

Prostate cancer - hormone therapy

Prostate cancer can be treated with hormone therapy. Male hormones such as testosterone can stimulate the growth of cancerous cells in the prostate gland. Hormone therapy aims to manage prostate cancer by reducing these male hormones. Options include injected and oral medications, or surgery to remove those parts of the testicles that produce testosterone. Hormone therapy may produce undesirable side effects.

The prostate gland

The prostate gland is an organ of the male reproductive system. It is about the size of a walnut and is found at the base of the bladder. This gland contributes fluid to nourish sperm in the ejaculate (semen).

Prostate cancer is common in older men

Prostate cancer is common in men aged over 65 years and affects one in nine Australian men up to the age of 75. Approximately 3,800 men in Victoria are diagnosed with the disease every year. The cause remains unknown.

Prostate cancer – how it spreads

At first, the cancer is confined to the prostate gland. As the disease progresses, cancer cells enter the lymphatic and vascular (blood) systems and move beyond the prostate gland. Secondary tumours may then develop in other areas of the body, in particular, the skeleton.

Hormone treatment helps control cancer cells

Hormone therapy is one treatment for prostate cancer. Both normal and cancerous cells in the prostate gland rely on male hormones such as testosterone for growth. Hormone therapy controls the cancer cells by reducing the levels of male hormones in the body. This reduction has a direct effect on cancer cells themselves. It also affects new blood vessels that the cancer cells develop to support their growth.

Hormone therapy is used increasingly to shrink prostate tumours before radiotherapy. For non-localised disease, hormone therapy is also used to control the cancer after it has spread beyond the prostate.

Male hormones

Hormones are chemical messages secreted by glands in the endocrine (hormonal) system. These hormones travel in the body to affect cells, which may be a long way from where the hormones are produced. The testicles make male sex hormones (testosterone) in response to instructions from two brain structures, the pituitary gland and the hypothalamus. The remaining five per cent of male hormones are made by the adrenal glands, which sit above each kidney.

The male hormones contribute to male sexual characteristics such as deep voice, muscle and bone mass, and sexual function.

Male hormones and cancer cells

Male hormones encourage the growth of cancerous cells in the prostate gland. They also stimulate cancer cells that have migrated to other sites in the body. Reduced hormone levels inhibit prostate cancer cells. However, some cancerous cells can survive and develop resistance during treatment, so that relapses may occur.

Reducing hormone levels

The level of male hormones in the body can be reduced in different ways, including:

- **Orchidectomy** – this is the surgical removal of the testicles. About 95 per cent of male hormones are made by the testicles. Their removal causes testosterone levels to plummet so that medications to block hormone production are not necessary. The scrotum itself is not removed.
- **Subcapsular orchidectomy** – in this surgical procedure, only the parts of the testicles that make testosterone are removed, leaving the exterior skin and the scrotum.
- **Medication (injections)** – these preparations stop the pituitary gland from making the luteinising hormone (LH). Without this 'messenger' hormone, the testicles produce less of the male hormone (testosterone). Each injection is effective for one to four months.
- **Medication (oral)** – these anti-androgens are often used in lower doses to treat distressing symptoms such as hot flushes, which result from the injections or surgical removal of the testicles. They may also be used with other treatments to stop the production of male hormones. These medications may affect liver function and cause other adverse effects, so liver function tests are monitored closely during treatment.

Side effects of hormone therapy

Some men may need to make lifestyle changes because of the possible side effects of hormone therapy. It is important to discuss these issues with your doctor and your partner before choosing hormone therapy. Disturbing the body's balance of sex hormones can lead to undesirable and upsetting side effects.

Side effects include:

- Erectile dysfunction (impotence)
- Infertility
- Low sex drive
- Changes in hair growth
- Fatigue
- Depression
- Hot flushes
- Reduced bone substance (increasing the risk of osteoporosis) and muscle mass
- Increased body fat (and possibly an increased risk of developing diabetes)
- Changes to breast tissue
- Cognitive (thinking-related) changes, such as reduced concentrating ability.

Low sex drive and erectile dysfunction (impotence) are very common in men undergoing hormone treatment.

When to start treatment

There is no clear evidence that starting hormone therapy as soon as the cancer is detected improves survival rates. Patients should discuss the issue of when to begin hormone therapy with their doctors so that the most appropriate time to start hormone treatment is determined for each individual.

Monitoring prostate cancer

Cancer activity in the body can be monitored by your doctor using a blood test that checks the levels of a substance called prostate-specific antigen (PSA). Rising PSA levels usually indicate cancer. Many doctors use the PSA test as a trigger to start hormone treatment. Other doctors prefer to wait until the potential benefits of hormone suppression outweigh the possible negative effects.

When hormone treatment fails

Prostate cancer recurs within 12 months of treatment in around 20 per cent of men who undergo hormone therapy. Other treatment options then include:

- **Radiotherapy** – precisely targeted x-rays are used to control the symptoms of secondary cancers in other parts of the body (for example, to help manage bone pain).
- **Hormone tablets** – additional hormone therapy can slow the cancer growth for a limited time.
- **Chemotherapy** – although most of these drugs do not benefit people with prostate cancer, recent evidence indicates a modest response in some people with one particular medication called docetaxel.
- **Corticosteroids** – shrink the cancer and help manage pain.
- **Painkillers** – include morphine.
- **Lifestyle changes** – including improved diet, regular exercise and stress management, have been shown to improve quality of life and even prolong survival of patients on hormone treatment.
- **Palliative care** – is used to manage pain and discomfort, including treatments to prevent bone fracture and bone pain.

Where to get help

- Your doctor
- Urologist
- Cancer Council of Victoria, Information and Support Service Tel. 13 11 20

Things to remember

- Both normal and cancerous cells in the prostate gland rely on male hormones such as testosterone.
- The aim of hormone therapy is to control cancer growth by reducing the level of male hormones. Unwanted side effects include impotence, reduced sex drive, fatigue and an increased risk of osteoporosis.
- Patients should be taking calcium and Vitamin D while undergoing hormone therapy to reduce the risk of osteoporosis.

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