

About Low Dose Rate (LDR) Brachytherapy for Prostate Cancer

What is prostate brachytherapy?

Low Dose Rate (LDR) Prostate Brachytherapy is a form of radiotherapy treatment for early, localised prostate cancer, i.e. cancer that has not spread outside the prostate gland. The treatment involves inserting tiny radioactive capsules or 'seeds' (slightly smaller than a grain of rice) into the prostate gland under anaesthetic. This allows radiation to be targeted directly at the prostate tumour and minimises the effects of unwanted radiation affecting surrounding healthy tissues. It is a simple procedure that usually only needs an overnight stay in hospital.

Patients recover quickly, and it has fewer side-effects than other treatments for prostate cancer such as removal of the prostate (a procedure known as radical prostatectomy), which requires a longer stay in hospital, or external radiotherapy, which requires a lot of visits to hospital over many weeks for the treatment. LDR Brachytherapy is becoming widely available for treating prostate cancer in hospital centres in the UK because of its effectiveness and quality-of-life benefits compared to other treatment options.¹

How is prostate brachytherapy performed?

The amount of radiation and its effect in the prostate tumour are controlled by the number of seeds implanted and their precise positioning. This will vary from patient to patient. The number of seeds required and their position is determined by specialist examination and measurement of the size of the patient's prostate gland by an ultrasound scan. There are two stages to the procedure - a planning stage and the implantation itself although in a number of centres these two stages are combined and performed in one visit to the hospital.

The planning stage, also called a prostate volume study, measures the size and shape of the prostate. This information helps the specialist team to work out how many radiation seeds to use and where to put them.

The second stage is the seed implantation itself. The seeds are implanted using 15-25 fine hollow needles which are pushed through the skin behind the scrotum and in front of the anus (an area called the perineum). Pictures from an ultrasound probe in the rectum help the doctor to see exactly where each delivery needle is going. Between 60-120

seeds are passed through the needles, either individually, or as strands of several seeds linked together. When the seeds are in the correct place the needles are removed, leaving the seeds behind. The seeds stay in the prostate, slowly giving out radiation until they are no longer radioactive.

Once in place, the seeds are not removed; they are permanent but harmless implants. After about 9-12 months, the level of radioactivity will have decayed to a very low level and the treatment can be considered to be complete.

For both the prostate volume study, and the implant procedure, a general anaesthetic is needed. With prostate brachytherapy it is possible deliver a higher dose of radiation to a prostate tumour than is possible with conventional external beam radiotherapy, but because the sources of radiation are localised, tissue damage in nearby organs is minimised.

After the implant procedure

Prostate brachytherapy has a positive side-effect profile compared with other treatments for localised prostate cancer such as surgery or external beam radiotherapy¹, and the patient can usually return to normal activity the next day. Immediately after the implant procedure, patients may experience some soreness, blood in the urine and semen and a burning sensation when passing urine.

The advantages of prostate brachytherapy

With prostate brachytherapy seed implantation, the patient usually only has to attend hospital twice: once to have the assessment scan (as a day case), and secondly to have the seeds implanted followed by an overnight stay. Some centres will do the assessment and the implant on the same visit. Most patients are able to return to routine daily activities within a few days.

By contrast, patients undergoing conventional radiotherapy are likely to have to attend over 30 hospital visits. Patients who have their prostate gland removed surgically can expect to be in hospital for 3—7 nights and go home with a urinary catheter in place to prevent urine retention in the bladder. The catheter is removed after 1—3 weeks. Men who have had a radical prostatectomy can be off work for 6—8 weeks, and most cannot drive for 4 weeks after the operation.

LDR Brachytherapy as a treatment for prostate cancer was developed in the USA, and over 50,000 prostate cancer patients a year are treated with brachytherapy in the USA.

There is now considerable and growing experience of this procedure in the UK and Europe.

For more information

www.myprostatecanceroptions.com
www.prostatebrachytherapyinfo.net

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References

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