Prostate cancer - androgen deprivation therapy
Both normal and cancerous cells in the prostate gland rely on male hormones such as testosterone. The aim of ADT is to control cancer growth by reducing the level of male hormones. Potential side effects include impotence, reduced sex drive, fatigue and an increased risk of osteoporosis. Men should take calcium and vitamin D while undergoing ADT to reduce the risk of osteoporosis.

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Prostate cancer can be treated with androgen deprivation therapy (ADT), sometimes called hormone therapy. Male hormones (androgens) such as testosterone can stimulate the growth of cancerous cells in the prostate gland. ADT aims to manage prostate cancer by reducing levels of these male hormones or blocking the effect of androgens on the cells and tissues. ADT may have undesirable side effects.

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 produces fluid that nourishes 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 seven Australian men up to the age of 75. Around 4,000 men are diagnosed with prostate cancer each year in Victoria. The cause remains unknown.

How prostate cancer 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 (particularly the bones).

ADT helps control cancer cells

Both normal and cancerous cells in the prostate gland rely on male hormones (such as testosterone) for growth. Hormones are chemical messages secreted by glands in the endocrine (hormonal) system. These hormones travel in the blood to affect cells in other organs. 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. ADT controls cancer cells by reducing the levels of androgens in the body. This suppression has a direct effect on cancer cells themselves. It also affects new blood vessels that the cancer cells develop to support their growth. ADT is used increasingly to shrink prostate tumours before radiotherapy. For non-localised disease (disease that has spread to other areas), ADT is also used to control the cancer after it has spread beyond the prostate. ADT is usually injected into muscle or delivered via implants under the skin. The most common form of ADT used today is a group of medicines called gonadotrophin-releasing-hormone (GnRH) agonists. These medicines stop the pituitary gland from making luteinising hormone (LH). Without this 'messenger' hormone, the testicles produce less testosterone. Each injection is effective for one to four months.
Alternatives to ADT for prostate cancer

Several other techniques can reduce the level of male hormones in the body, including:

- orchidectomy – 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
- anti-androgen medication (oral) – called anti-androgens, are often used in low doses to treat distressing symptoms such as hot flashes, 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. They may affect liver function and cause other adverse effects, so liver function tests are monitored closely during treatment.

There are different types of anti-androgens in use such as flutamide and bicalutamide – these are often used in low doses. Enzalutamide and abiraterone have recently become available in Australia and may be offered to some men. They have a very strong anti-androgen action that improves survival and quality of life.

Side effects of ADT with prostate cancer

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

Side effects of ADT may include:

- erectile dysfunction (impotence), usually as a result of surgery and other treatments
- infertility
- low sex drive
- changes in hair growth
- fatigue
- depression
- hot flashes
- reduced bone substance (increasing the risk of osteoporosis) and muscle mass
- increased body fat (and possibly an increased risk of developing diabetes and cardiovascular disease)
- changes to breast tissue
- cognitive (thinking-related) changes, such as reduced concentrating ability
- anaemia.

Men should discuss with their doctor appropriate monitoring of their bones with a bone density study, and the need to take calcium and vitamin D supplements to reduce the risk of osteoporosis. Because ADT may increase the risk of developing diabetes or heart disease, it is important that men speak with their doctor about their own health profiles, including blood pressure, cholesterol and blood glucose levels.

All men should be encouraged to stop smoking, and to maintain a healthy diet. Regular exercise is important to maintain muscle and bone health, and to keep body weight within the healthy range.

When to start ADT for prostate cancer

There is no clear evidence that starting ADT as soon as the cancer is detected, rather than later, improves survival rates. Men should discuss the issue of when to begin ADT with their doctor so that the most appropriate time to start ADT is determined for each person.

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 the cancer has progressed. Many doctors use the PSA test as a trigger to start ADT. Other doctors prefer to wait until the potential benefits of androgen deprivation outweigh the possible negative effects.

When ADT fails to successfully treat prostate cancer

Prostate cancer recurs within 12 months of ADT in around 20 per cent of men. 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)
- other forms of ADT – using types of ADT other than gonadotrophin-releasing-hormone agonists may slow cancer growth for a limited time
- chemotherapy – recent evidence indicates some men respond to chemotherapy. The chemotherapy medicines docetaxel or cabazitaxel can improve survival and quality of life
- corticosteroids – shrink the cancer and help manage pain
- pain-relieving medication – includes morphine
- lifestyle changes – improved diet, regular exercise and stress management have been shown to improve quality of life and even prolong survival of men on ADT
- palliative care – is used to manage pain and discomfort, including treatments to prevent bone fracture and bone pain.

Where to get help

- Your GP (doctor)
- Urologist
- Cancer Council of Victoria Tel. 13 11 20
- Androgen deprivation therapy - Healthymale (Andrology Australia)

References

betterhealth.vic.gov.au
• Hormone treatment for prostate cancer, South Australian Prostate Cancer Clinical Outcome Collaborative, South Australia.

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A-Z of cancer conditions

- Bladder cancer
  Bladder cancer affects twice as many men as women.
- Bone cancer
  Bone cancer is a rare form of cancer that is treated with chemotherapy, radiotherapy or hormone therapy.
- Brain tumours - cancer
  Brain cancer symptoms and treatment depend on which part of the brain is affected.
- Brain tumours - gliomas
  Gliomas are brain tumours associated with the three types of glial cell in the brain.
- Breast cancer
  Breast cancer is the most common cancer in Australian women.
- Breast Cancer - Early Diagnosis (video)
  Being diagnosed with breast cancer can be overwhelming. Women, their partners and families need support to cope with the emotional impact of the illness on their daily lives. In this video clip...
- Cervical cancer
  All women aged between 25 and 74 are advised to have Cervical Screening Tests every 5 years, new tests help identify HPV or cervical cancer.
- Fallopian tube cancer
  Fallopian tube cancer is one of the rarest gynaecological cancers.
- Kidney cancer
  Most kidney cancers are found when the doctor is checking for something else.
- Leukaemia
  Most children and many adults with acute leukaemia can expect to be cured, while chronic leukaemia can be successfully managed.
- Liver cancer
  Liver cancer can be a primary cancer that starts in the liver, or a secondary cancer that starts in another part of the body and spreads to the liver.
- Living with Bowel Cancer - Treatment and Surgery (video)
  Participants discuss their surgery, chemotherapy and radiotherapy. Each person's situation is different as are their treatment options. Participants share some of the side effects and also their...
- Lung cancer
  Lung cancer occurs most often in adults between the ages of 40 and 70 who have smoked cigarettes for at least 20 years.

betterhealth.vic.gov.au
• Lymphoma
  Lymphoma is a general term for a cancer that begins in the lymphatic system.

• Melanoma
  If untreated, melanomas can spread to other parts of the body and may be fatal.

• Mesothelioma
  Mesothelioma is a rare type of cancer that can develop decades after exposure to asbestos.

• Molar pregnancy
  Most molar pregnancies are diagnosed when bleeding early in pregnancy prompts an ultrasound scan.

• Mouth cancer
  Smoking increases the risk of mouth cancer six-fold.

• Multiple myeloma
  Multiple myeloma is cancer of plasma cells in the bone marrow.

• Ovarian cancer
  Many women with early stage ovarian cancer may not have any symptoms.

• Pancreatic cancer
  The causes of pancreatic cancer are unknown, but smokers are at greater risk.

• Pituitary tumour
  Generally, pituitary tumours are benign and slow growing, and pituitary cancers are extremely rare.

• Prostate cancer
  Prostate cancer can be treated in a variety of ways, so discuss treatment options with your doctor.

• Prostate cancer - Diagnosis (video)
  In this video clip, participants discuss the events that led to them being tested for prostate cancer, whether that was regular PSA testing or in response to a GP recommendation.

• Rectal cancer
  If treated in its earliest stages, rectal cancer is highly curable.

• Skin cancer
  Check all of your skin, not just sun-exposed areas. If you notice anything unusual, including any change in shape, colour or size of a spot, or the development of a spot, visit your doctor as soon as.

• Skin cancer - children
  Encourage your child to be SunSmart, whatever their age.

• Stomach cancer
  The symptoms of stomach cancer are usually vague and can be common to other medical conditions.

• Testicular cancer
  Early diagnosis and treatment can cure almost all cases of testicular cancer.

• Throat cancer
  Risk factors for throat cancer include smoking and heavy alcohol consumption.

• Thyroid cancer
  Anyone can develop thyroid cancer, regardless of age or gender.

• Uterine cancer
  Uterine cancer is one of the most common gynaecological cancers.

• Vaginal cancer
  Some vaginal cancers have no symptoms in their early stages, and only cause symptoms once they have invaded other parts of the body.

• Vulval cancer
In its early stages, vulvar cancer often has no symptoms because the cancer is so tiny.

Cancer explained

- **Breast Cancer - Early Diagnosis (video)**
  Being diagnosed with breast cancer can be overwhelming. Women, their partners and families need support to cope with the emotional impact of the illness on their daily lives. In this video clip.

- **Cancer Council Victoria**
  Cancer Council Victoria aims to reduce the impact of all cancers for all Victorians.

- **Breast Cancer - Early Diagnosis (video)**
  Being diagnosed with breast cancer can be overwhelming. Women, their partners and families need support to cope with the emotional impact of the illness on their daily lives. In this video clip.

- **Cancer explained**
  There are about 200 different types of cancer and most areas of the body can be affected.

- **Living with Bowel Cancer - Treatment and Surgery (video)**
  Participants discuss their surgery, chemotherapy and radiotherapy. Each person's situation is different as were their treatment options. Participants share some of the side effects and also their...

- **Prostate Cancer - Diagnosis (video)**
  In this video clip, participants discuss the events that led to them being tested for prostate cancer, whether that was regular PSA testing or in response to a GP recommendation.

Cancer risk factors

- **Breast Cancer - Early Diagnosis (video)**
  Being diagnosed with breast cancer can be overwhelming. Women, their partners and families need support to cope with the emotional impact of the illness on their daily lives. In this video clip.

- **Cancer and asbestos**
  Long-term exposure to asbestos is a cause of lung cancer and other serious illnesses.

- **Cancer and food**
  Diet can influence your risk of developing some cancers, but there is no evidence that specific foods can cause or cure cancer.

- **Cancer and heredity**
  Latest research suggests that most cancers are caused by environmental rather than genetic factors.

- **Disease clusters**
  Disease clusters are rare but can cause community concern about the possible effects of exposure to environmental hazards.

- **Prostate Cancer - Diagnosis (video)**
  In this video clip, participants discuss the events that led to them being tested for prostate cancer, whether that was regular PSA testing or in response to a GP recommendation.

- **Skin cancer - Protecting outdoor workers**
  People who work outdoors are in one of the highest risk groups for skin cancer.

- **Skin cancer - Risk factors**
  The major cause of skin cancer is over-exposure to ultraviolet radiation from the sun or other sources, such as solariums.

- **Skin cancer - Tanning**
  A suntan is a sign of skin damage. There is no such thing as a 'safe' tan.

- **Smoking kills**
  Tobacco causes more illness and death than any other drug.

Screening and early detection

- **Biopsy**
  Before a biopsy, you need to discuss a range of issues with your doctor or surgeon.

- **Bowel cancer screening**
  The National Bowel Cancer Screening Program (NBCSP) offers kits for free to Australians between the ages of 50 and 74 years of age.
Breast Cancer - Early Diagnosis (video)

Being diagnosed with breast cancer can be overwhelming. Women, their partners and families need support to cope with the emotional impact of the illness on their daily lives. In this video clip...

Breast screening

A breast x-ray or mammogram every two years is recommended for women aged 50 to 69.

Cancer screening

The aim of cancer screening is to find cancer in its early stages.

Cervical screening tests

The cervical screening test protects up to 30 per cent more women than the Pap test.

Genetic testing for inherited cancer

A predisposition to certain cancers can be inherited via altered genes.

Living with Bowel Cancer - Treatment and Surgery (video)

Participants discuss their surgery, chemotherapy and radiotherapy. Each person's situation is different as were their treatment options. Participants share some of the side effects and also their...

Prostate Cancer - Diagnosis (video)

In this video clip, participants discuss the events that led to them being tested for prostate cancer, whether that was regular PSA testing or in response to a GP recommendation.

Prostate cancer testing

Men with a family history of prostate cancer, or men who have had a raised test result in the past, will benefit most from regular testing.

Cancer treatments

Breast and oestrogen

There are different types of breast cancer, and around 70 per cent are sensitive to the female sex hormone oestrogen.

Breast Cancer - Early Diagnosis (video)

Being diagnosed with breast cancer can be overwhelming. Women, their partners and families need support to cope with the emotional impact of the illness on their daily lives. In this video clip.

Cancer pain management

A person with cancer who obtains pain relief is likely to sleep better and have more energy during the day.

Cancer treatments - chemotherapy

Chemotherapy is the use of drugs to destroy cancer cells.

Cancer treatments - radiotherapy

Radiotherapy uses precisely targeted x-rays to destroy cancer cells while reducing the impact of radiation on healthy cells.

Living with Bowel Cancer - Treatment and Surgery (video)

Participants discuss their surgery, chemotherapy and radiotherapy. Each person's situation is different as were their treatment options. Participants share some of the side effects and also their.

Palliative care – dealing with common symptoms

Some people prefer having palliative care at home because of the familiar environment, feeling of independence and close access to family, friends and the local community.

Prostate cancer - androgen deprivation therapy

One of the treatments for prostate cancer is androgen deprivation therapy (previously called hormone therapy).

Prostate Cancer - Diagnosis (video)

In this video clip, participants discuss the events that led to them being tested for prostate cancer, whether that was regular PSA testing or in response to a GP recommendation.

Prostatectomy - for cancer

The aim of a radical prostatectomy is to remove the cancer before it spreads to other parts of the body.
Living with cancer

- Breast Cancer - Early Diagnosis (video)
  Being diagnosed with breast cancer can be overwhelming. Women, their partners and families need support to cope with the emotional impact of the illness on their daily lives. In this video clip...

- Cancer and malnutrition
  It is important for the health of people with cancer to eat well before, during and after cancer treatment...

- Cancer - exercise to help you cope
  People with cancer should be as physically active as their abilities and condition allow...

- Cancer pain management
  A person with cancer who obtains pain relief is likely to sleep better and have more energy during the day...

- Living with Bowel Cancer - Treatment and Surgery (video)
  Participants discuss their surgery, chemotherapy and radiotherapy. Each persons situation is different as were their treatment options. Participants share some of the side effects and also their...

- Lymphoedema
  Women who have undergone treatment of breast cancer are particularly susceptible to lymphoedema of the arm...

- Prostate Cancer - Diagnosis (video)
  In this video clip, participants discuss the events that led to them being tested for prostate cancer, whether that was regular PSA testing or in response to a GP recommendation...

Related Information

- Prostate cancer testing
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Home

Related information on other websites

- Cancer Council Victoria – Treatment for Prostate Cancer.
- Healthmale - Prostate cancer treatment
- Healthmale - Androgen Deprivation Therapy

Support Groups

- Cancer Council of Victoria Support Services

Content Partner

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