Prostate Cancer

Definition

Prostate cancer is the most common cancer other than skin cancer affecting American men today. It is caused when the **prostate** begins to grow abnormal or cancerous cells.
The prostate is a walnut-sized gland located just below the **bladder** (the sac within the body that holds urine) and in front of the **rectum** (opening at the end of the bowels).

Cause

The exact cause of prostate cancer is unknown. Some researchers believe that diet may be important. Men in the United States have a much higher rate of the disease than those in many other countries. It is thought that the higher fat in the American diet may be one reason for this.

Since age is a significant factor in developing prostate cancer, as men live longer, they are more likely to have this type of cancer.

At-Risk Groups

Risk factors for prostate cancer include:

- **Age**. The most significant risk for developing prostate cancer is age. Researchers estimate that over 63% of all men with prostate cancer are over the age of 70
- **Family history**. You are more likely to get prostate cancer if your father or brother had it. You are also more likely to get it if you have a close female relative who has had breast cancer
- **Race**. Men of African descent are more likely to get prostate cancer than whites or those of Asian descent
- **Geography**. North American and European men are more likely to develop prostate cancer than men from Asia, Africa, Central or South America
- **Diet**. Men who eat high-fat foods such as red meat and full fat dairy products are more likely to get prostate cancer than men who eat more fruits and vegetables

Symptoms

The symptoms of prostate cancer include:

- Frequent urination (especially at night)
- Difficulty urinating
- Weak urine flow
- Interrupted urine flow
- Pain or burning during urination or ejaculation
- Blood in the urine or semen
- Persistent pain in the hips, back, or pelvis

Complications

Most complications of prostate cancer are due to the increased size of the prostate gland caused by the growing cancer. The prostate may press on the tube that drains urine and semen from your body. This causes discomfort during urination and ejaculation.

There are many treatment options for this type of cancer. Each has potential complications. The most common complications of prostate cancer treatment are:

- **Urinary incontinence** (leaking of urine)
- **Bowel problems** such as leaking, constipation, or diarrhea
- **Erectile dysfunction or impotence** (inability to have an erection)
- **Retrograde ejaculation** (the sperm leaves the prostate gland but cannot exit the body and is forced backwards into the bladder)
- **Infertility**

Diagnosis

The following procedures are used to detect prostate cancer:

- **Digital rectal exam**. Wearing a lubricated latex glove, your doctor will insert one finger into your rectum and feel the prostate gland to see if it is enlarged
- **Prostate-specific antigen (PSA) test**. Your doctor will draw blood from your arm. The blood will be tested to measure the level of **PSA** in your blood. PSA is a substance made by the prostate. The higher the level of PSA, the more likely it is that you have prostate cancer. However, there are other reasons that your PSA may be elevated such as infection of the prostate or a common condition called **benign prostatic hyperplasia (BPH)**. BPH happens when the prostate grows larger when there is no cancer present. The symptoms are similar to those of prostate cancer
- **Transrectal ultrasound**. A small probe, about the size of a finger, is inserted into the rectum. The probe sends ultrasound or high energy sound waves into your body. These sounds waves are used to form an image of the prostate. From these pictures, your doctor can measure the size of your prostate
- **Biopsy**. Cells are removed from your prostate gland. A pathologist looks at the cells under a microscope to see if there are any cancer cells. If cancer cells are found, they are counted and examined to determine how likely the cancer is to spread. The Gleason scale is a grading scale used to rate how fast these cells grow. The higher the Gleason number, the more likely the cancer is to spread

  There are two ways to remove cells from the prostate:

  - **Transrectal biopsy**. Your doctor will remove cells by inserting a very thin needle through the rectum and into the prostate.

  - **Transperineal biopsy**. The cells are removed by inserting the needle through the skin between the scrotum and the rectum.

After the cancer has been discovered, your doctor will determine the **cancer stage**.

Cancer staging is a method of rating the severity of cancer based on the location of the original cancer, whether the cancer is in the **lymph nodes** (small structures within the body that help fight infection), and whether cancer has spread to other parts of the body.

Doctors use cancer staging to estimate your **prognosis** (how the cancer will progress) and to plan your treatment.

Cancer stages are described below:

- **Stage I**. The cancer is in the prostate only. It cannot be felt during an exam or seen by an **ultrasound**. These cancers are often discovered accidentally during surgeries for other conditions

- **Stage II**. The cancer is large enough to see and feel but is still only in the prostate gland

- **Stage III**. The cancer has spread beyond the prostate but only to areas very close to the prostate

- **Stage IV**. The cancer has spread to areas away from the prostate. It can affect areas near the prostate such as the bladder, rectum, and liver. It may also have spread throughout the body and to the bones

Treatment

There are four standard treatments for prostate cancer. You and your doctor will determine which options are best for you based on the stage of your prostate cancer.

The standard treatments for prostate cancer are:

- **Watchful waiting**. Your doctor will monitor your condition. Unless your condition worsens, no treatment is given other than managing symptoms

- **Surgery**. If the cancer has progressed, the prostate and/or the surrounding **lymph nodes** (small structures within the body that help fight infection) may be removed. This treatment can have serious side effects including erectile dysfunction, incontinence, and loss of bowel control. Additional surgery may be necessary to treat the side effects

- **Radiation therapy**. This treatment uses high energy waves or radiation to kill cancer cells in tissue surrounding the prostate and can be used to shrink cancerous tumors within the prostate. The radiation may be administered externally by aiming the energy beams at the cancer. Radiation may also be given internally. Tiny containers of radioactive material may be placed within the body either close to or inside the tumor

- **Hormone therapy**. The goal of this treatment is to reduce the amount of male hormones in the body. These hormones cause prostate tumors to grow. Female hormones may be given to stop production of male hormones and stop the growth of the prostate cancer. The side effects of hormone therapy can include hot flashes, reduced sex drive, and weakened bones. Another way to stop the production of male hormones is to surgically remove the testicles. Since the testicles produce most hormones in men, removing them can reduce or eliminate these hormones.

Prognosis (Expectations)

The outcome will depend on many different factors, such as:

- Your age
- Your general health
- Any other illnesses you have
- The stage of your cancer
- If the cancer has returned.

Prostate cancer is generally a very slow-growing cancer. In many cases little or no treatment is necessary for many years. Many of the symptoms may be relieved. If you are healthy and your cancer is a lower grade, your prognosis is good. You may have symptoms that cause you inconvenience or discomfort, but there are many treatment options available. You and your doctor can decide which ones are best for you.

In rare cases in which the cancer is growing quickly or has spread to other parts of the body, additional treatment may be necessary. The prognosis may be poor.

For More Information

For more information about prostate cancer, contact the following resources:

National Cancer Institute
NCI Public Inquiries Office
6116 Executive Boulevard
Room 3036A
Bethesda, MD 20892-8322
Toll-Free: (800) 422-6237
Web: http://www.cancer.gov

American Cancer Society
1599 Clifton Road, N.E. Atlanta, GA
30329
Phone: (404) 320-3333
Web: http://www.cancer.org

Prostate Cancer Institute
10949 Bren Road East
Minnetonka, MN 55343-9613
Phone: (952) 852-5560
Web: http://www.prostate-cancer-institute.org/index.html