV.

Causes

The types of HPV that cause genital warts are spread through genital contact. Rarely, a pregnant woman can pass HPV to her baby during vaginal delivery. The more sexual partners a person has had the greater his or her risk of getting HPV.

Prevention

There is no test that can tell a person what his or her status is in regards to HPV infection. The best way to avoid HPV infection is not to have genital contact with another person.

An HPV test does exist for women. It is mainly used as part of cervical cancer screening and management.

Wearing a latex condom may reduce the risk of genital HPV infection. It does not, however, prevent HPV infection.

Since 2006, an FDA-approved vaccine against the most dangerous types of HPV has been available. It is most effective when given to girls before they become sexually active. It offers some protection to sexually active women up to the age of 26.

Diagnosis

Most women learn they have HPV when a Pap test comes back with abnormal results. (A Pap test is used to screen for cancer or pre-cancerous changes in the cervix.) No tests for HPV are available for men.

Genital warts are diagnosed by sight.

Treatment

There is no one preferred way to treat genital warts. Genital warts that can be seen can be removed by medicine that the patient applies. Health care providers can also take steps to remove the warts.

Some people choose to do nothing to see if the warts will go away on their own. Research has shown that nine out of 10 women with HPV infection of the cervix have no sign of it within two years.

Women should have regular Pap tests whether they know they have HPV or not. HPV infection can cause cervical cancer. Regular screening for cervical cancer has greatly reduces deaths from cervical cancer.

Men with HIV are more likely to get severe, long lasting cases of genital warts. These may be harder to treat. They are also more likely to develop anal cancer.

Illicit Drug Use

Using illicit drugs makes it easier to get infected with HIV – and harder to live with the infection once it's there. Using alcohol or drugs makes it more likely a person will have sex – and less likely he or she will follow safe sex guidelines.

Sharing needles used for injected drugs has a very high risk of HIV infection. Swapping drugs for sex increases the risk of HIV as well.

A person who uses alcohol or illicit drugs may not realize they have HIV infection at first. Some of the signs and symptoms of HIV infection are like the signs of drug and alcohol abuse.

A person who abuses drugs or alcohol should tell his or her doctor all the reasons he or she might be feeling bad. This is especially so, if that person thinks he or she might have HIV.

How Illicit Drug Use Affects HIV

There hasn't been enough research yet to know if drug use makes HIV turn into AIDS faster. It is clear that people who abuse drugs have a harder time taking care of themselves. They miss meals, don't get enough sleep and don't take HIV medicines on schedule. This can make the body and immune system weaker. As a result, it's easier to get other infections. A person may also have more side effects from antiretroviral therapy.

Worse yet, a person with HIV who uses drugs may raise their risks of drug resistance. (This happens when the HIV changes or mutates. The drugs a person with HIV is taking then don't work. Sometimes drug resistance makes it impossible to use whole groups of drugs. This narrows the options for treatment.)

Health Complications from Illicit Drug Use and HIV

Many complications can develop when a person with HIV also abuses drugs. These include:

Bacterial pneumonia and tuberculosis. People who have HIV and use drugs are more likely to get these infections than people who only have HIV. Shared marijuana and crack cocaine fan the spread of tuberculosis.

Anemia

Hepatitis C virus, if injected drugs are used

Disorders in how the body processes, stores and uses food. These include problems with hormones, fats in the blood (lipids) and starches and sugar. Drugs like cocaine shrink the blood vessels in the digestive track. This not only makes it harder to get good nutrition, it also makes it harder for the body to absorb anti-HIV drugs

Heart problems can develop with cocaine use

Damage to the brain and nerves from cocaine and methamphetamine use

Stomach and digestive disorders

Wasting syndrome is worse in people with HIV/AIDS who abuse drugs

Active methamphetamine users are much less likely to reach a viral load that can't be detected than other people with HIV. Active meth users are only half as likely to achieve this as former or nonusers.

Interactions Between Illicit Drugs and Anti-HIV Drugs

Sometimes drugs taken together have effects that neither has by itself. Interactions between anti-HIV drugs and recreational drugs may cause over doses or under doses of either type of drug. This may result in a fatal overdose of a recreational drug.

Most antiretroviral drugs are processed by the liver. (All protease inhibitors are.) This may mean that the levels of recreational drugs that can also be processed by the liver changes dramatically.

Because illicit drugs are illegal, there has been very little research on how they interact with antiretroviral therapy. What is known, is known mostly because of the chemical make-up of the drugs and how similar drugs interact.

Possible drug interactions include anti-HIV drugs and:

Alcohol. Alcohol can raise levels of abacavir (Ziagen®) and Agenerase® (amprenavir) in the blood. Chronic alcohol use can lower how much of many anti-retrovirals get into the blood stream. Alcohol taken with didanosine (ddI or Videx®) can increase the risk of pancreatitis, which is an inflammation of the pancreas.

Crystal meth, methamphetamine (also called crank, glass, tina and other names). This drug uses the same paths in the liver as protease inhibitors. Serious interactions are highly likely. Using ritonavir (Norvir®) and methamphetamine at the same time increases the amount of amphetamine in the body two to three times.

Ecstasy/MDMA. Ecstasy uses the same paths in the liver as protease inhibitors. People who take both drugs may end up with very high levels of Ecstasy in the body. There is one proven case of a death due to an interaction between Ecstasy and ritonavir. When people taking Crixivan® (indinavir) also take Ecstasy, they will have a higher risk of getting kidney stones. This is because they tend to not get enough water.

GHB (Xyrem®, known as the date rape drug). Normally GHB is released from the body by the lungs during breathing. Protease inhibitors may increase levels of GHB in the body. It is not known what happens when its mixed with non-nucleoside reverse transcriptase inhibitors such as Rescriptor® (delavirdine), Sustiva® (efavirenz) and Viramune® (nevirapine).

Ketamine (also known as K or Special K). This drug is mostly processed by the liver. ritonavir (Norvir®), Viramune® (nevirapine) and Sustiva® (efavirenz) may cause a build up of ketamine in the body.

Marijuana. There are no known interactions between marijuana and anti-HIV drugs. In theory, an interaction would be greater if the marijuana were eaten instead of smoked.

Little is known about the following interactions:

Cocaine and antiretrovirals. What is known is mostly in theory. Mixing cocaine with anti-HIV drugs doesn't appear to increase levels of cocaine.

LSD and antiretrovirals. How LSD is processed in the body is not understood. Interactions with anti-HIV drugs may be possible.

Immune Reconstitution Syndrome

About one person out of every five who starts antiretroviral therapy begins to get sick even as their immune system gets stronger. This is called immune reconstitution syndrome or sometimes immune restoration inflammatory syndrome.

The syndrome usually happens to people with very weak immune systems about two months after they start treatment for HIV. In some cases, an old infection returns. In other cases, a new disease starts.

When CD4 cell counts rise quickly and viral load drops, the body may fight the germs that were already there. This makes it seem as if the infection is new. In reality, the body was simply too weak to fight germs before therapy.

Symptoms

Symptoms of immune reconstitution syndrome depend on what infection the body is fighting. Some patients have fever and swollen lymph nodes. Others have swelling and tenderness in other parts of their bodies. Some of the infections that have been linked to immune reconstitution syndrome are:

- Cytomegalovirus

- Hepatitis B and C

- Shingles and herpes outbreaks

- Molluscum, which is a skin infection

- Mycobacterium Avium Complex (MAC). MAC during immune recovery may show unusual symptoms.

- Progressive multifocal leucoencephalopathy (PML), a viral brain

- Swollen lymph nodes (lymphadenopathy). This is a signal that the body's immune responses have become active.

- Tuberculosis

Causes

This syndrome is caused by a recovery of the body's immune system after it has become very weak. Before treatment, the body had infections but was not able to fight them. When the immune system quickly gets stronger, it attacks the infections.

The syndrome is more often linked to the infections listed above than other types of diseases or conditions.

Prevention

The best way to help avoid immune reconstitution syndrome is to get treatment for HIV before the immune system gets too weak.

Diagnosis

Following the start of antiretroviral treatment, a doctor will monitor a person with HIV. An infection that develops after treatment begins will be diagnosed on the basis of its symptoms and blood tests or culture that would be done to diagnose the underlying infection.

Treatment

Usually continuing HIV treatment takes care of any infections that emerge. The appearance of immune reconstitution syndrome is actually a good sign. It means the immune system is being restored.

In some cases, a doctor may slow down the recovery of the immune system. Using a steroid drug like prednisone can do this. Prednisone can ease the inflammation in the body as the immune system gets stronger. By slowly strengthening the immune system, some of the immune restorations responses can be avoided.

Influenza

Influenza is a contagious illness caused by a virus. It affects the lungs. Flu can be mild, or it can be so severe it causes death. People with HIV have a higher risk of getting flu. They also have a higher risk of complications such as pneumonia.

Symptoms

The signs of flu are much like those of a cold. While a cold doesn't cause fever and muscle aches, flu does. Other signs include:

- Dry cough
- Extreme tiredness
- Fever (usually over 100 degrees)
- Headache
- Muscle aches
- Runny or stuffy nose
- Sore throat

Nausea, vomiting and diarrhea may occur. These symptoms are more common in children than adults.

Most people who get the flu recover in one to two weeks. But some people develop serious complications, like pneumonia. This is especially true for people with HIV.

Causes

Flu viruses spread from person to person through coughing or sneezing by people who have influenza. Touching something that has flu viruses on it and then touch the mouth or nose can also spread flu. A person can infect others a day before his or her symptoms develop and up to five days after.

Prevention

The best way to prevent influenza is to get a vaccination in October or November before the flu season starts. Because it can have such a serious effect on people with HIV, they are among the priority groups to be given flu shots.

There are two types of vaccines:

The flu shot. This is given with a needle and has killed virus in it. The killed virus causes the body to react in a way that protects it when it meets live virus. Flu shots are approved people six months old or older. Both healthy people and people with chronic medical condition can take flu shots.

A nose spray vaccine. This vaccine is made with live, weakened flu viruses that do not cause the flu (sometimes called live attenuated influenza vaccine or LAIV). This is approved only for healthy people between the ages of five and 49 who are not pregnant. People with HIV infection should not take this form of flu vaccine.

People with HIV may get flu shots, unless:

- They have a history of severe allergy to hens' eggs, or
 - They have developed Guillain-Barre syndrome within six weeks of getting a flu shot in the past.
- People with HIV who have a high risk of getting the flu, should get the flu shot.
This includes people who:

Are likely to be exposed to other people with the flu, such as family members

Living in an institution that has an outbreak of flu

Have advanced HIV and a weak immune system

Anyone who has an illness with a fever should postpone getting a flu shot until his or her symptoms are better. People should consult their doctors before getting a flu shot if they have any questions.

Other steps that are helpful to protect against the flu are:

Avoid close contact with people who are sick

Wash hands often

Keeping hands away from the eyes, nose or mouth. This is often how the flu virus is spread.

Get plenty of sleep, be physically active, don't get stressed, drink plenty of fluids and eat healthy food

Diagnosis

Flu is diagnosed on the basis of its symptoms.

Treatment

No antibiotics work against the flu virus.

Rest and getting lots of liquids can help. If you are on some anti-HIV drugs, it's important to be careful about taking acetaminophen (Tylenol) for aches and pains. This can cause liver damage, if too much is taken.

No research is available about how anti-flu agents like amantidine and rimantidine interact with anti-HIV drugs. People with HIV who have mental conditions or kidney problems should be carefully watched for drug reactions if they take anti-flu agents.

Most people get over the flu in one to two weeks. People with HIV may develop serious complications. To avoid this, people with HIV should get a flu shot. The most common side effect of a flu shot is soreness where the shot was given. This goes away in a couple of days.

People who get signs of the flu after getting a flu shot, didn't get the shot soon enough to prevent getting the flu.

Antibiotics do not work against the flu.

Kaposi's Sarcoma

Kaposi's sarcoma is a cancer that causes dark, reddish spots under the skin. The spots are made up of a tangled knot of blood vessels. They can show up in the mouth, nose, throat, internal organs or anywhere else on the body.

Kaposi's sarcoma was once thought to be a rare disease. It mainly affected older men of Mediterranean, African or Jewish descent. It also affected people who had had an organ transplant and were taking drugs to prevent rejection of the new organ.

In the early 1980s, an aggressive form began to be seen in AIDS patients. This was one of the first clues about the AIDS epidemic.

Kaposi's sarcoma affects about one out of every five people with AIDS who aren't taking anti-HIV drugs. With strong antiretroviral therapy, many fewer people get Kaposi's sarcoma. It can affect people at all stages of HIV infection.

Symptoms

The signs of Kaposi's sarcoma vary and can include:

Red, purple, brown or black spots. Usually painless, they sometimes swell and hurt.

The spots most often are found under the skin or on moist tissues such as the mouth, nose, throat or eye. They may also be found on the lungs, liver, stomach, intestines or lymph nodes. The spots can be dangerous if they swell enough to block breathing, eating or the flow of blood. Spots that bleed inside the body can be fatal.

Difficulty walking, if the spots are on the legs and feet

Swelling or puffiness of the arms, legs, face or scrotum if the spots block the lymph nodes

A serious cough, shortness of breath and fluid in the lungs, if the spots are in the lungs.

Fever, weight loss, or diarrhea

In the later stages of Kaposi's sarcoma, life-threatening infections are common. Eventually, without treatment, Kaposi's sarcoma spreads throughout the body.

Causes and Risk Factors

Kaposi's sarcoma is caused by a herpes virus. Most people who are infected never get Kaposi's sarcoma. People who have weakened immune systems can't keep the virus in check.

Kaposi's sarcoma is usually not serious as long as the CD4 cell count is above 250. People with lower CD4 counts are more likely to develop Kaposi's sarcoma that affects internal organs, such as the lymph nodes or lungs. This can be life threatening.

The disease affects men more than women. There are at least eight men with Kaposi's sarcoma for every woman who has it.

Prevention

There are blood tests to detect antibodies against HIV-related Kaposi's sarcoma. These can help determine if a patient is at risk for transmitting infection to his or her sexual partner.

It is not clear how the virus that causes Kaposi's sarcoma spreads. It might happen from sex or deep kissing. The best way to prevent Kaposi's sarcoma is to use strong anti-HIV drugs to keep the immune system strong.

Diagnosis

Kaposi's sarcoma is sometimes discovered during a regular dental check-up. If it is on the skin, it is easy to see.

A doctor will ask questions about the patient's medical history and do a physical exam. He or she can often diagnose

Kaposi's sarcoma by how it looks. The spots on the skin are usually flat, painless, don't itch and don't drain. They look like bruises. If the spots are pressed, they don't lose their color the way a bruise does. The doctor may take a sample to look at under a microscope. This is called a biopsy. The tumor cells of Kaposi's sarcoma have a long, spindle-like shape. There is also a viral protein (LANA) in the cells. This will confirm the presence of Kaposi's sarcoma.

Other tests that may be done include:

A chest X-ray to see if the lungs are affected

An examination with an endoscope. This is a thin, tube with a light and a lens. It can be put inside the body through the mouth or other opening such as an incision (cut) in the skin. It may have a tool to take tissue samples. This lets the doctor check for signs of disease.

An examination of the windpipe (trachea) and large airways of the lungs using a bronchoscope. A bronchoscope is like an endoscope that is used to look inside the lungs.

When a person with HIV is diagnosed as having Kaposi's sarcoma, it means he or she has AIDS.

Treatment

It isn't possible to cure Kaposi's sarcoma. It can be treated so the symptoms go away or become weaker. Strengthening the immune system is the best treatment. Antiretroviral therapy can clear up the spots or stop their growth.

Kaposi's sarcoma can be treated by:

Using the body's immune system to fight the cancer. Materials made by the body or in a lab help boost, direct or restore the body's natural defenses against diseases. Sometimes this is called biological response modifier (BRM) therapy or immunotherapy.

Chemotherapy. This uses drugs to kill the cancer. The drugs can be given either in a pill form or as a shot.

Radiation therapy. This uses high doses of X-rays or other high-energy rays to kill the cancer cells and shrink the tumors.

Surgery. This removes the tumor from the body. The tumor can be cut away, killed by burning and then removed or frozen with liquid nitrogen.

Several drugs may be used if internal organs are affected by Kaposi's sarcoma. These include:

Doxorubicin (Doxil®). This, like daunorubicin is an anti-cancer drug wrapped in a small bubble of fat (a liposome). Liposomal drugs last longer than other forms. They move to the areas where they are most needed. Some side effects are less with these types of drugs.

Daunorubicin (DaunoXome®) or

Paclitaxel (Taxol®)

It may not be necessary to treat Kaposi's sarcoma if:

There only a few spots on the skin

The spots don't cause the patient distress or embarrassment, and

The patient's CD4 count is high

Sometimes creams or gels put on the skin help.

Usually, however, Kaposi's sarcoma progress and spreads without treatment. Treatment is recommended when there are many spots, internal organs are affected or the patient's CD4 count is low.

The best approach to treating Kaposi's sarcoma is to inhibit HIV and boost the immune system using anti-HIV drugs. Protease-inhibitor-based drug combinations often help. Triple NRTI combinations and ones including an NNRTI have also shown promise.

Kidney Problems

The kidneys are two bean-shaped organs found on either side of the spine at about the waist. Their job is to filter the blood and clear toxins, salts and water from the body. The water and waste products are turned into urine.

The kidneys also play an important role in controlling the blood pressure. They control the level of acid and other chemicals in the blood.

Disorders of the kidneys are called nephropathy. HIV-related kidney problems are called HIV-associated nephropathy or HIVAN. The most serious kidney problems can lead to kidney failure.

Symptoms

By the time there are signs of kidney problems, a large part of the kidney's ability to work has been lost. Signs of kidney problems include:

- Eliminating large amounts of urine
- Fatigue
- High blood pressure
- Loss of appetite
- Rapid heart rate
- Swelling of the face or legs
- Thirstiness

Causes

Some kidney problems are caused by HIV itself. A person with advanced HIV disease and low CD4 cell counts is more likely to have problems.

Some of the drugs used to treat HIV are known to be causes of kidney problems. Viread (tenofovir) is a nucleotide reverse transcriptase inhibitor that may cause problems. Crixivan (indinavir) can form crystals in the kidneys. This happens most often in people who don't drink enough water. It is less of a problem when indinavir is boosted with ritonavir. Kaletra (ritonavir-boosted lopinavir) may cause kidney stones.

Causes and Risk Factors

Kidney disease is more likely in people who have:

- A higher viral load (especially one above 4,000)
- A lower CD4 count (especially one below 200)
- Diabetes
- Hepatitis B or C
- High blood pressure
- Being older or being African-American or Haitian also raise the chance of developing kidney problems.

Prevention

The best way to try to avoid kidney problems is to manage those risk factors that can be controlled. This means keeping

blood pressure low, managing diabetes and drinking plenty of fluids. Any steps taken to improve the health generally will be helpful to the kidneys.

Diagnosis

Because people with HIV have a higher risk of kidney problems, they need to be checked regularly. Kidney function tests should be done when a person is first diagnosed with HIV. If there is a high risk of developing kidney problems, the tests should be repeated every year.

The best way to diagnose kidney problems is through a blood test. Blood tests are used to monitor a person's response to treatment. Because kidney problems often don't have symptoms until a lot of damage is done, having regular blood tests is important.

Some of the tests a doctor may order to monitor how the kidneys are working are:

Urine test. This is the most common test used to see how well the kidneys are working. It checks for protein, sugar, ketones (produced when the body breaks down fat), blood and nitrites in the urine. Even small amounts of protein show up in the urine before the kidneys have suffered major damage from kidney disease.

Blood urea nitrogen (BUN). This measures the nitrogen in the blood. The kidneys normally remove BUN. Having a high BUN level can be a result of a high-protein diet, not getting enough water or kidney or heart failure.

Creatinine clearance. Creatinine is made when muscle is broken down. When creatinine levels go up in the blood, it's a sign of that the kidneys aren't working normally.

An ultrasound. This uses sound waves to create an image of an organ inside the body.

A kidney biopsy. In a biopsy, a small sample of tissue is taken from the kidney to look at under a microscope.

Treatment

How kidney disease is treated in a person with HIV will vary. Treatment depends on the nature of the kidney disease, how well the person is responding to HIV treatment and other factors.

If kidney disease is serious, it may be necessary to make changes in the anti-retroviral drugs being used. Stopping a drug such as tenofovir has to be balanced with the positive effects of anti-HIV treatment. Taking antiretrovirals can help improve a person's general health and prevent other infections. This helps keep the kidneys working.

It may be necessary to lower the doses taken of all nucleoside and nucleotide reverse transcriptase inhibitors, except Ziagen[®] (abacavir).

Making sure the person gets plenty of fluids and taking steps to lower the blood pressure are helpful.

In the case of severe kidney disease or kidney failure, dialysis may be needed. This is a process where the blood is filtered by a machine and then returned to the body. The machine takes over the job of the kidneys.

A kidney transplant may also be an option. In the past, this wasn't possible because of the immune system suppressing drugs that are used after a transplant to prevent organ rejection. With the antiretroviral therapy now being used the risks of these anti-rejection drugs has been reduced. Most transplant centers only accept people with a CD4 cell count over 200 and an undetectable viral load. Under these conditions, people with HIV have about the same outcomes as other people getting kidney transplants.

Lactic Acidosis

Lactic acidosis is a rare side effect of nucleoside reverse transcriptase inhibitors (NRTIs) used to treat HIV infection. Mild increases in the amount of lactic acid in the blood are common in people taking NRTIs.

Lactic acid is a chemical made when the cells of the body produce energy. When too much lactic acid builds up in the blood, it can harm the cells. Lactic acid builds up in the blood when the mitochondria aren't working right or don't have enough oxygen.

Lactic acid is turned into lactate in the blood. The muscles of the body create lactic acid and lactate during exercise. The lactate is what makes muscles sore after a workout. The liver breaks down the lactate. If there's too much lactate in the blood, the liver can't keep up.

Lactic acidosis can be a life-threatening condition.

Symptoms

Mildly higher levels of lactate in the blood may not cause any symptoms. Common signs of lactic acidosis include:

- Abnormal heart beat

- Having a hard time breathing

- High lactic acid levels in the blood

- Nausea, vomiting and abdominal pain

- Severe weakness of muscles in the legs and arms

- Tingling and pain in the fingers and toes

- Pancreatitis (inflammation of the pancreas)

- Being tired without reason to be

- Weight loss

- Shortness of breath or rapid breathing

- Cold or blue hands and feet

- Tenderness on the right side of the abdomen under the rib cage. This may be a sign of an enlarged liver.

Sometimes the signs of lactic acidosis appear at the same time as other changes in the body. These changes include loss of fat (lipoatrophy) (link to facial wasting) or build up fat such as with buffalo hump.

Causes

Lactic acidosis is caused by damage to the mitochondria. In HIV-infected people, this damage has been linked to nucleoside reverse transcriptase inhibitors (NRTIs) such as Epivir (lamivudine or 3TC), AZT (zidovudine or Retrovir), abacavir (Ziagen), Zerit (stavudine, d4T), Hivid (ddC) and Videx (didanosine, ddl). These drugs interfere with an enzyme the mitochondria need to reproduce. This leaves the body with fewer mitochondria. The drugs may also interfere with how the mitochondria work.

Lactic acidosis can also happen if the liver can't clear the blood of lactate. NRTIs also cause the liver to become fatty. A fatty liver doesn't work well. It can't break down the lactate properly.

Risks of developing lactic acidosis are greater in people who are:

Taking Zerit (stavudine) and Videx (didanosine)

Overweight

Women

In the later stages of HIV and aren't getting enough food

Taking ribavirin (Rebetol) for hepatitis C infection as well as HIV

Prevention

Currently, there aren't any lab tests to find out who is at risk of lactic acidosis. A person on NRTIs should stay alert for the signs of lactic acidosis. If the signs occur, see a doctor right away.

Diagnosis

It is important that a person with symptoms of lactic acidosis see a doctor as quickly as possible. The doctor may order blood tests to check for:

Blood acid levels

Electrolyte level

Lactate levels. (This is difficult to do and rarely done.)

Liver function. These tests measure how much of the proteins made and used by the liver are in the blood.

The doctor will also do a physical exam. He or she will check for an enlarged liver. A computed tomography (CT) scan or ultrasound of the liver may be ordered.

Treatment

Treatment will depend on how serious the lactic acidosis is. A person with only mildly high lactate levels and no symptoms may not have to make any changes.

In very serious cases, it may be necessary to stop taking NRTIs. This should never be done without discussing it with a doctor.

A person may need to be in the hospital. Fluids may need to be given through a vein in the arm (intravenously). In life-threatening situations, a person may need to use a machine to help him or her breathe.

Liver Disease

In the past, people with HIV faced serious health problems from infections that took advantage of a weakened immune system. Powerful anti-HIV drugs can now help control such infections.

Yet, a new risk exists. Although people on anti-HIV therapy now live longer, they are more likely to develop liver disease. These include hepatitis B and C.

Hepatitis C affects more than a third of people with HIV. It can lead to cirrhosis, liver failure or death. Hepatitis B is the leading cause of chronic liver disease and liver cancer, and is the ninth leading cause of death worldwide, according to the World Health Organization.

And, men infected with both hepatitis B and HIV are 17 times more likely to die from liver disease than men with just hepatitis B alone, according to a study by researchers at Johns Hopkins.

Liver-related problems that can affect a person with HIV include:

- Cirrhosis
- Fatty liver steatosis
- Lactic acidosis
- Liver cancer
- Liver failure

Symptoms

Most liver problems don't produce symptoms, especially at first. Liver problems are usually found through a blood test ordered by a doctor. This test measures liver enzymes in the blood. Rising enzyme levels may be a sign of possible liver problems.

Over time symptoms appear, including:

- Dark, tea-colored urine
- Easy bleeding or bruising
- Fatigue
- Pain or tenderness in the upper right side of the abdomen
- Stools that are clay-colored
- Yellowish eyes and skin

Causes

Liver problems can develop in a person with HIV for several reasons, including:

The effect of anti-retroviral drugs. The liver processes food and drugs. Some HIV drugs put a heavy burden on the liver. Protease inhibitors such as Crixivan[®] (indinavir) or Viracept[®] (nelfinavir) and non-nucleosides such as Sustiva[®] (efavirenz) or Viramune[®] (nevirapine) can cause liver damage.

Weakening of the immune system. This makes it hard for the body to fight viral infections such as hepatitis. People who already have viral hepatitis are five times more likely to have liver side effects from anti-HIV drugs.

Factors that cause liver problems in anyone, with HIV or not. These include heavy drinking, street drug use and allergic reactions to over-the-counter and prescription drugs. (Drug-related liver problems make up more than half of the liver failure cases in the United States, according to a recent *New England Journal of Medicine* study.) For instance, because HIV and hepatitis B are transmitted in the same ways, up to 10 percent of HIV-infected individuals also have a hepatitis B infection.

Risk Factors

The following factors can increase the risk of developing liver problems for those living with HIV:

Having hepatitis. Men infected with a combination of hepatitis B and HIV have a greater risk of death from liver disease than men infected with hepatitis B alone. Those with hepatitis C already have liver damage and HIV medications will make it worse.

Being on highly active antiretroviral therapy. Some anti-HIV drugs are riskier than others. Norvir (ritonavir) and Videx and Videx EC (didanosine) can cause liver damage. Nucleoside reverse transcriptase inhibitors (NRTIs) cause liver enlargement and build-up fat in the liver, called steatosis, and may damage the liver. Protease inhibitors (PIs) have been linked to liver toxicities.

Being treated for an HIV-related infection with certain drugs. Three antibiotics -- trimethoprim-sulfamethoxazole, isoniazid and rifampin $\text{\textcircled{D}}$ pose a greater risk of causing liver damage.

Prevention

Avoiding alcoholic drinks and recreational drugs reduces the strain on the liver. Some individuals may also benefit from vaccines against hepatitis A and B. There is no vaccine for hepatitis C. Physicians need to closely monitor those on HIV therapy to reduce the risks of liver damage.

Diagnosis

Regular tests to check how well the liver is working are important because of the known effects of anti-HIV drugs, some antibiotics and anti-viral drugs. Also, HIV disease and AIDS can lead to infections that can settle into and cause liver problems.

Monthly testing is recommended for the first two or three months on anti-HIV therapy. After that, tests should be done every other month.

Blood tests are used to check how the liver is working and if it is inflamed. The tests check enzymes that spill into the bloodstream whenever the liver is irritated by a medication or an infection. Other tests check the liver's ability to filter blood and toxins from the body.

If liver enzyme levels go up, HIV therapy may need to be adjusted. While most drug-induced liver problems are mild, they can be very serious and may even cause death in some patients.

People with early HIV infection and adequate CD4 counts who are not taking antiretroviral therapy found to have liver disease, usually have a common type, such as viral hepatitis or alcoholic liver disease.

In contrast, people with advanced HIV infection and low CD4 counts found to have liver disease, usually have opportunistic liver and biliary tree infections.

Treatment

If liver tests indicate serious problems, sometimes a rest is all the liver needs to recover. In other words, a two- to three-month break from medications can rebuild the liver. It is a delicate balance. Doctors decide the risks and benefits for each individual.

Some drugs may have to be stopped. But, because HIV treatment usually involves a combination of drugs, a similar drug may be used instead. It is important to understand that stopping treatment, even for a few months, usually means a slow reduction in infection-fighting immune cells. This may lead to the return of detectable levels of HIV in the body. Again, physicians work with each individual to decide the best treatment.

Some doctors also recommend alternative treatments for the liver such as acupuncture and supplements to encourage the liver to remain healthy or to rebuild.

If jaundice (yellowing of the eyes or skin) develops, this is a sign of serious liver damage and HIV treatment may have to be stopped. In the past, this led to fears about drug resistance. But, researchers have found that stopping the drug cocktail does not commonly lead to drug resistance.

In addition, some drugs that work for HIV may also treat hepatitis B. So, both infections can be treated at once.

It's different for HIV patients with hepatitis C. They may have problems when treated with HIV medications because their liver is already damaged. For them, their liver problems may get a lot worse once they start HIV medications, and the hepatitis seems to get worse faster.

HIV therapy is interrupted probably less than 5 percent of the time for liver problems. And, only a very small percentage of patients have to stop therapy altogether. It all depends on the patient and the individual situation. If a person has active hepatitis or is an alcoholic, that increases the chance that therapy will be stopped. For the most part, people can be treated as long they are regularly observed by their doctors and have regular liver function tests.

Microsporidiosis

Microsporidiosis is an infection of the intestines that causes diarrhea and wasting in people with HIV. It can also cause infections of the brain, sinus, eyes, lungs, bile ducts, kidneys, muscles and other organs. It is caused by several kinds of microsporidia, or one-celled parasites.

The infection usually happens when a person's CD4 cell count drops below 100. It can be life threatening. Before the AIDS epidemic began, only 11 cases of microsporidiosis had been reported in medical literature.

Symptoms

The main sign of microsporidiosis is watery diarrhea. There may also be stomach pain, nausea, a loss of appetite, weight loss, dehydration and passing gas (flatulence). The symptoms may come and go for months. Not all people exposed to microsporidia even those with weakened immune systems show symptoms of infection.

Causes

The parasites that cause microsporidiosis can be found in the feces of people and animals. It can be spread to people through contaminated food or water or swimming in contaminated water. Oral-anal sex may also spread the infection.

Prevention

Washing the hands, especially after going to the bathroom or before handling food, helps prevent infection. Keeping food clean can also help. Meats and fish should be washed thoroughly. Fruits and vegetables should be cleaned and peeled.

Oral-anal sex should be done only with a latex barrier such as a dental dam or Saran wrap. This is especially important for HIV-positive people with weakened immune systems.

Diagnosis

It is hard to diagnosis microsporidiosis. The parasites are so small that even with an electron microscope it is hard to see them.

It used to be necessary to get a sample of the tissue of the small intestine (a biopsy) to look at under a microscope. A stool test is now used to easily diagnose infection by the parasite *E. bienersi*. If the parasites have spread, tests can be done on samples of urine or water used to flush the sinuses. Many doctors treat the condition as if it were microsporidiosis even without a solid diagnosis. If the diarrhea goes away, the condition probably was microsporidiosis.

Treatment

To date, there is no one treatment that effectively gets rid of microsporidiosis. Several drugs are being studied to fight microsporidiosis. Some help stop the diarrhea but don't get rid of the parasites from the gut. Some are effective against microsporidiosis of the eye.

The drug albendazole (Albenza) is often used to treat microsporidiosis. Sometimes it is effective; sometimes it is not. It can take up to two months or more to become effective. Different parasites can cause microsporidiosis. Albendazole works against some of them like *Septata intestinalis*. It doesn't work as well against the more common parasite, *E. bienersi*. The drug is hard to absorb. It may cause birth defects and should not be taken by anyone who is pregnant.

One of the best ways to treat microsporidiosis is anti-HIV drugs. These drugs can raise CD4 cell counts above 100. This strengthens the immune system and helps it fight the parasites. Having the parasites makes it hard for the body to absorb the drugs.

Sometimes diarrhea makes it hard to digest pills or tablets given as part of antiretroviral therapy. In this case, grinding up the tablets or capsules can help the body absorb the medicines.

It is important to treat the diarrhea and prevent dehydration (not having enough water in the body). Medicines like loperamide (Imodium), diphenoxylate (Lomotil) and Pepto-Bismol[®] can help. While this helps control the diarrhea, it doesn't fight the parasite. As soon as the anti-diarrhea medicine is stopped, the diarrhea will come back.

Non-steroidal anti-inflammatory drugs (NSAIDs) can be helpful in fighting the inflammation that goes with the parasite infection. An example of an NSAID is ibuprofen (Advil).

Cutting down on the amount of fat in the diet and eating more fruits and vegetables can help. As ongoing diarrhea can cause wasting, it is important to help build back any weight loss. This means eating healthy amounts of the right food. If loss of appetite is a problem, appetite-boosting drugs may be helpful. These include Marinol (gel-caps containing THC, the active ingredient in marijuana) and megestrol acetate (Megace).

Wasting causes a loss of muscle. Doing weightlifting or other exercises to build up muscles helps the wasting.

Mycobacterium Aviumcomplex (MAC)

This infection is caused by a group of bacteria called by one name Mycobacterium aviumcomplex (MAC). About half of the people with AIDS may develop MAC, especially when the CD4 cell count falls below 50.

Related to tuberculosis, MAC can affect the lungs or spread throughout the body. When it spreads, it usually gets into the gut, bone marrow, liver and spleen. People with advanced HIV infection and a CD4 cell count of less than 40 are more likely to have MAC throughout the body. MAC almost never causes disease in people with a CD4 count of more than 100.

The bacteria normally cause an infection of the lungs. But people with advanced HIV infection and a CD4 count less than 50 are more likely to develop an infection that can affect almost any internal organ.

Symptoms

Many of the signs of MAC are general. They include:

- Anemia (low red blood cells)
- Chills
- Diarrhea
- Fatigue
- High fevers
- Stomach aches
- Weight loss

If MAC has spread, it can cause blood infections, hepatitis, pneumonia and other problems.

Causes

The bacteria that make up Mycobacterium aviumcomplex are common. They can be found in water, soil, dust and food. Almost everyone has them. A healthy immune system will control them. People with a weakened immune system may develop MAC disease.

Prevention

The bacteria that cause MAC can't be avoided. The best protection is a strong immune system. Antiretroviral therapy helps keep MAC in check.

The antibiotics azithromycin and clarithromycin help prevent MAC. These drugs are usually given to people who have a CD4 cell count of less than 75. Once CD4 cell counts go over 100 and stays there for three months, the antibiotics may be stopped, depending on the doctor's judgment.

Diagnosis

Many opportunistic infections cause symptoms like those of MAC. A doctor will take samples of blood, urine or saliva to check for the MAC bacteria. The sample will be used to grow bacteria to see what is there. This process, called culturing, can take several weeks. Even if a person is infected with MAC, it can be hard to find the MAC bacteria.

If a person has a CD4 cell count less than 50, the doctor may go ahead and treat him or her for MAC. This is because MAC infection is common but difficult to diagnose.

Treatment

There isn't any cure for MAC. Treatment must continue for life to keep the infection from coming back. MAC bacteria can become resistant to some of the drugs used to fight it. Often, several antibiotics are used to treat MAC. At least two drugs are used, usually azithromycin or clarithromycin plus up to three other drugs.

People react differently to anti-MAC drugs. It may be necessary to try several combinations before one works with the fewest side effects. The most common MAC drugs are:

Amikacin (Amkin), given as an injection. It may cause kidney and ear problems.

Azithromycin (Zithromax), given as a shot or in capsules. It may cause nausea, headaches, vomiting or diarrhea.

Ciprofloxacin (Cipro or Ciloxan), given as a shot or taken as tablets. It may cause nausea, vomiting or diarrhea.

Clarithromycin (Biaxin): given as a shot or in capsules. It may cause nausea, headaches, vomiting or diarrhea.

Ethambutol (Myambutol): It may cause nausea, vomiting or eye problems.

Rifabutin (Mycobutin): It may cause rashes, nausea or anemia. It interacts badly with other drugs.

Rifampin (Rifampicin, Rifadin, Rimactane): It may cause fever, chills, muscle or bone pain. This drug can turn urine, swea, and saliva red-orange. (It may stain contact lenses.) It interacts with other drugs, including anti-HIV drugs, antifungal drugs and birth control pills.

A person being treated for MAC needs to be sure that his or her doctor knows all the drugs that he or she is taking. This is vital to prevent drug interactions.

Cutting down on the amount of fat in the diet and eating more fruits and vegetables can help. As ongoing diarrhea can cause wasting, it is important to help build back any weight loss. These means eating healthy amounts of the right food. If loss of appetite is a problem, appetite-boosting drugs may be helpful. These include Marinol (gel-caps containing THC, the active ingredient in marijuana) and megestrol acetate (Megace).

Wasting causes a loss of muscle. Doing weightlifting or other exercises to build up muscles is helps the wasting.

Neuropathy

When the nerves are damaged, it is called neuropathy. Nerve damage can affect:

The central nervous system, which is the brain and spinal cord

The outer nerves of the arms, legs, hands and feet. This is the peripheral nervous system. Neuropathy that affects these nerves is called peripheral neuropathy. It can affect movement or sensation, for example.

The nerves that control automatic body functions such as blood flow, breathing or the working of organs. This is the autonomic nervous system. When neuropathy affects these nerves, it is called autonomic neuropathy. It can affect the bowels and bladder, for example.

A third to a half of the people who have symptoms of HIV infection have peripheral neuropathy. Peripheral neuropathy is more common among people who use drugs that are injected. Some types of anti-HIV drugs such as nucleoside analogue reverse transcriptase inhibitor (NRTI) can cause peripheral neuropathy. Both children and adults with AIDS can get peripheral neuropathy. Children usually have less serious symptoms.

Symptoms

The main sign of nerve damage is tingling, burning or extreme sensitivity to touch. This sensitivity can be so intense that wearing socks or shoes or even lying under a sheet or covers is unbearable. Such symptoms usually affect both sides of the body equally.

The symptoms often start with the bottoms of the feet and then rise upward. Many people only complain when their symptoms reach the ankles. If the neuropathy affects the autonomic nervous system, a person may feel dizzy, have diarrhea or not able to perform sexually.

Causes

Neuropathy is sometimes due to the direct effects of HIV on the nerves. This is especially so in autonomic neuropathy.

It can also be caused by infections or tumors that affect the nerves. Neuropathy can also be caused by:

Some prescription drugs

Some anti-HIV drugs. The drugs most likely to cause neuropathy are ddI (didanosine, Videx[®] or VidexEC[®]) and d4T (stavudine or Zerit[®]). Other nucleoside reverse transcriptase inhibitors (NRTIs), protease inhibitors or non-nucleoside reverse transcriptase inhibitors don't seem to cause neuropathy.

Some drugs used to treat parasites, infections, syphilis or other viruses such as cytomegalovirus. These include isoniazid, vincristine (Oncovin[®]), lithium carbonate (Camolit[®], Liskonum[®] or Priadel[®]), dapsone, metronidazole (Flagyl[®], Flagyl S[®] or Metrolyl[®]) and thalidomide.

Some recreational drugs, such as heroin, cocaine or amphetamines (speed)

Alcoholism

Diabetes

Neuropathy is sometimes due to the direct effects of HIV on the nerves. This is especially so in autonomic neuropathy.

It can also be caused by infections or tumors that affect the nerves. Neuropathy can also be caused by:

Some prescription drugs

Some anti-HIV drugs. The drugs most likely to cause neuropathy are ddI (didanosine, Videx[®] or VidexEC[®]) and d4T

(stravudine or Zerit[®]). Other nucleoside reverse transcriptase inhibitors (NRTIs), protease inhibitors or non-nucleoside reverse transcriptase inhibitors don't seem to cause neuropathy.

Some drugs used to treat parasites, infections, syphilis or other viruses such as cytomegalovirus. These include isoniazid, vincristine (Oncovin[®]), lithium carbonate (Camolit[®], Liskonum[®] or Priadel[®]), dapsone, metronidazole (Flagyl[®], Flagyl S[®] or Metrolyl[®]) and thalidomide.

Some recreational drugs, such as heroin, cocaine or amphetamines (speed)

Alcoholism

Diabetes

A lack of B vitamins, especially B12.

Risk Factors

People with the following factors may be at a greater risk of developing neuropathy:

Being Caucasian

Drinking a lot of alcohol

Having a CD4 cell count below 100

Having an AIDS-defining condition

Having diabetes

Having had peripheral neuropathy before

Not eating a good diet

Older age

Using drugs that affect the nerves

Diagnosis

Peripheral neuropathy can be diagnosed from the unusual feelings in the feet. A doctor may test a person's reflexes. When the ankle reflexes are weak or absent, it may be a sign of neuropathy.

Other tests may be done on the nerves as well. Electromyography and nerve conduction studies may be done. Electromyography measures the electrical activity of a muscle. A nerve conduction study measures how well nerves send electrical signals to the muscles.

Measuring the amount of lactate in the blood may help to find out if the neuropathy is caused by the HIV itself or by nucleoside drugs. (High lactate levels have been linked to neuropathy caused by NRTIs.)

Treatment

Treating neuropathy usually focuses on getting rid of the symptoms. In mild cases, pain relievers such as aspirin or ibuprofen may do the trick. People with severe symptoms may need strong painkillers such as methadone or shots of fentanyl.

If the symptoms are bad, some types of drugs normally used to treat depression may help. These include amitriptyline, nortriptyline (Allegron), doxepin (Sinequan) and desipramine may help. They are usually given in low doses first. It can take a couple of weeks before they start to work. Sometimes these drugs cause dry mouth, difficulty urinating, high blood pressure and sleepiness. They should be used with care in people with dementia. These drugs can cause confusion and hallucinations.

If the neuropathy is caused by a drug such as ddI, the symptoms usually show up after a few weeks on the drug. A

person experiencing neuropathy may be advised to take a lower dose of the drug or stop it entirely. Even when the drug is stopped, symptoms may go on for several weeks before slowly going away. People who stop taking drug therapies because of neuropathy often find that they can later take lower doses of the drugs without problems.

A lack of vitamin B12 can cause of neuropathy. Many people with HIV have this. Signs of a lack of vitamin B12, include fatigue, poor memory and anemia. A full B complex pill may be taken to prevent this. Taking too much vitamin B6 may cause nerve damage.

Pneumocystis Carinii (Pneumocystis Jiroveci) Pneumonia (PCP)

Once the top killer of people with HIV, pneumocystis carinii is now treatable and preventable. (Scientists now call it pneumocystis jiroveci.) Without treatment, more than 85% of the people with HIV would sooner or later get pneumocystis.

Anyone whose CD4 cell count is below 200 should take anti-PCP drugs. Strong antiretroviral drug therapy helps keep CD4 counts from dropping.

PCP is still common in people who have been infected with HIV for a long time before treatment. Between 30% and 40% of people with HIV, develop PCP, if they delay treatment until their CD4 cell counts are at or near 50.

Symptoms

Difficulty breathing, fever and a dry cough are the first signs of PCP. When these symptoms occur, the person should see a doctor right away. Pneumocystis usually attacks the lungs. It causes a form of pneumonia. Most people who get PCP grow weaker, lose a lot of weight and are likely to get PCP again in the future.

Causes

PCP is caused by a fungus. A healthy immune system can control the fungus. Adults with weakened immune systems or children can't fight the fungus as well and get a form of pneumonia. People with a CD4 cell count less than 200 have the great risk of developing PCP. People with higher CD4 counts who also have other infections are also at risk of getting PCP.

Risk Factors

Highly active antiretroviral therapy (HAART) is the best way to prevent PCP. People who have fewer than 200 CD4 cells should take the drugs used to treat PCP. This will prevent PCP from developing. Once CD4 cell counts rise above 200 and stay there for three months, it's usually safe to stop taking anti-PCP drugs. These drugs aren't costly and have only mild side effects. Some researchers think the drugs should be continued until the CD4 cell count reaches 300.

(Never stop taking any drug a doctor has prescribed without talking with the doctor first.)

Treatment

The drugs now used to treat PCP include:

TMP/SMX (Bactrim or Septra) is the most effective anti-PCP drug. It combines two antibiotics: trimethoprim (TMP) and sulfamethoxazole (SMX). It is not costly. It is given as a pill taken daily. The SMX of the blend is a sulfa drug. Nearly half the people who take it get an allergic reaction. This is usually a skin rash, sometimes with a fever. The dosage of TMP/SMX can be cut back to three pills a week to reduce the allergy problems. Sometimes a process is used to build up a tolerance for the sulfa drug.

Dapsone is like TMP/SMX and appears to be almost as effective. It is taken as a daily pill and isn't costly. Dapsone causes fewer allergic reactions than TMP/SMX.

Pentamidine (NebuPent, Pentam, Pentacarinat) is a drug that is inhaled in a fine mist. This means a monthly visit to a clinic with a nebulizer (the machine that makes the mist). The mist is inhaled for 30 to 45 minutes. It is more expensive than TMP/SMX or Dapsone. If PCP is active, pentamidine can be injected into a vein. People using aerosol pentamidine get PCP more often than people taking the antibiotic pills do.

Atovaquone (Mepron) is used in people with mild or moderate cases of PCP who cannot take TMP/SMX or pentamidine.

Shingles

Shingles is a painful disease caused by the same herpes virus that causes chicken pox (herpes zoster). The first time a person is infected with herpes zoster, he or she gets chicken pox. After that, the virus becomes inactive. At any time, it can become active again without warning. This time, the infection is shingles.

People who have HIV infection are 15 to 25 times more likely to get shingles than others. A person's CD4 cell count doesn't need to be low for shingles to occur. When CD4 cell counts drop below 50, however, there is a greater chance that the virus will infect other parts of the body, such as the eye. When the virus infects the retina at the back of the eye, blindness can result.

Symptoms

Herpes zoster lives in nerve tissue. The signs of an outbreak usually appear in two stages. The first stage may include:

- Itching

- Numbness

- Tingling or severe pain in a belt-like pattern on the chest, back or around the nose and eyes

About a week later the second stage begins with:

A rash that begins as a band or patch of raised dots on one side of the chest, face, belly, arms or legs. The rash looks like a band or belt. (The word shingles comes from a Latin word meaning belt or girdle. The word zoster is Greek for belt.) The rash follows the path of the inflamed nerve.

The rash is painful. Usually the pain goes away as the rash goes away. In some cases, the pain can last for months or years.

Small, fluid-filled blisters form. Within about two weeks, the blisters break open and form crusty scabs. At this point, they no longer contain the virus. Scratching the blisters can lead to infections. These will need antibiotics and may leave scars. A typical case of shingles lasts about a month.

If the virus infects the nerves of the face or eye, shingles can appear on the mouth, face, neck, scalp, in or around the ears or on the tip of the nose. If a person gets herpes zoster on the forehead or near the eyes, he or she should see an ophthalmologist (a doctor who specializes in diseases of the eyes) right away. A herpes infection in the eye can be serious.

Causes

Varicella zoster virus, the same virus that causes chicken pox, causes shingles. This virus is in the herpes family. This is not the same virus that causes genital herpes infections or cold sores.

Shingles can only occur after someone has had chickenpox.

Risk Factors

The risk of getting shingles is higher in the following types of people with HIV infection:

- Gay or bisexual men

- Those younger than age 29

- People with a CD4 cell count of less than 500

Whites rather than blacks or Hispanics

Shingles can occur in people with HIV shortly after they start taking strong antiviral medications. These cases of shingles are believed to be a sign of a recovering immune system.

Prevention

Currently, there is no way to predict an outbreak of shingles, and there is no medication approved to prevent it. Shingles is contagious. A person who has an outbreak should not get close to other people. Avoid contact with the shingles rash or with any materials that may have touched the shingles rash or blisters.

Diagnosis

Shingles is diagnosed on the basis of its appearance and the pattern of symptoms. A blood test can also identify the virus.

Treatment

Treatment for shingles focuses on fighting the virus and reducing pain.

Anti-herpes drugs work best when they are started within the first three days after the pain of shingles starts. They include acyclovir (Zovirax), which is usually given as pill taken five times a day. It can be given through a vein into the arm in more severe cases. Two new drugs ð famciclovir (Famvir) and valacyclovir (Valtrex) are now available. They only need to be taken three times a day. All of these drugs must be taken for seven to 10 days.

To treat pain, several approaches can be used:

Skin treatments. The anesthetic lidocaine has been available in a patch form since 1999. It provides pain relief for some people with shingles. Because it is used outside the body, it has less risk of side effects than pain pills.

Pain medications. Some drugs normally used to treat depression, epilepsy, or severe pain are sometimes used for the pain of shingles. These can have a variety of side effects. Nortriptyline is the antidepressant most frequently used for shingles pain. Prednisone may be given to relieve the swelling (inflammation).

Nerve blockers. These are injections of drugs that numb the pain or steroids. They are given as shots either into the nerves or into the spine to block the pain.

Sinusitis

Sinusitis is a common infection or inflammation for people with HIV. As CD4 cell counts drop, the risk of getting sinusitis rises. A person with HIV may have many bouts of sinusitis a year.

The sinuses are four pairs of hollow spaces above and below the eyes and on each side of the nose. They warm the air before it is inhaled. Each sinus has a lining that makes a constant flow of mucus. This traps bacteria and other foreign matter that comes up the nose. The mucus then drains into the nose or lungs.

Sinusitis can be:

Acute, which usually lasts four weeks or less. This type is usually caused by infections

Chronic, which lasts for eight weeks or more or occurs four times a year or more. It can, however, go on for months or even years. This type is often caused by allergies.

Symptoms

It is easy to mistake sinusitis for a cold. Many of the signs are similar. If the symptoms last more than a week, it's probably not a cold. Sinusitis usually causes:

A cough that gets worse at night

A stuffy or runny nose. When the nose does drain, the mucus may be thick and colored.

Drainage down the back of the throat (postnasal drip). This may cause a bad taste in the mouth, bad breath or hoarseness.

Ear pain or stuffiness. This may make it hard to hear well.

Fever

Headache

Not being able to smell

Not feeling well

Pain or pressure on or near the cheekbones, jaw line, teeth, eyes and forehead.

Stuffy head

Causes

The sinuses have tiny holes that drain mucus. Because of colds or allergies, these holes can get plugged. The mucus backs up, pressure builds and pain occurs.

Sometimes bacteria, fungi or viruses grow in the mucus. This can lead to an infection. Tiny hairs in the nose and sinuses move the mucus and pus from the infection to the back of the nose. It then drains down the back of the throat.

Other things that can cause nasal and sinus problems are:

A weak immune system. Normal infections that a person with a strong immune system can easily fight off can become serious in a person with HIV.

Allergies such as hay fever can cause the linings of the nose and sinuses to swell. Pollution, damp weather, dust, mold, pollen and mites can all contribute to sinusitis.

Asthma. This disease causes the airways of the lower lungs to be unusually sensitive. People who have asthma may have nasal airways that over react. This can lead to sinusitis or nasal polyps. In addition, people may get asthma attacks from the draining of the sinuses during a sinus infection.

Dental problems. The upper teeth lie just below the sinuses. An infection in a tooth can easily travel into the sinuses.

Diseases such as cystic fibrosis that cause problems with how mucus is produced and moved in the body can also lead to sinusitis.

Flying or scuba diving. Both of these activities involve changes in air pressure. These changes can cause the linings of the sinuses to swell. A person who has a cold and who flies has a greater chance of developing sinus problems than usual.

Pregnancy. Many women develop an inflamed nose when they are pregnant. This is caused by the changes in hormones that happen during pregnancy.

Structural problems. For example, if the septum (the cartilage that divides the nose into a left side and a right side, isn't straight there can be problems. (This is called a deviated septum.) Sometimes growths (polyps) in the nose cause the passages inside the nose to be narrow.

Prevention

It's not possible to prevent all sinus problems. Taking these steps can help:

Avoid catching a cold.

Avoid diving into a pool. This forces water into the sinuses from the nose.

Avoid drinking alcohol. It causes the linings of the nose and sinuses to swell.

Avoid pollutants such as smoking or chemical fumes (even from household products)

Avoid swimming in water with chlorine in it. The chlorine, which helps keep the water free of bacteria, irritates the linings of the nose and sinuses.

Before traveling in an airplane, talk to a doctor or health care provider. Taking a decongestant or nose drops or spray may be helpful in avoiding sinus problems.

Inhale steam when the sinuses feel stuffy. Either cool or warm mist can be helpful. This should be done at the first sign of sinus infection. Holding a towel-covered head over a bowl of hot water can do this. Face steamers for skin care or special steamers for people with sinus problems can also be used.

Keep the temperature even by using an air conditioner

Eat a well balanced diet and take vitamins daily. Vitamin C can be especially helpful in protecting the nose, sinuses and air passages of the lungs.

Use a humidifier

Use special filters on the air conditioner to help remove allergens from the air. These should be changed regularly.

Vacuum and dust living areas often

Wash the hands frequently

Diagnosis

A doctor can usually diagnose sinusitis by the symptoms. He or she will do a physical examination. This usually means looking into the nose. Other tests may be ordered too. These include:

Blood tests to rule out other conditions that cause similar symptoms

Cultures, where a lab tries to grow bacteria or fungi from a blood sample. This can help identify the cause of the

infection.

Taking a sample of tissue from the nose to check under a microscope. This is called a biopsy. It is done to see the health of the tissues.

A computed tomography (CT) scans. This is only done if the symptoms are vague or continue even after treatment.

Treatment

Treating sinusitis usually focuses on three things:

Getting rid of any infection

Shrinking swollen sinus tissues

Draining pooled mucus

If bacteria or fungi cause the sinusitis, it is important to use the right antibiotic. Different drugs work against different sources of infection. Sometimes it's not possible to identify the cause of an infection. In that case, a doctor may use one or more drugs that are most likely to cure the infection. Treatment should be continued for several weeks to reduce the chances of recurrence.

Swollen sinus tissues can be treated by using a corticosteroid nose spray such as beclometasone (Beconase) or budesonide (Rhinocort). Pseudoephedrine (Galpseud/ Sudafed) tablets can help shrink the tissue.

It is important to avoid using decongestant sprays. The more these sprays are used, the more the body fights against their effects. This is called rebound congestion. Soon, the nose is always congested unless the spray is used.

Pooled mucus can be drained by sniffing warm salt water into the nose from a cup. The water is then sneezed into a bowl. This washes out the nose and sinuses and helps reduce the chance of infection.

In some cases, surgery may be needed. This is done if there are growths in the nose or structural problems such as a deviated septum.

The pain of sinusitis can be helped by:

Breathing warm, moist air from a vaporizer

Applying warm, moist compresses to the painful areas
Pain relievers such as aspirin or ibuprofen

Smoking and Lung Disease

Smoking doesn't make HIV infection worse. It doesn't cause CD4 cell counts to fall. It doesn't keep anti-HIV drugs from working.

People who have HIV and smoke are more likely to get certain infections and AIDS-defining illnesses. Some of the conditions that people with HIV who smoke are more likely to get include:

Pneumocystis carinii pneumonia. Smokers are three times more likely than non-smokers to get this AIDS-defining disease.

Bacterial pneumonia

Thrush

Emphysema. This disease causes the tiny air sacs in the lungs and the tiny blood vessels that feed them (capillaries) to collapse.

Oral hairy leukoplakia

Mycobacterium avium complex (MAC)

Human papillomavirus in women. Women with HIV who smoke are more likely to get HPV. When they do get it, the infection is more likely to be more severe. HPV increases the risk that a woman will get cervical cancer.

All smokers have a greater risk of getting lung cancer, heart disease, high blood pressure and stroke. Some anti-HIV drugs can cause the fats in the blood to rise. This makes the risk of developing heart disease or stroke greater yet.

Risk Factors

Smoking causes harmful effects on the body in many ways. These effects make it harder for the body to fight off infections and destroy quality of life. All of them complicate living with and treating HIV infection. Some of the effects of smoking are:

A faster heart rate and higher blood vessel. The nicotine in tobacco speeds up most of the processes in the body. The smoke itself contains carbon monoxide. The blood is more likely to absorb carbon monoxide than carbon dioxide. As a result, the body gets less oxygen.

Tar coats the lungs, even if a person is smoking low-tar cigarette. This makes it impossible for the tiny hairs that line the airways of the nose and lungs to work to get rid of dust, bacteria and other things that are breathed into the body.

Poor circulation. Nicotine causes the blood vessels to close up. This cuts off oxygen to the hands and feet. It can also increase the risk of heart attacks and strokes.

Appetite loss. This can make it harder for a person with HIV to get the nutrition they need and to follow instructions for taking anti-HIV drugs with food.

Damage from the more than 4,000 chemicals found in tobacco smoke. More than 60 of these chemicals are known to cause cancer. Some of these include formaldehyde, which is used to preserve dead bodies; ammonia; acetone, which is used in nail polish remover; nicotine, which is used in insecticides; and arsenic.

It should be noted that these effects are caused by tobacco. Chewing tobacco can be as harmful as tobacco that is smoked in the form of cigarettes, cigars or pipes. Smoking marijuana has many of the same effects on the lungs as smoking tobacco.

Other effects of smoking of concern to a person with HIV are:

Increasing the risk of osteoporosis

Making it harder for the liver to process drugs. It can make liver-related conditions like hepatitis worse.

Making side effects such as nausea and vomiting from anti-HIV drugs worse

Weakening of the immune system. It increases the risk of chronic lung disease. It can make it harder to fight off HIV-related infections

Treatment

"Giving up smoking is the easiest thing in world", writer Mark Twain once said. I know because I've done it thousands of times.

Nicotine is one of the most addictive substances known. Some people have compared quitting smoking to giving up heroin. The act of smoking is a habit that gets built into daily act of living. Even so, thousands of people have quit smoking.

No matter how long a person has been smoking, stopping brings better health almost immediately. The longer a person goes without smoking, the more health improvements there are.

When a person quits smoking, he or she will have signs of nicotine withdrawal. These may include anxiety, anger, irritability, impatience and restlessness. Other symptoms are having a hard time concentrating; trouble sleeping; cravings; stomach pain, nausea or constipation; depression; and hunger. These go away in time as the body adjusts to life without nicotine.

There are many ways to quit smoking. If one way isn't successful, another might be. Sometimes using several at once helps. Some of the common ways of quitting are:

Cold turkey. This means never having another cigarette or form of tobacco again.

Nicotine replacement aides. These come in the form of gums, lozenges, patches or inhalers. They are designed to give a small amount of nicotine to control the worst of the cravings. These aides are then tapered off.

Drugs to help with the withdrawal symptoms. One is the antidepressant bupropion (Zyban[®]). Protease inhibitors and non-nucleoside reverse transcriptase inhibitors (NNRTI) used to fight HIV will increase the amount of Zyban in the blood.

Joining a support group. Being with others going through the same experience can keep the motivation to quit higher.

Acupuncture or hypnosis

Other things that can make it a little easier to quit are:

Getting exercise. This helps with the anxiety and irritability and makes it easier to sleep.

Drinking lot of water. This will help flush the nicotine from the body.

Getting plenty of sleep.

Changing routines and habits to avoid triggering cravings

Talking to a doctor or a person trained to help people quit smoking can help find the best way to give up tobacco.

Thrush

Thrush is an overgrowth of a fungus (*Candida albicans*). It makes colonies of whitish or cottage cheese-like patches in the mouth, throat or vagina. When the patches are wiped away, there will be redness or bleeding underneath. It is one of the most common infections linked to HIV infection. It occurs in HIV patients when CD4 cell counts fall below 350.

Most people wake up with morning mouth a pasty, bad tasting coating in the mouth. It usually goes away after brushing the teeth. That coating is *Candida albicans*. Normally, other bacteria in the body keep the fungus controlled.

Symptoms

Thrush sometimes has no symptoms. There may be some discomfort and burning in the mouth and throat. Foods may taste bad. It can appear on and under the tongue, inside the cheeks and on the back of the throat. A person may also have cracking, redness, soreness and swelling at the corners of the mouth.

Thrush is not dangerous unless it grows in the throat (esophageal candidiasis). Then it can cause a sore throat, difficulty swallowing, a loss of appetite, nausea and chest pain. Thrush in the throat (*Candida esophagitis*) is a sign that HIV-infection has become AIDS. *Candida esophagitis* occurs when CD4 cell counts are less than 200.

Causes

Candida albicans is a yeast that is naturally found in the body. An HIV-weakened immune system allows the yeast to grow out of control.

Prevention

Brushing after every meal, gargling with antiseptic mouth washes such as Listerine and not smoking help keep your mouth healthy. Regular visits to the dentist also help prevent thrush.

Limiting the amount of sugary and yeast-containing foods such as bread, beer and wine. Eating more yogurt and dairy products helps prevent thrush.

Diagnosis

A doctor will take a swab or sample of infected tissue to look at under a microscope. If candida cells are found, the diagnosis is thrush.

If the thrush is in the throat, the doctor may order an endoscopic examination. This 30- to 60-minute test uses a lighted, flexible tube with a camera on the tip (an endoscope). The patient is given a sedative to relax and a local anesthetic to prevent coughing or gagging. The endoscope is put into the throat so the doctor can see the esophagus, stomach and upper part of the small intestine.

Treatment

If the thrush is only in the mouth, there are liquids or lozenges that help. Nystatin (Mycostatin) liquid can be swished around the mouth and then swallowed. This is done several times a day. Mycelex (clotrimazole) troches are throat lozenges that are slowly dissolved in the mouth, distributing the medicine to the infected areas. Treatment takes 10 to 14 days.

If the thrush comes back after treatment, pills such as Diflucan (fluconazole) can be used.

It's important to get an accurate diagnosis before treating the condition. Overuse of the drugs raises the chance that they will stop working.

If thrush isn't treated, the symptoms will continue. In rare cases, candida can spread to the blood and be carried throughout the body.

It can be helpful to sip water or sugarless drinks often to prevent a dry mouth and help control thrush in the mouth. Chewing sugarless gum or sucking on sugarless hard candy also helps. Avoid smoking or tobacco, alcohol and salty foods. Use a humidifier at night.

Salt-water rinses (half a teaspoon of salt in a cup of warm water) or baking soda rinses (one teaspoon of soda in one cup of water) can help. Don't swallow the rinse water.

Toxoplasmosis

Toxoplasmosis (toxoplasmosis) is an infection caused by a single-celled parasite *Toxoplasma gondii*. A parasite lives off of another living organism (the host). One out of every two people has this parasite. In healthy people, the immune system keeps the parasite from causing any disease. In people with weakened immune systems, the parasite can cause a brain infection (encephalitis), coma or death.

Symptoms

The first signs of toxo include fever, confusion, headache, disorientation, personality changes, tremor and seizures. After a person is infected, the parasites can spread to every organ of the body, including the heart, eyes and lungs. One of the most common diseases from toxoplasmosis is encephalitis, a brain infection.

Causes

The *Toxoplasma gondii* parasites live in cat feces, raw vegetables and dirt. It is also common in raw meat, especially pork, lamb or deer meat. It does not seem to spread from person to person. Pregnant women who are exposed to toxo may pass it to their newborn child. People usually get toxoplasmosis by touching their mouths with their hands after changing cat litter or by eating raw or undercooked meat.

Prevention

The risk of getting toxo can be reduced by eating well-cooked meat or fish. Gloves and a facemask should be worn when cleaning a cat box. Afterward, the hands should be washed thoroughly. Taking antiretroviral drugs will build up the immune system and help prevent the parasites from getting out of control. People who have a CD4 cell count of less than 100 should take drugs to prevent toxo infection. People who have CD4 cell counts of less than 200 are usually given Bactrim or Septra to prevent pneumocystis pneumonia. These drugs also protect against toxo infection.

Diagnosis

Toxo is usually diagnosed by testing for antibodies to *Toxoplasma gondii*. If the test comes back positive for the antibody, it doesn't mean that the person has toxo encephalitis. If the test comes back negative, it means that the person has not been infected with toxo.

A computerized tomography (CT) scan or a magnetic resonance imaging scan of the brain may help diagnose toxoplasmosis. The MRI scan is more sensitive. It makes it easier to see toxo without confusing it with other types of infections.

Treatment

Two drugs -- pyrimethamine (Daraprim) and sulfadiazine D are used to treat toxoplasmosis. Both drugs cross the blood-brain barrier. The parasite needs Vitamin B to live. Pyrimethamine stops it from getting vitamin B; sulfadiazine stops it from using the vitamin. About eight out of 10 people given these drugs starts to get better in two to three weeks.

There are side effects to these drugs. Because they interfere with vitamin B, they can cause anemia. Someone taking these drugs is usually given leucovorin. This is a form of folic acid (a B vitamin), which helps prevent anemia. Pyrimethamine and sulfadiazine can cause a drop in white blood cells and kidney problems.

Sulfadiazine is a sulfa drug. Almost half the people who take are allergic to it. They get a skin rash and sometimes a fever. Clindamycin (Cleocin) can be used in place of sulfadiazine in the combination for people who can't take sulfa drugs.

Once toxoplasmosis has been treated, it usually comes back. People who get the infection should keep taking the drugs at a lower dose.

Tuberculosis (TB)

Tuberculosis is a leading cause of death among people living with AIDS. HIV infection and tuberculosis are a threatening pair. Each makes the other worse. People with HIV have a 100 times greater risk of developing active TB and becoming infectious than people who don't have TB.

Having HIV makes it more likely that a person will get tuberculosis. In addition, it makes it more likely that the tuberculosis will go from a sleeping infection to an active one. Furthermore, tuberculosis makes the AIDS virus copy itself faster. TB often shows up in a person with HIV years before other problems linked to HIV appear. Suddenly getting TB is especially in a site outside the lungs is often one of the first indications of HIV infection.

Tuberculosis is caused by bacteria. The name comes from the word tubercles. These are small hard lumps created when the immune system builds a wall around the TB bacteria in the lungs.

Symptoms

Signs of active TB infection are like those of Pneumocystis pneumonia. They include:

- Coughing for more than three weeks. The cough appears at first with yellow or green mucus. Later, bloody mucus may appear.

- Feeling tired

- Night sweats

- Not feeling well

- Pain in the chest, back or kidneys or all three

- Shortness of breath

- Slight fever

- Weight loss

Active TB can occur at any CD4 level.

Causes

TB is an infection caused by mycobacterium tuberculosis. The bacteria spread from one person to another through the air. This usually happens when someone with TB sneezes or coughs. In that way, TB is quite contagious. But in normal daily life, simply passing an infected person isn't likely to spread the infection.

The bacteria can live in an inactive form in the body. Most people who have been exposed never have signs of the infection. TB infection is usually found in the lungs, but it can spread throughout the body. People with HIV who have a CD4 count of less than 200 are at a greater risk of having the TB spread to organs besides the lungs.

When the immune system gets weak, the bacteria can become active. Once this happens, the bacteria kill tissues in the infected organs. This can sometimes cause death.

Prevention

Soon after a person is diagnosed as being HIV-positive, he or she should have a test for TB. The Mantoux skin test is the most reliable way of telling if a person has the infection. It involves injecting a small amount of liquid under the top layer of skin on the arm. After two to three days, a doctor or nurse will check the spot. If there is a hard, red welt where the injection was done, the person has been infected with TB at some point. A chest X-ray should be done to make sure the infection is not active. If it's not, steps should be taken to prevent it from becoming active in the future.

Diagnosis

When tuberculosis is inactive, a person usually doesn't have symptoms. The Mantoux test is the best way to learn whether a person has TB. A positive test means that the person has been exposed to TB. It doesn't mean that the TB infection is active. A doctor may do chest X-rays, ask about other symptoms or do a sputum culture. This involves getting samples of sputum from the lungs and airways leading from them. The sample is then used to try to grow TB bacteria. This can take four weeks.

Sometimes, if there has been enough damage to the immune system, the body won't react to the test even when the person has TB infection. (This is called anergy.) In that case, the best way to test for TB infection is a sputum culture.

Active TB is hard to diagnose in person with HIV. The signs look much like those of pneumonia or other infections or lung problems. New, faster tests are being developed.

Treatment

If a person with HIV is infected with TB, treatment will be needed to keep it from becoming active. This will help keep it spreading to other people. It will also help keep it spreading throughout the body. TB that resists drugs is a concern to people with HIV/AIDS because it makes treatment harder.

A person infected with inactive is usually given an antibiotic (isoniazid or INH) for at least six months or INH plus one or two other drugs for three months. Using more than one drug is more effective than just using INH. It is important to take all the drugs for as long as they have been prescribed. If a person doesn't, the TB infection might become resistant and the anti-TB drugs will stop working.

Some antibiotics used to treat TB can damage the liver or kidneys. Antiretroviral therapy can do the same thing. It may be hard to take drugs for both TB and HIV at the same time. INH can cause liver problems especially for black or Hispanic women. It can also cause peripheral neuropathy.

If a person is considering starting antiretroviral therapy but has TB, the TB should be treated first. (This may not be possible if CD4 cell counts are too low.) Two drugs used to fight TB or rifampin or rifabutin can cause antiretroviral drugs in the blood to drop so low they don't work against HIV. On the other hand, antiretroviral drugs can raise the levels of rifampin or rifabutin so high that there are serious side effects. Rifampin should not be used with most protease inhibitors. Special guidelines for doctors treating people for TB and HIV at the same time are available from the Centers for Disease Control.

Wasting

Wasting is the unintended loss of more than 10% of a person's body weight, usually after 30 days of diarrhea or weakness and fever.

Wasting should not be mistaken for facial wasting (lipoatrophy). Facial wasting is the loss of fat under the skin. It makes the face look thinner or gaunt. It is not a sign that HIV infection or AIDS is progressing. Wasting is. When wasting occurs, there is a loss of both fat and muscle.

Symptoms

Signs of wasting are:

- 30 days or more of either diarrhea or weakness and fever
- Unintended loss of more than 10% of a person's body weight
- Loss of both fat and muscle
- Noticeable thinning of the face, arms and legs

Causes

Several factors cause wasting, including:

Not eating enough. HIV-infection can cause a loss of appetite. Some drugs used to treat AIDS cause nausea, odd sensations in the mouth such as tingling and changes in the sense of taste, all of which can make a person not want to eat. Mouth or throat infections such as thrush can make it painful to eat. Infections of the gut may make people feel full after eating only a little food. Lack of money or energy may make shopping or preparing food hard.

Not being able to absorb nutrients well. The nutrients needed for good health are absorbed through the small intestine. People with HIV infection may get parasites or opportunistic infections that interfere with the process of digesting food. Diarrhea, a side effect of AIDS drugs, can cause a loss of calories and nutrients.

Altered metabolism. HIV affects how food is processed and used in the body. People with HIV need more calories just to maintain their body weight. This may be a result of the increased activity of the immune system.

Changes in hormone levels. HIV changes some hormone levels. This, in turn, can affect how the body digests and uses food.

High cytokines levels. Cytokines are proteins that produce inflammation to fight infections. People with HIV have high cytokine levels. This makes the body produce more fats and sugars, but less protein.

When two or more of these are at work, the wasting grows worse.

Prevention

Persons with HIV infection should monitor their weight. They should make sure to eat enough nutritious food even when they don't feel like it. They should get treatment right away for serious diarrhea or any infection of the digestive system.

Diagnosis

A doctor will do an examination and get the patient's medical history. The doctor may order a CD4 count. (Symptoms of wasting usually begin to appear when the CD4 count falls below 350.)

Treatment

Treatment should be tailored to the situation each patient faces. There is no standard approach. Options include:

Reducing nausea and vomiting

Stimulating the appetite. Drugs such as Megace and Marinol help increase appetite.

Treating diarrhea and infections in the intestine

Nutritional substitutes. There are products that have been designed for people who are at risk of not getting enough nutrients. They are designed to provide easy-to-absorb nutrients in a convenient to buy and use form.

Training with weights helps the body build up muscle. Some studies have shown that using small weights is as effective as oxandrolone (an anabolic steroid) in increasing muscle mass.