The ROYAL MARSDEN
NHS Foundation Trust

Low dose rate prostate brachytherapy

Urology Unit

Patient Information

NHS

What is low dose rate prostate brachytherapy?

Low dose rate prostate brachytherapy is a form of internal radiation for prostate cancer that has not spread outside the prostate gland. It involves the insertion of radioactive iodine seeds (the size of a grain of rice) directly into the prostate gland. The seeds release radiation, which damages and kills cancer cells. Normal healthy cells can also be damaged, but they can repair and recover from the damage. The radiation from the seeds is mostly released in the first three months, and by one year, almost all of the radiation will have been released and the seeds will be inactive.

The treatment is planned and delivered in one session, under a general anaesthetic, and usually takes between two and three hours. You may stay in hospital overnight for observation.

Pre-assessment

Your doctors will review your suitability for prostate brachytherapy and discuss the procedure with you during your clinical appointment. We will ask you to complete some questionnaires about your urinary and sexual function to provide a baseline assessment. You will have a urinary flow test and bladder ultrasound examination.

You will need to attend the hospital a few weeks before your implant to have some routine checks, such as bloods tests, chest x-ray or a tracing of your heart. These are required as the procedure will be under general anaesthetic.

Before your procedure

You will need to stop taking aspirin, clopidogrel or any anti-inflammatory medications one week before your implant, unless your doctor or nurse tells you otherwise. If you are taking warfarin or other blood thinners, you will be given specific instructions about what to do.

We will give you a tablet called tamsulosin once a day to start three days before the procedure, to help you urinate. We will also give you bowel medication (laxatives) to take home. This will clear the back passage of stool (faeces) to help the doctor see your prostate gland clearly.

The procedure

You must fast overnight to ensure your bowel is empty for the procedure. Please arrive at the hospital at 7.30am on the morning of your implant, unless otherwise instructed.

You will be anaesthetised and a urinary catheter will be inserted into your bladder. An ultrasound probe is then inserted into your back passage, which allows the doctors to see your prostate gland. Hollow needles, usually between 20-30, are inserted through your perineum (the area between the scrotum and anus). Radioactive seeds are then introduced through these needles into the prostate gland. Between 60-90 seeds are typically inserted into the prostate gland. After the seeds are in place, the needles are removed. This will not be painful as you will be under general anaesthetic.

After you have woken up from the anaesthetic, your catheter will be removed and when you start passing urine comfortably, you will be able to go home. You may stay overnight for observation. If you do stay overnight, we will take you to the ward and the catheter will be removed the next morning.

After the procedure

You may have bruising, swelling and mild tenderness between your legs where the needles were inserted. You can take mild painkillers for any discomfort. Please ask your Clinical Nurse Specialist (CNS) if you would like further advice.

After a general anaesthetic, you should not drive for 24 hours.

For the first week after the implant, you should avoid heavy work or lifting, but otherwise you should be able to return to normal daily activities or light work within a few days.

Medications

Following the procedure, you will need to take:

- Antibiotics for three days to prevent any infections
- Tamsulosin. Please continue this until your next outpatient appointment. Your GP can provide you with a repeat prescription.

Treatment side effects

1. **High fever**

   If you experience a high fever (higher than 37.8°C) or shivering and shaking after the implant, please contact The Royal Marsden Macmillan Hotline for advice.

2. **Urine**

   Urinary side effects may include:

   - Blood in your urine for several hours after the implant. This is quite normal and will improve by itself. Drinking plenty of water helps to flush out the bladder.
   - Pain or burning when urinating. Drinking about two litres of water a day may ease burning during urination. Avoiding food and drinks that can irritate the bladder can help, such as caffeinated coffee and tea, spicy and peppery foods, citrate products (orange, grapefruit, pineapple, tomato), and acids (vinegar and salad dressing).
   - Taking analgesia such as paracetamol following the procedure or ibruprofen 24-48 hours after the procedure might help with initial pain management. Your GP may be able to help by testing your urine to exclude a urinary tract infection (UTI). Do not hesitate to call The Royal Marsden Macmillan Hotline to seek advice.
   - Increased need to urinate, urgency of urination and slower urinary flow. Your prostate can become swollen and your bladder and urethra (tube through which you urinate, leading from the bladder through the prostate

and penis) can become inflamed. Drinking around two litres of fluid a day can help with these symptoms.

- Inability to urinate. A small percentage of patients (less than 2% or two in 100) may develop urinary retention and require a catheter. If you are finding it hard to urinate, you may try soaking in a warm bath, which sometimes helps to relax the prostate. If you are not able to urinate, or have a strong discomfort in your lower abdomen, please contact The Royal Marsden Macmillan Hotline for advice as soon as possible. If you do require a catheter, this usually stays in place for approximately 2–4 weeks before trying to urinate without it. Very rarely, it may need to stay in for two to three months to allow things to settle.
- Incontinence (inability to control urination) occurs in less than 1% of patients (one in 100).
- Urethral stricture can occur months after the implant. Radiation can cause scarring of your urethra, making it narrower and more difficult to pass urine. Please let your Clinical Nurse Specialist know if you have difficulties passing urine.

These urinary side effects may last a number of months, sometimes longer, before gradually getting better.

3. Bowel

- Constipation and/or increased desire to open your bowels and pass wind. This can be due to inflammation of the prostate. A high fibre diet and extra fluids can help ease the feeling of constipation.
- Loose or watery bowel motions (diarrhoea), needing to empty your bowels more urgently and discomfort in the back passage (rectum) can occur due to inflammation of the rectum (proctitis). Persistent inflammation leading to increased urge to open the bowels and passing mucus occurs in less than 2% of patients (two in 100). Please let your Clinical Nurse Specialist know if you are experiencing issues

with your bowels. Please note that some medications such as Tamsulosin can contribute to a change in bowel habit.

- Minor bleeding from the back passage. If this happens, tell your doctor or consultant. They may prescribe a suppository (a type of medication) containing steroids. If you need to have an investigation of your bowel in the future, please contact your Clinical Nurse Specialist (CNS) or leading team. The rectum overlying the prostate receives a high dose of radiation so you should not have a biopsy of this area, as it may not heal properly.

4. Sexual

- Erectile dysfunction (ED). This occurs in 30% of men under the age of 60 and is more common in older men. The likelihood also depends on your erectile function before brachytherapy. Treatment is available if you develop difficulties. Erectile dysfunction is not immediate; it is a late-occuring side effect.
- Reduced volume of ejaculate (semen).
- Sexual intercourse is possible after treatment but we suggest you wait a few weeks after the procedure (see *Radiation safety* below).

5. Fertility

You are unlikely to be able to have children naturally after brachytherapy. There is a chance that you can, and it is possible that your sperm will be affected by the radiation and affect the development of a foetus. If your partner is of childbearing age, you should use contraception to avoid pregnancy for a year after your implant.

If you are concerned about fertility issues, we will discuss sperm banking with you before you begin treatment.

Radiation safety

Many patients are concerned about the potential dangers of radiation exposure to family and friends. Although the seeds are radioactive, you are not. The seeds give off very low levels of radiation and nearly all the radiation is absorbed by the prostate gland. The risk to other people around you is therefore very low and the strength of the radiation reduces over time.

There are no restrictions on travel or contact with adults. However, babies and small children should not sit on your lap for the first two months following your implant. Also avoid sitting close to pregnant women or children under the age of puberty for the first two months. You can sit in the same room, but not immediately next to them.

If having sexual intercourse, we advise you to wait a few weeks and wear a condom for two months following your implant. This will protect your partner on the rare occasion that a seed is passed during intercourse. Condoms should be disposed of by double wrapping and placing in the dustbin. For the first few occasions, the colour of your semen may be discoloured, ranging from a light red to black. Sometimes ejaculation may also be painful, but this will settle with time.

For the first few weeks after treatment, it may be possible that one or more seeds may be released during urination or ejaculation. In the unlikely event that you find a loose seed, do not touch it with your hands. Use a spoon or pair of forceps and then flush the seed away in the toilet. Please contact your brachytherapy team to let them know if this happens.

Rarely, one of the seeds can pass into your bloodstream and end up in another part of your body. This is usually only picked up on scans or x-rays and should not cause any problems.

Information card

We will give you a small card stating that you have undergone a prostate brachytherapy implant. This provides a contact telephone number and can fit in your wallet. If you are having other medical procedures, it is important that other medical professionals know about your implant and can contact us for further information. The card will also be useful if you are travelling as airports have security radiation detectors, which are very sensitive.

Please note that in the unlikely event of an accidental or sudden death within two years of the implant, cremation is not allowed due to the radiation hazard to the crematory staff and environment. There are also hazards for hospital staff carrying out post-mortems, so hospital staff and funeral directors must be informed. They can contact the hospital for advice.

Follow up

We will send you an appointment for a CT scan of your prostate one month after the implant. This will allow us to check the position of the seeds and the quality of the implant. The scan will not tell us how well the treatment is working, so you will not receive results. We will inform you if there are any issues regarding the scan.

You will be monitored for 3-4 years after your implant. We will review you in the outpatient clinic 4-6 weeks after the implant to review your side effects, and then regularly with a PSA blood test before each visit, to assess the effectiveness of the treatment. The PSA will fall slowly over one to two years, and may temporarily rise (called a PSA bounce) before going down again. This occurs in approximately 30% of patients (30 in 100) and most commonly occurs in the second year. The PSA rarely falls to zero as your normal prostate cells will produce some PSA.

What are the alternative treatments?

- **External beam radiotherapy** – This uses high energy x-ray beams delivered from a radiotherapy machine called a linear accelerator. Several treatment beams are used which are shaped to the profile of the prostate gland inside the pelvis. Due to prostate motion, the prostate gland is treated with a safety margin to ensure that all the cancer cells are treated. As a result of this treatment safety margin, parts of the nearby organs such as the bladder and rectum will receive some radiation which may lead to a small incidence of side effects in the future. These side effects include alteration in bladder and rectal function and in a small percentage of patients, there may be some bleeding. Most of these symptoms are temporary and gradually reduce in a few months after completing radiotherapy, although in some cases they will remain. The risk of major side effects is less than 5% (five in 100). The risk of having difficulties with erections is up to 40% (40 in 100) and the likelihood of this depends upon your erectile function before starting treatment. Radiotherapy treatment takes 20 minutes, five times a week (Monday to Friday), usually for four weeks. All treatments are performed on an outpatient basis, so you will not need to stay overnight.
- **Surgery (radical prostatectomy)** – This involves removal of the whole prostate gland by a urological surgeon and involves a general anaesthetic and several days in hospital. The main advantage is the whole prostate gland with the cancer can be removed completely. The operation is safe, but there are very small risks of complications, such as bleeding, infections, thrombosis and, very rarely, death (less than one in 1000). The rate of serious urinary incontinence is about two to five in 100. The risk of having difficulties with erections is up to 50% (50 in 100) if the erections are normal before operation.

What are the benefits of brachytherapy?

Brachytherapy is as effective as external beam radiotherapy and surgery in treating slow growing, small, localised prostate cancer. The advantages over these alternative treatments include:

- Shorter overall treatment time.
- Shorter post-operative recovery time, meaning you can return to normal life much quicker.
- Less damage to surrounding normal tissues – the radiation from the seeds travel only a few millimetres and is therefore almost completely limited to the prostate gland.
- Less risk of bowel and erectile dysfunction, but more urinary side effects.

Contact details

If you have any questions or concerns, or would like to discuss any of these treatments further please contact your key worker:

Advanced Nurse Practitioner

020 7352 8171 Extension 1799, 1701

Clinical Nurse Specialist

020 7352 8171 Extension 4508

Cancer Support Worker

020 7352 8171 Extension 4945

Alternatively, please call:

The Royal Marsden Macmillan Hotline:

020 8915 6899 (available 24 hours a day, 7 days a week)

Should you require information in an alternative format, please contact The Royal Marsden Help Centre.

Notes and questions

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References

This booklet is evidence based wherever the appropriate evidence is available, and represents an accumulation of expert opinion and professional interpretation.

Details of the references used in writing this booklet are available on request from:

The Royal Marsden Help Centre
Freephone: 0800 783 7176
Email: patientcentre@rmh.nhs.uk

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