

Prostate Cancer

The body is made up of many types of cells. Normally, cells grow, divide, and produce more cells as needed to keep the body healthy and functioning properly. Sometimes, however, the process goes wrong -- cells become abnormal and form more cells in an uncontrolled way.

These extra cells form a mass of tissue, called a growth or tumor. Tumors can be benign, which means not cancerous, or malignant, which means cancerous. Prostate cancer occurs when a malignant tumor forms in the tissue of the prostate, a gland in the male reproductive system. In its early stage, prostate cancer needs the male hormone testosterone to grow and survive.

The prostate is about the size of a large walnut. It is located below the bladder and in front of the rectum. The prostate's main function is to make fluid for semen, a white substance that carries sperm.

Prostate cancer is one of the most common types of cancer among American men. It is a slow-growing disease that mostly affects older men. In fact, more than 65 percent of all prostate cancers are found in men over the age of 65. The disease rarely occurs in men younger than 40 years of age.

Sometimes, cancer cells break away from a malignant tumor in the prostate and enter the bloodstream or the lymphatic system and travel to other organs in the body.

When cancer spreads from its original location in the prostate to another part of the body such as the bone, it is called metastatic prostate cancer -- not bone cancer. Doctors sometimes call this "distant" disease.

Today, more men are surviving prostate cancer than ever before. Treatment can be effective, especially when the cancer has not spread beyond the region of the prostate.

Causes and Risk Factors

Scientists don't know exactly what causes prostate cancer. They cannot explain why one man gets prostate cancer and another does not. However,

they have been able to identify some risk factors that are associated with the disease. A risk factor is anything that increases your chances of getting a disease.

Race is another major risk factor. In the United States, this disease is much more common in African American men than in any other group of men. It is least common in Asian and American Indian men.

A man's risk for developing prostate cancer is higher if his father or brother has had the disease.

Diet also may play a role. There is some evidence that a diet high in animal fat may increase the risk of prostate cancer and a diet high in fruits and vegetables may decrease the risk. Studies to find out whether men can reduce their risk of prostate cancer by taking certain dietary supplements are ongoing.

Scientists have wondered whether an enlarged prostate, a condition also known as benign prostatic hyperplasia or BPH, might increase the risk for prostate cancer. They have also studied obesity, lack of exercise, smoking, radiation exposure, and a sexually transmitted virus to see if they might increase risk. But at this time, there is little evidence that any of these factors contribute to an increased risk.

Symptoms and Diagnosis

Most cancers in their early, most treatable stages don't cause any symptoms. Early prostate cancer usually does not cause symptoms.

However, if prostate cancer develops and is not treated, it can cause these symptoms:

- a need to urinate frequently, especially at night
- difficulty starting urination or holding back urine

Possible symptoms of prostate cancer:

- inability to urinate
- weak or interrupted flow of urine
- painful or burning urination

- ❑ difficulty in having an erection
- ❑ painful ejaculation
- ❑ blood in urine or semen
- ❑ pain or stiffness in the lower back, hips, or upper thighs

Any of these symptoms may be caused by cancer, but more often they are due to enlargement of the prostate, which is not cancer. If you have any of these symptoms, see your doctor or a urologist right away to find out if you need treatment. A urologist is a doctor who specializes in treating diseases of the genitourinary system.

The doctor will ask questions about your medical history and perform a digital rectal exam to try to find the cause of the prostate problems. In this exam, the doctor feels the prostate through the rectal wall. Hard or lumpy areas may mean cancer is present.

The doctor may also suggest a blood test to check your prostate specific antigen, or PSA, level. PSA levels can be high not only in men who have prostate cancer, but also in men with an enlarged prostate gland and men with infections of the prostate. PSA tests may be very useful for early cancer diagnosis. However, PSA tests alone do not always tell whether or not cancer is present.

Neither of these screening tests for prostate cancer is perfect. Screening tests check for disease in a person who shows no symptoms. Most men with mildly elevated PSA do not have prostate cancer, and many men with prostate cancer have normal levels of PSA. A recent study revealed that men with low prostate specific antigen levels, or PSA, may still have prostate cancer. Also, the digital rectal exam can miss many prostate cancers.

The doctor may order other exams, including ultrasound and x-rays, to learn more about the cause of the symptoms. But to confirm the presence of cancer, doctors must perform a biopsy. During a biopsy, the doctor uses needles to remove small tissue samples from the prostate and then looks at the samples under a microscope.

If a biopsy shows that cancer is present, the doctor will report on the grade of the tumor. Doctors describe a tumor as low, medium, or high-grade cancer, based on the way it appears under the microscope.

One way of grading prostate cancer, called the Gleason system, uses scores of 2 to 10. Another system uses G1 through G4. The higher the score, the higher the grade of the tumor. High-grade tumors grow more quickly and are more likely to spread than low-grade tumors.

Treatments - Staging Prostate Cancer

If cancer is found in the prostate, the doctor needs to know the stage of the disease and the grade of the tumor. Staging is a careful attempt to find out whether the cancer has spread and, if so, what parts of the body are affected. The grade tells how closely the tumor resembles normal tissue in appearance under the microscope.

Doctors use various blood and imaging tests to learn the stage of the disease. Imaging tests, such as ultrasound and magnetic resonance imaging, or MRI, produce pictures of images inside the body.

There are four stages used to describe prostate cancer. Doctors may refer to the stages using the Roman numerals I-IV or the capital letters A-D. The higher the stage, the more advanced the cancer. Following are the main features of each stage.

Stage I or Stage A -- The cancer is too small to be felt during a rectal exam and causes no symptoms. The doctor may find it by accident when performing surgery for another reason, usually an enlarged prostate. There is no evidence that the cancer has spread outside the prostate. A sub-stage, T1c, is a tumor identified by needle biopsy because of elevated PSA.

Stage II or Stage B -- The tumor is still confined to the prostate but involves more tissue within the prostate. The cancer is large enough to be felt during a rectal exam, or it may be found through a biopsy that is done because of a high PSA level. There is no evidence that the cancer has spread outside the prostate.

Stage III or Stage C -- The cancer has spread outside the prostate to nearby tissues. The person may be experiencing symptoms, such as problems with urination.

Stage IV or Stage D -- The cancer has spread to lymph nodes or to other parts of the body. The bones are a common site of spread of prostate cancer. There may be problems with urination, fatigue, and weight loss.

Standard Treatments

There are a number of ways to treat prostate cancer, and the doctor will develop a treatment to fit each man's needs. The choice of treatment mostly depends on the stage of the disease and the grade of the tumor. But doctors also consider a man's age, general health, and his feelings about the treatments and their possible side effects.

Treatment for prostate cancer may involve watchful waiting, surgery, radiation therapy, or hormonal therapy. Some men receive a combination of therapies. A cure is the goal for men whose prostate cancer is diagnosed early.

You and your doctor will want to consider both the benefits and possible side effects of each option, especially the effects on sexual activity and urination, and other concerns about quality of life.

Surgery, radiation therapy, and hormonal therapy all have the potential to disrupt sexual desire or performance for a short while or permanently. Discuss your concerns with your health care provider. Several options are available to help you manage sexual problems related to prostate cancer treatment.

The doctor may suggest watchful waiting for some men who have prostate cancer that is found at an early stage and appears to be growing slowly. Also, watchful waiting may be advised for older men or men with other serious medical problems.

For these men, the risks and possible side effects of surgery, radiation therapy, or hormonal therapy may outweigh the possible benefits. Doctors

monitor these patients with regular check-ups. If symptoms appear or get worse, the doctor may recommend active treatment.

Surgery is used to remove the cancer. It is a common treatment for early stage prostate cancer. The surgeon may remove the entire prostate with a type of surgery called radical prostatectomy or, in a few cases, remove only part of it.

Sometimes the surgeon will also remove nearby lymph nodes. Side effects of the operation may include lack of sexual function or impotence, or problems holding urine or incontinence.

Improvements in surgery now make it possible for some men to keep their sexual function. In some cases, doctors can use a new technique known as nerve-sparing surgery. This may save the nerves that control erection. However, men with large tumors or tumors that are very close to the nerves may not be able to have this surgery.

Some men with trouble holding urine may regain control within several weeks of surgery. Others continue to have problems that require them to wear a pad.

Radiation therapy uses high-energy x-rays to kill cancer cells and shrink tumors. Doctors may recommend it instead of surgery or after surgery to destroy any cancer cells that may remain in the area.

In advanced stages, the doctor may recommend radiation to relieve pain or other symptoms. It may also be used in combination with hormonal therapy. Radiation can cause problems with impotence and bowel function.

The radiation may come from a machine, which is external radiation, or from tiny radioactive seeds placed inside or near the tumor, which is internal radiation. Men who receive only the radioactive seeds usually have small tumors. Some men receive both kinds of radiation therapy.

For external radiation therapy, patients go to the hospital or clinic -- usually 5 days a week for several weeks. Internal radiation may require patients to stay in the hospital for a short time.

Hormonal therapy deprives cancer cells of the male hormones they need to grow and survive. This treatment is often used for prostate cancer that has spread to other parts of the body.

Sometimes doctors use hormonal therapy to try to keep the cancer from coming back after surgery or radiation treatment. Side effects can include impotence, hot flashes, loss of sexual desire, and thinning of bones. Some hormone therapies increase the risk of blood clots.

Regardless of the type of treatment you receive, you will be closely monitored to see how well the treatment is working. Monitoring may include

- a PSA blood test -- usually every 3 months to 1 year.
- bone scan and/or CT scan to see if the cancer has spread.

Monitoring may include:

- a complete blood count to monitor for signs and symptoms of anemia.
- looking for signs or symptoms that the disease might be progressing, such as fatigue, increased pain, or decreased bowel and bladder function.

*Source: NIH
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