



Module 1965

Prostate cancer: risk factors, symptoms and treatment

From this CPD module you will learn:

- The risk factors and prevalence of prostate cancer
- The presentation of symptoms in prostate cancer
- How prostate cancer is diagnosed
- Available treatment options for different stages of prostate cancer

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The prostate is a walnut-sized gland that sits under the bladder and around the urethra. Its functions include producing a thick white fluid that mixes with sperm from the testicles to create semen, and contracting its muscles during sexual intercourse to propel the semen into the urethra for ejaculation.¹ The prostate is only found in men, transgender women (the prostate is usually conserved after surgery), non-binary people who were assigned male at birth and some intersex people.²

How common is it?

In the UK, prostate cancer is the most common form of cancer in men and the second most common cancer overall.³ It is estimated that about one in eight men will get prostate cancer at some stage of their life and it accounts for 26% of all male cancer diagnoses in the UK.³⁻⁵

What are the risk factors?

Three well-established risk factors for

prostate cancer exist: increasing age, ethnic origin and genetic make up, with age being the most important risk factor.⁵ Prostate cancer mainly affects men over the age of 50, with the average age of diagnosis between 65 and 69 years of age.^{4,5} People of African ethnic origin are at a higher risk of developing prostate cancer, with about one in four men affected.⁵

A person's genetic make up can put them at an increased risk. For example, if a person has a first-degree relative with prostate cancer, their risk of developing it is 2.5 times greater than someone with no family history of prostate cancer. The risk is also higher if a first-degree relative has had breast cancer.⁵

Other possible risk factors include alcohol consumption, exposure to UV radiation and chronic inflammation.⁴ Furthermore, a diet high in fat has been shown to increase the risk and being overweight or obese has also been linked to advanced prostate cancer.^{6,7}

What are the symptoms?

Due to the anatomical position of the prostate

- and the fact that prostate cancer usually originates in the outer parts of the prostate - some men with early prostate cancer do not display any symptoms.^{2,7} Symptoms usually only start early if the cancer grows near the urethra, putting pressure on it and thereby causing urinary symptoms.² It is common for older men to present with lower urinary tract symptoms due to benign prostatic enlargement, however this is rarely a sign of prostate cancer.^{4,7}

Advanced prostate cancer symptoms may include: bone pain, malaise, weight loss, anuria and anorexia.⁴ It is worth noting that if the cancer is local and advanced it may also cause obstructive urinary symptoms. In such cases outflow obstruction can usually be identified by abdominal palpation.⁴

How is prostate cancer diagnosed?

There are a variety of tests used in the diagnosis of prostate cancer, however no single test is fully diagnostic. Currently in the

UK, there is no national screening program for prostate cancer, although patients who are symptomatic or at higher risk (eg family history) may be screened.

If a person is suspected to have prostate cancer, some initial tests will be carried out. Often this can include: a urine test (to rule out a urinary infection), a prostate specific antigen (PSA) test and a digital rectal examination (DRE).⁸

The PSA test measures the level of PSA in the blood and is the most common diagnostic tool used to identify localised prostate cancer. PSA is a protein produced by both normal and cancerous cells of the prostate. Elevated PSA levels can be associated with an increased probability of prostate cancer. However, this test cannot be used solely to diagnose prostate cancer as this can result in false positive diagnoses. PSA can be raised for a variety of reasons including: benign prostatic enlargement, older age, prostatitis or following recent ejaculation as levels rise



It is estimated that one in eight men in the UK will get prostate cancer at some stage in their life

for a short time after.⁷

A DRE may also be performed and this involves a doctor or nurse feeling the prostate through the wall of the rectum.⁸ If a DRE is performed and prostate cancer is suspected, the prostate may feel hard, irregular, and/or asymmetrical. On examination, the prostate may also have a nodule within a lobe or have a fully or partly fibrous presentation.

Like the PSA test, a DRE may be inconclusive as it can be difficult for practitioners to feel the entire prostate. It is also important to note that a normal-feeling prostate may still be cancerous.⁸

PSA testing and a DRE can be undertaken by a GP and depending on the results may refer a patient for further testing. The need for further investigation is based on a combination of PSA levels, DRE findings, patient comorbidities, association of other risk factors and the patient's medical history. A prostate biopsy or magnetic resonance imaging (MRI) scan may be

performed to support a potential diagnosis.³

A biopsy involves taking a small piece of tissue from the prostate and examining this under a microscope to check for cancer cells.² If cancerous cells are present, the results of a biopsy can show how aggressive the cancer is. This is referred to as a Gleason grade, Gleason score or grade group.² The Gleason grade is measured on a scale between one and five and reflects the pattern of cells seen under the microscope.² Normal or healthy cells score as one or two, whereas cancerous cells are graded between three and five. Higher Gleason grade numbers represents cancer that is more likely to spread.²

An MRI scan creates a detailed image of the prostate and surrounding tissues and can be performed before or after a biopsy. The MRI scan can show if cancer is located inside the prostate or if the cancer has spread to surrounding tissues.⁸

If cancer is found, a computerised

tomography (CT) scan, a bone scan or a positron emission tomography (PET) scan may be used to see if the cancer has spread outside the prostate to the lymph nodes or bone. Patients with results indicating the cancer is benign may not require further scans.²

Staging

CT, PET and bone scans will provide information on how far the prostate cancer has spread and is recorded using the Tumour-Nodes-Metastases (TNM) system.² The TNM system can be categorised as follows:

- **T** indicates how far the cancer has spread in and around the prostate
- **N** indicates if the cancer has spread to the lymph nodes near the prostate
- **M** indicates if the cancer has metastasised (spread to other parts of the body)

These stages are used to work out if the cancer is localised, locally advanced or advanced (metastatic) and will determine what treatment, if any, is needed.² The stage of the disease at diagnosis is strongly related to the rate of survival.⁴

Treatment options

Treatment for prostate cancer will depend on a series of factors such as stage of cancer, health of the individual and likelihood of the cancer growing and spreading.² Other considerations include patient preference and projected survival.⁶

Observation involves monitoring the course of the disease with a view to delivering palliative therapy when needed.⁶ This is usually used in men who have other health problems and those who are not suitable for surgery or radiotherapy.²

Active surveillance involves actively monitoring the disease with additional biopsies, MRI scans and PSA tests until symptoms and signs indicate definitive treatment is needed.⁶ The aim here is to

avoid or delay unnecessary treatment in men who have localised cancer that is unlikely to spread.²

Radical prostatectomy involves surgery that removes the entire prostate and can include removal of local lymph nodes and seminal vesicles (which produce the fluid in semen).² This is used when cancer is confined to the prostate.⁶ It may also be used in locally advanced prostate cancer if the surgeon believes they can remove all of the cancer that has spread outside the prostate. Side effects can include leaking urine and erectile dysfunction and results in male infertility.²

Hormone therapy acts by stopping the body from making testosterone (required for prostate cancer cell growth) or by stopping testosterone reaching the cancer cells. Therapy can be given in the form of tablets, injections or implants and surgery can be employed to remove sections of the testicles. Hormone therapy will not cure the cancer, but will help keep it under control. Hormone therapy can be effective, sometimes for years, and is used in advanced prostate cancer, often in combination with chemotherapy. The side effects of hormone therapy are caused by low levels of testosterone and include: weight gain, low libido, hot flushes, erectile dysfunction, fatigue and gynaecomastia.²

External beam radiotherapy uses high-energy X-ray beams to destroy cancer cells. This treatment is usually used for men with localised cancer and often in combination with hormone therapy which may be continued for six months. In more advanced local prostate cancer therapy can be continued for up to three years. Side effects can develop during treatment, or months and years after treatment, and include bowel and urination problems, erectile dysfunction, and fatigue.²

Interstitial radiation implants (brachytherapy) is a form of internal radiotherapy, of which there are two



A CT, PET or bone scan will be carried out to determine if prostate cancer is localised or advanced

types: low dose-rate and high dose-rate. Brachytherapy involves putting tiny radioactive seeds, or thin hollow needles, into the prostate. Implants are used to treat localised, and sometimes locally advanced, prostate cancer. This type of therapy can be used together with external beam radiotherapy, which provides an extra dose of radiation to the prostate. Hormone therapy may be given for a few months before starting treatment with implants in order to first shrink the prostate. Side effects from this type of treatment include erectile dysfunction, urinary problems, bowel problems and fatigue.²

Chemotherapy is also used for advanced prostate cancer and aims to shrink the cells and slow growth of the cancer. Chemotherapy can be used at the same time as hormone therapy.²

Newer treatment options include **high-intensity focused ultrasound** which uses ultrasound to heat and destroy cancer cells. In contrast, **cryotherapy** uses extreme cold temperatures to freeze and destroy the cancer cells.²

In patients with advanced prostate cancer, initial treatment can lose effectiveness over time. Therefore, some men will be given additional treatments such as: hormone therapy using abiraterone or enzalutamide, further chemotherapy and internal radiotherapy using radium-223. Steroids can also be used that help to stop the body producing the same level of testosterone. Steroids have the added advantage of improving appetite and helping with energy levels and pain. Patients may also be given treatment for associated pain and in some cases given bisphosphonates to help strengthen bones that may have become weakened due to hormone therapy or prostate cancer.²

Advice and support for patients

Pharmacists and pharmacy teams are in

an ideal position to support patients with prostate cancer, both at the time of diagnosis and throughout treatment. Pharmacy teams can give patients advice about their prescribed treatments, explain how medicines work, discuss any possible side effects, and how best to manage these.

Common side effects of treatment relate to urinary problems which may be managed using pelvic floor exercises, other medicines or through bladder retraining. Fatigue is a common side effect of treatment and the cancer itself. Patients can be given advice about maintaining a healthy diet and good sleep hygiene.

Patients should be encouraged to seek help if they are experiencing emotional problems and to plan ahead taking things slowly. One method that can be used by patients to help plan their day is 'the five P's'. These are Plan, Prioritise, Pace (allow more time for usual daily tasks), Permission (allow themselves to take a break) and Position (eg adjusting a task to limit exertion).⁹

Providing patients with this information will help involve them in their treatment, putting the patient in a better position to understand the process. Provision of information will also help to increase their awareness about possible side effects and how these can be managed. Patients should be given advice about eating a healthy balanced diet and exercising regularly. It is unknown if exercise slows the progression of prostate cancer, but maintaining a healthy weight can reduce the risk of developing advanced prostate cancer.²

Further information

Prostate Cancer UK provides a range of online resources for patients and health professionals, including information on community forums and ways to get involved. Prostate Cancer UK also have a phone, text, and email service where patients can contact specialist nurses for advice. For

more information, visit the Prostate Cancer UK website.

"Movember" is a charity that aims to address health issues affecting men – particularly prostate cancer, testicular cancer, mental health and suicide prevention. The Movember campaign involves growing a moustache or getting physically active throughout the month of November in order to raise awareness and funds. This campaign is a great way to raise awareness of prostate cancer and men's health issues both in the pharmacy and throughout the local community. The Movember website has further information about getting involved and even describes an "NHS Movember challenge" where hospitals in the UK compete against each other.

References

1. NHS UK Conditions (2018) Prostate cancer
2. Prostate Cancer UK (2019) A guide for men who've just been diagnosed
3. Nice Guidance (2019) Prostate cancer: diagnosis and management NG131
4. Patient.info (2019) Prostate cancer
5. Prostate Cancer UK (2017) Are you at risk?
6. BMJ Best Evidence (2018) Prostate cancer
7. GOV.UK (2016) Prostate cancer risk management programme (PCRM): benefits and risks of PSA testing
8. Prostate Cancer UK (2018) How prostate cancer is diagnosed
9. Prostate Cancer UK (2016) Fatigue

Take the 5-minute test online

1. One in four men will have prostate cancer in their lifetime.
True or false
2. First line therapy for localised prostate cancer is chemotherapy.
True or false
3. The PSA (prostate specific antigen) test can be used alone in diagnosing prostate cancer.
True or false
4. Cancerous prostates may be hard, asymmetrical and/or fibrous in texture.
True or false
5. Computerised tomography (CT) scans are useful as they can show if the cancer has spread outside of the prostate to areas including the bone and lymph nodes.
True or false
6. If prostate cancer is suspected to be advanced, the patient may not receive a biopsy.
True or false
7. The prostate is roughly the size of an almond.
True or false
8. Hormone therapy is used to increase the levels of testosterone.
True or false
9. One of the adverse effects of radical prostatectomy is male infertility.
True or false
10. Bisphosphonates are sometimes given as adjunct treatment to help strengthen bones that may have been weakened by hormone therapy or the prostate cancer.
True or false

Prostate cancer CPD planned learning

What are you planning to learn?

Working in a community pharmacy, I have met patients who have been diagnosed with prostate cancer and who have queries regarding their treatments, including side effects. I want to learn more about prostate cancer including diagnosis and treatment so that I am able to support my patients and their families during a difficult, and sometimes long, journey. Therefore, it is important for me to learn the clinical pathway from diagnosis to treatment.

This learning will be useful because I hope to be able to signpost patients effectively. I need to update myself on what treatments are available and their potential side effects. Learning this will help me to ensure I am equipped to provide information to patients so they are able to make a fully informed decision about their care. I plan to become more aware of patients at risk of prostate cancer and identify them in my pharmacy practice so that they can be signposted to see their GP if they have concerns.

How are you planning to learn it?

- I plan to find out more about treatments available for prostate cancer patients at tinyurl.com/niceguidancepc1
- I will read more about prostate cancer and those at risk at tinyurl.com/prostatecancerrisk1
- I also plan to complete the five-minute test at www.chemistanddruggist.co.uk/update-plus to test my knowledge and confirm what I have learned.

Give an example of how this learning has benefited the people using your services

I have learned about prostate cancer risks, symptoms, diagnosis and treatment. Since I improved my knowledge in this area, I have spoken to my pharmacist colleagues in depth about how we can improve our service in the pharmacy, especially during medicine reviews for patients who may be at increased risk of prostate cancer, including those over 60 and people of African origin, and to identify symptoms during drug histories for over the counter queries with patients (eg pain while urinating/loin pain/blood in the urine).

I have yet to utilise my skills as I have not seen any patients recently with prostate cancer. However, I now feel more comfortable discussing treatment and what to expect (eg side effects and length of treatment).



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