



## Prostate Cancer

fact sheet

Page 1 of 2

### What is the prostate?

The prostate gland is about the size of a walnut. It is located underneath the bladder and surrounds the top part of the urethra; the tube which urine passes through on its way from the bladder to the penis. In the prostate, the urethra is joined by the ejaculatory ducts which drain stored sperm from the seminal vesicles during ejaculation.

### What is prostate disease?

Prostate disease is a term used to describe any medical problem involving the prostate gland. Not all prostate disease is cancer. Benign prostatic hyperplasia (BPH) is the most common form of prostate disease. It is a non-cancerous enlargement of the prostate gland.

### What is prostate cancer?

Prostate cancer is diagnosed mainly in men over the age of 50 years. Excluding some forms of skin cancer, prostate cancer is the most common type of cancer in men in Australia. Prostate cancer is a condition in which cells within the prostate grow and divide abnormally so that a tumour grows in the prostate.

Prostate cancer cells can be very slow-growing and not cause any problems or symptoms, and may not become life-threatening. However, in other cases, the cancer cells can grow more rapidly and may spread to other parts of the body. It is not known why some cancers grow at different rates and, in particular, which cancers will spread to other parts of the body.

### What causes prostate cancer?

The causes of prostate cancer are not known. However there are certain risk factors that have been linked with the development of prostate cancer, including:

- Family history of prostate cancer – those men with a father or brother who has had prostate cancer;
- Age - men over the age of 50 years;
- Diet - a diet high in animal fat and protein;

- Race - Afro-Caribbean men are more at risk of having prostate cancer than Asian men.

### How is prostate cancer diagnosed?

To test for prostate cancer, the doctor will perform:

- Digital rectal examination - where the doctor places a finger inside the rectum, or back passage, to check for changes to the surface of the prostate.
- PSA test - to measure levels of prostate specific antigens in the blood. If the levels of PSA are high and a rectal examination is abnormal, there is about a 60% chance of prostate cancer being found. However, most men with a normal feeling prostate and a slightly raised PSA level do not have cancer.

### Why is biopsy necessary to confirm diagnosis?

If cancer is suspected from a DRE or PSA test, confirmation is needed from a pathologist examining small amounts of prostate tissue collected by biopsies, using an ultrasound probe in the rectum. A transrectal ultrasound (TRUS) guided biopsy of the prostate gland uses ultrasound to outline the prostate and guides the placement of the needles used for obtaining cores of tissue.

### What is a Gleason score?

If cancer cells are present in the biopsy sample, it is graded under the microscope to give some indication of its characteristics, in particular to determine if it is an aggressive or slow-growing form. This is important in helping to decide what type of management may be most appropriate. This grading system is called a Gleason score. By grading the appearance of the two most common cell types and adding the scores together, a total rating from 2 to 10 is given.

Fast-growing cancers which are more likely to affect a man's health and lifespan are called 'high-grade cancers' with a Gleason score of 7 to 10, and usually need to be treated more radically.

### How is the type of treatment recommended?

The type of treatment advised will depend on a number of factors. These include:

- The stage of the cancer - localised in the prostate gland or spread to other parts of the body;
- The Gleason score - high (more aggressive) or low grade biopsy grading;
- The level of PSA in the blood stream;
- The man's age;
- The man's general medical health;
- The side-effects of treatment.

However, the final decision about the most appropriate treatment needs to be made on an individual basis, taking into account the wishes and decision of each patient.

### What are the treatment options for localised cancer?

If the cancer is localised in the prostate gland, three forms of treatment are available:

- Surgery (radical prostatectomy)
  - Radiation therapy
- Both the above approaches are considered effective in controlling a localised tumour. However, each has different side-effects.*
- Observation monitoring (watchful waiting).

### What is a radical prostatectomy?

Surgery for prostate cancer, a radical prostatectomy, involves removal of the whole of the prostate gland through a cut in the abdomen. The prostate and the part of the urethra within the gland are removed, and the resulting gap is closed by joining the bladder to the urethra.

Approximately 90% of men with localised cancer live for at least ten years after treatment and for 75% of men, the cancer does not return during this time. Based on these results, this surgery is recognised as being able to cure prostate cancer.

There are risks linked with surgery, including:

- Urinary incontinence - Leakage of urine may still be troublesome in about 5% of men one year after a radical prostatectomy.
- Erectile dysfunction - 75-85% of men may experience problems in getting and keeping an erection after surgery. Nerves around the prostate which help in getting an erection can be damaged during prostate surgery. A number of treatments are now available to help men regain their erectile function.

### What is a radiation therapy?

Radiation therapy can be given externally or internally and like a radical prostatectomy, can control a localised tumour.

### External Beam Radiation Therapy

External beam radiation therapy involves small doses of radiation being given over a period of up to seven weeks. It is estimated that about 60-65% of men will remain cancer free after ten years following treatment.

Radiation damage to other tissues that are close to the prostate can result in diarrhoea and inflammation to the bladder, but these usually settle down quickly.

### Brachytherapy

Brachytherapy involves placing radioactive 'seeds' directly into the prostate gland. A high dose of radiation can then be delivered directly to the cancer cells. This procedure aims to reduce some of the side-effects experienced with conventional external beam radiation therapy, particularly to the rectum, but erectile difficulties can also be a problem with this treatment.

### What is 'watchful waiting'?

Some men decide to have no treatment because of the side-effects of other forms of treatment for localised prostate cancer.

These patients prefer to take a 'watchful waiting' approach and wait to see if any complications from their prostate cancer start to become evident.

This approach is often used for men who are 75 years or older or who may have other health related problems. It is based on the premise that their tumours are relatively slow-growing. Unfortunately, some low grade tumours can change and start to grow and progress more rapidly, making it important to continually monitor these patients and check if the cancer is changing.

In men deciding to take a 'watchful waiting' approach, the PSA test can be used to help to measure progression of the disease.

### How is advanced prostate cancer treated?

If the prostate cancer is aggressive and has spread to other parts of the body, hormone therapy in combination with surgery or radiotherapy is often recommended.

### What is hormone therapy?

The growth of both normal and most cancerous prostate cells depend on the androgen, dihydrotestosterone (DHT). Hormone therapy acts by either stopping testosterone production or by blocking the action of testosterone and DHT on tissues.

### What are the side-effects of hormone therapy?

Most men undergoing hormone therapy will develop a lack of interest in sexual activity (reduced libido) and the ability to have erections. Other common side-effects include hot flushes, tiredness and sweating, gradual decrease in body hair, reduced bone and muscle strength and cognitive changes. Liver function may be affected with oral medications and some men gain weight and develop some breast enlargement.

### What is hormone resistance?

Most prostate cancers will shrink or have their growth stopped by hormone therapy, however, about one in five men experience continued growth of the prostate cancer despite hormone therapy, within a year of starting treatment.

Measurement of PSA levels is used to monitor the response to hormone treatment and, subsequently, progression of prostate cancer.

### What are the treatments for hormone resistant prostate cancer?

- **Radiotherapy** which can be given locally to any other site where the prostate cancer has spread to relieve the pain. External beam radiotherapy is usually given.
- **Bisphosphonates** are often given to help reduce bone loss with hormone treatment and to lessen the chance of secondary cancers developing in the bones.
- **Steroids** such as synthetic cortisone drugs called prednisolone may sometimes be helpful to control pain.
- **Pain relief** using a variety of medications is an important part of the management of patients with uncontrolled prostate cancer growth.
- **Chemotherapy** is not a major area of success but recent research has identified one drug, docetaxel, which has been reported in trials to produce a modest improvement in survival and quality of life in men with advanced prostate cancer.
- **Clinical trials** using new approaches are continually being undertaken. These have to provide benefits comparable with state-of-the-art management for patients to be approved, and often are able to offer new treatments, albeit in a research setting, which are not otherwise available. However, it is important for patients to understand that these are experimental therapies and, although hopefully they will, they may not benefit men volunteering in the trial.

## About the Author

Associate Professor RA "Frank" Gardiner  
University of Queensland

Date: January 2006

© Andrology Australia 2006

Andrology Australia is an initiative funded by the Australian Government Department of Health and Ageing.

The information in this fact sheet has been provided for educational purposes only. It is not intended to take the place of a clinical diagnosis or proper medical advice from a fully qualified health professional. Andrology Australia urges readers to seek the services of a qualified medical practitioner for any personal health concerns.