The ROYAL MARSDEN
NHS Foundation Trust

Patient information

Stereotactic Body Radiotherapy for prostate cancer

This factsheet describes what you can expect if you decide to have Stereotactic Body Radiotherapy (SBRT) treatment for your prostate cancer. SBRT is not used routinely in prostate cancer but may be suitable in some circumstances or in a clinical trial.

SBRT is a way of delivering high dose radiotherapy using highly precise techniques. It can be delivered using a conventional radiotherapy machine known as a linear accelerator (Linac), an MR-linac which is a linear accelerator combined with an MRI scanner or using CyberKnife which is a dedicated SBRT machine involving the use of a robot. Treatment is usually given in five sessions which can be consecutive days or alternate days.

Before treatment starts, there is a preparation phase which is described below. During and after treatment there may be side effects but these are often short-term. Once treatment is complete, we will monitor you in clinic to check that the cancer is controlled or cured.

Why is SBRT not a standard treatment for prostate cancer?

Most localised prostate cancer is treated using surgery (prostatectomy) or radiotherapy, with or without hormone treatment. These treatments have been used for decades and we know that they work very well. External radiotherapy treatments have continued to develop over the last 10 years, including the development of CyberKnife, which originates from the United States and has been used extensively there for a number of years. Using these techniques, prostate cancer can be treated with SBRT, however not all patients are suitable.

SBRT is usually delivered in a fewer number of sessions than conventional radiotherapy. The increased accuracy of SBRT may reduce the side effects of treatment as less normal tissue is given radiation, but to be sure about this we are still following up patients who have taken part in trials over the last few years. SBRT in prostate cancer is still relatively new in the UK, and so for it to become 'standard of care' it needs to be tested against other options to prove it is as effective.

The Royal Marsden has led and taken part in a number of these randomised trials, where patients are allocated treatment options on a random basis and are followed up for many years to see which option is best. Until we have the outcome of these trials, and we know if SBRT is as effective in terms of cancer cure rates and side effects it won't be routinely available on the NHS. There are theoretical reasons why SBRT may be at least as effective or more effective than conventional radiotherapy, but we cannot be sure until we have the practical results.

If I decide to proceed with SBRT, what happens next?

If your doctor agrees that SBRT is suitable for your particular prostate cancer, they will go through the preparation for treatment in detail with you. If you are being treated in Chelsea, your SBRT treatment will be given using CyberKnife. If you are being seen in Sutton, you will be treated using a linear accelerator, an MR-linac or Cyberknife. Your doctor will discuss the possible short and

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long-term effects that you might experience. If you are happy to proceed, you will be asked to sign a consent form for treatment. To prepare for your treatment, appointments will be arranged for gold marker insertion and planning scans as described below:

Gold marker insertion

Gold markers (sometimes known as gold 'seeds') are inserted into your prostate in a procedure similar to the prostate biopsy, which you will have had to diagnose your prostate cancer. This is to allow accurate tracking of the prostate during treatment on CyberKnife. You will be provided with a separate factsheet which provides details about the gold marker procedure and how to prepare for it.

You will be prescribed some antibiotics to start prior to the procedure and will have a rectal swab to confirm that the prescribed antibiotics are suitable for you. If you are taking Aspirin, Warfarin, Clopidogrel or any other medication to thin the blood, these will need to be stopped well in advance of the gold marker procedure so please mention this now. Some patients may not need gold markers for treatment. Your doctor will let you know if they are required.

Planning scans

Planning scans will take place at least seven days after gold marker insertion to give time for the markers to settle in. These scans enable us to individualise the treatment for you, and to design the best way to get the radiation beams to focus on the prostate. You will have a CT scan (in the Radiotherapy Pre-treatment Department) and an MRI scan (in the Imaging Department). At the end of your CT scan the radiographers will give you three very small permanent marks (tattoos) to ensure your position is reproducible for each treatment session. The planning process can take up to two weeks but may be shorter.

You will be prescribed some enemas to ensure that your back passage (rectum) is empty when we do your planning scans and treatment. Two days prior to the scans, you should start taking the enemas as directed by the Urology team. The enemas work quickly so make sure you can stay near to a toilet for 30 minutes after insertion. You will also be asked to attend 90 minutes before the CT scan to insert an enema brought in from home and to fill your bladder as directed by the radiographers. We try to schedule the CT scan first, but occasionally the MRI scan is first, so the same preparation is required – an empty bowel and a moderately full bladder (see separate instructions).

Treatment

Before your first SBRT treatment, you should take the enemas again, starting two days before your first treatment and continue daily before each treatment. On each day of treatment please bring an enema from home and the radiographers will show you where you can use it.

On your first treatment day, please arrive 90 minutes prior to your appointment. We are happy for you to be accompanied and there is a dedicated waiting room. One of the radiographers (professionals who deliver the treatment) will talk you through the procedure and will also give you instructions about emptying and then re-filling your bladder. A moderately full bladder pushes the small bowel out of the radiation field and can help to reduce bowel side effects.

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Linac treatment

You will be asked to lie still on the treatment bed. It is very important to get you in exactly the right position so there may be up to 10 minutes of moving and shuffling on the bed before the radiographers are happy to start the treatment. During this time you will have a mini-CT scan to check the position of your prostate. The machine will move around (rotate) but will not touch you and you will not feel anything while the radiotherapy is being delivered. The radiation delivery takes about three minutes. Please lie as still as you can - if you need to move or need assistance the radiographers can see and hear you while you are in the room.

MR-linac treatment

We will ask you to lie still on the treatment bed. It is important to get you in exactly the right position so there may be up to 10 minutes of moving and shuffling on the bed before the radiographers are happy to start the treatment. An MRI scan will be acquired each day which will be used to plan your treatment. Once a plan has been created, the treatment will be delivered; you will not feel anything during treatment. Please lie as still as you can – if you need to move or need assistance, press the buzzer. The planning and treatment takes around 45-60 minutes each day.

CyberKnife treatment

We will ask you to lie on the treatment bed in the CyberKnife room. It is very important to get you in exactly the right position so there may be up to 15 minutes of moving and shuffling on the bed before the radiographers are happy to start the treatment. During the treatment the system will take x-rays of your prostate every 30-60 seconds to make sure that the radiation is exactly on target. The robot will move around you but will not touch you. Please lie as still as you can - if you need to move or need assistance, the radiographers can hear you. The treatment time varies but is usually 40-50 minutes.

After treatment

You are not likely to feel anything immediately after your treatment and will be able to go home in the car or on public transport, as you wish. It is not necessary to have someone accompany you. Towards the end of your treatment, you may start to experience some side effects which tend to be worst at the end of treatment and for one to three weeks after treatment. If you are experiencing side effects which concern you, please contact your key worker or the secretary to your Consultant. Possible side effects are listed below.

Common side effects during and immediately after treatment (short-term)

Most patients (more than 50%) will experience one or more of these but often medication can help with these symptoms:

- Tiredness
- Loose bowel motions or diarrhoea
- Discomfort in the back passage
- Needing to pass water more frequently, discomfort (pain) on passing water
- Skin redness
- Temporary loss of pubic hair

- Rarely (about 1-2 %) patients may need a catheter short term (for example, two weeks) due to prostate swelling after SBRT.

Common side effects in the long-term (these occur months or years after treatment):

- Impotence or erectile dysfunction (about 50% risk)
- Infertility (almost 100% risk)
- Minor change in bowel habit (around 30% risk).

Rare side effects

Likely to affect less than one in 10 patients, occurring in the months and years after treatment:

- Narrowing of the urethra (tube to the bladder) causing problems passing water (less than 5%)
- Permanent change in bowel habit (less than 10% risk)
- Bleeding from the back passage needing surgical treatment (less than 5%)
- Bowel or bladder incontinence (less than 1%)
- Possible small increase in the risk of bowel cancer.

Follow up in clinic

We will usually see you four to six weeks after completing treatment to check any side effects have settled down. Following this, you will be seen every three to six months and a PSA blood test should be checked at least twice a year until five years after treatment. The PSA is the best measure of how the treatment has worked, but it takes many months to fall to its lowest level after treatment. It can also 'bounce' up and down over time, so if it rises once or twice this is not necessarily cause for concern.

If you have any further questions, please write them down here and bring this list to your next clinic appointment or call your key worker for more information.

Contact details

The Royal Marsden Macmillan Hotline: 020 8915 6899
(available 24 hours a day, 7 days a week)

For further information, please visit The Royal Marsden website:
www.royalmarsden.nhs.uk/your-care/support-services/royal-marsden-macmillan-hotline