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Fact sheet 1 – Prostate cancer

What is prostate cancer?

Prostate cancer (adenocarcinoma of the prostate) is a cancer that develops in the prostate. The prostate is a small gland about the size and shape of a walnut. It lies below the bladder and surrounds the upper part of the urethra – the tube that carries urine and semen out through the penis. The prostate gland produces a thick clear fluid that mixes with sperm to form semen. The incidence of prostate cancer is increasing world-wide, and is now the most common male malignancy in Western Europe. In addition, prostate cancer is a leading cause of illness and death among men.

What are the risk factors for prostate cancer?

The causes of prostate cancer are not well understood. Doctors cannot explain why one man gets prostate cancer and another does not. However, studies show that the following risk factors are associated with prostate cancer:

- Age. Prostate cancer is found mainly in men over the age of 55, and the average age of diagnosis is 70.
- Family history of prostate cancer. A man's risk for developing prostate cancer is higher if his father or brother has had the disease.
- Race. Prostate cancer is the most common cancer among Hispanic men. It is much more common in African American men than white men. It is less common in Asian and American Indian men.
- What you eat. There is some evidence to suggest 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.

What are the signs and symptoms of prostate cancer?

In its early stages, prostate cancer often causes no symptoms. However, prostate cancer can cause any of these problems:

- A need to urinate frequently, especially at night.
- Difficulty starting urination or holding back urine.
- Inability to urinate.
- Painful or burning urination.
- Difficulty having an erection.
- Painful ejaculation.
- Blood in urine or semen.
- Frequent pain or stiffness in the lower back, hips, or upper thighs.

Any of these symptoms may be caused by cancer or by other, less serious health problems. If a man has any of these symptoms, he should see a doctor.

How is prostate cancer diagnosed?

The doctor/urologist will ask about the patient's symptoms and may suggest a blood test. This blood test will inform the doctor about the level of a protein called PSA (prostate specific antigen) in the bloodstream. High levels of PSA, which is produced by the prostate, are a first indication that further tests may be needed. High PSA levels, however, may be brought about by a range of different causes, and this test is therefore not meant to provide a diagnosis of cancer.

A digital rectal examination (DRE) can be performed. During the examination, the doctor will insert a gloved finger into the rectum and feel the prostate for hard, lumpy or abnormal areas. The test takes only a few minutes to complete.

A combination of an elevated PSA text and abnormal findings during a DRE will likely result in further evaluation. Common investigational methods are making an ultrasound image of the prostate and taking biopsies.

Prostate ultrasound involves a probe about the size of a finger which is inserted into the rectum and provides images of the prostate surface by using high-frequency sound waves. It helps the doctor estimate the size of the prostate and detect any abnormal growths.

Prostate biopsies are carried out under transrectal ultrasonography to guide several small needles through the rectum wall into areas of the prostate where abnormalities are detected. The needles remove a tiny amount of tissue and these tissue samples are analyzed in a laboratory. The results will help doctors diagnose disorders and diseases in the prostate. The most commonly used system for grading adenocarcinoma of the prostate is the Gleason score. The system describes a score between 2 and 10, with 2 being the least aggressive and 10 the most aggressive.
Local tumour stage is assessed, where the distinction between intracapsular (T1-T2) and extracapsular (T3-T4) disease has the most profound impact on treatment decisions. A combination of serum PSA level, Gleason score on prostate biopsy and clinical T-stage has proved to be more useful in predicting the final pathological stage than the individual parameters per se.

What is the treatment for prostate cancer?

There are a variety of treatment options for every stage of prostate cancer. To decide on treatment for an individual patient, doctors categorise prostate cancers as organ-confined (localised to the gland), locally advanced (a large prostate tumour or one that has spread not too far from the primary tumour), or metastatic (tumour cells migrate far from the original site and create multiple new cancer sites). The treatment options for organ-confined prostate cancer or locally advanced prostate cancer usually include:

Watchful waiting: This may be suggested for men who have prostate cancer that is found at an early stage and appears to be growing slowly. In this case, the risk of possible side effects from other treatments may outweigh the possible benefits. This is especially true for men in the older age groups.

Surgery: The doctor may remove all (radical prostatectomy) or part of the prostate. The first means the removal of the entire prostate gland between urethra and bladder, with resection of both seminal vesicles. In the last 5-7 years several European centres have acquired considerable experience with laparoscopic radical prostatectomy. More recently, the robotic-assisted laparoscopic radical prostatectomy has been developed. Functional and short-term oncological outcomes seem comparable with the open technique in high-volume centres. However, long-term oncological outcomes are still unavailable.

Radiation therapy: This type of therapy uses high energy x-rays to kill cancer cells. In early stage prostate cancer, radiation can be used instead of surgery, or it may be used after surgery to destroy any cancer cells that remain in the area.

Hormonal therapy: This type of therapy keeps cancer cells from getting the male hormones they need to grow. Androgen suppression therapy being the golden standard for progressive prostate cancer.

A cure for metastatic prostate cancer is, unfortunately, unattainable at the present time. The treatments for metastatic prostate cancer, which include hormonal therapy and chemotherapy, therefore, are considered palliative. Careful monitoring and maintaining quality of life are major concerns and, since most prostate cancers only grow very slow, patients may live 10 years or more.