What is Pulse Dose Rate (PDR) brachytherapy treatment?

Information for patients
Weston Park Hospital
What is pulse dose rate (PDR) brachytherapy?

Radiotherapy is a form of X-ray treatment that uses high energy radiation to kill cancer cells. It is usually given from outside the body as external treatment but sometimes internal radiotherapy is also given to treat gynaecological cancers. PDR brachytherapy is a way of giving internal radiotherapy.

Tumours of the uterus (womb) and cervix (neck of womb) can be treated with internal radiotherapy. To deliver the treatment hollow tubes are placed into the vagina. Radiotherapy is then delivered by a small radioactive pellet that sits inside these tubes. The position of the pellet in the tube is controlled by a PDR treatment machine.

To make sure treatment is delivered safely and accurately, patients having PDR radiotherapy must **lie on their back on bed rest for all of the treatment**. If you have any concerns about managing to lie in this position, please discuss them with the doctor before you come for treatment. You can also ring the ward and speak to the nurses on:

- **0114 226 5308**
What happens before PDR brachytherapy treatment?

You will be admitted to Ward 2 the day before your PDR brachytherapy treatment. This gives you time to settle on the ward and meet the staff who will be caring for you. You may also need to have some pre-treatment checks such as a blood test and an ECG. Pre-treatment preparation includes the following:

- You will be given a small injection to thin your blood slightly and asked to wear elasticated medical stockings. This is to reduce the risk of developing deep vein thromboses while you are in hospital with us.
- You will be given a small enema to help you have a bowel action. This reduces the chance of you needing to have your bowels opened while you are having PDR brachytherapy. Please inform nursing staff if you experience loose stools (diarrhoea).
- From midnight you will be asked not to eat or drink in preparation for theatre.
- On the day of your treatment you will be seen by an anaesthetist.

The treatment tubes are placed into the vagina by the doctor in an operating theatre. You will need sedation or a short general or spinal anaesthetic for this procedure. A soft catheter will also be inserted into your bladder to drain away urine and a gauze pack may be placed in the vagina to support the treatment tubes. Once these are in place you will have a CT scan and possibly an MRI scan as part of the radiotherapy planning process. You will then be taken back to the ward.

You will need to lay flat from the time you leave the theatre until the end of treatment. After you have been to theatre, you will return to the ward whilst the radiotherapy planning team calculate a treatment plan for you. It can take between 4 and 8 hours to prepare the treatment plan.
What happens during treatment?

Each patient has an individual treatment plan and the length of your treatment will depend on the details of your case. When your plan is ready the nurse will take you round to the treatment room. The treatment room is on a corridor away from the main ward area. It is a single room and no other patients will be in the room with you.

The room is on a side ward and for your safety the nursing staff will be able to observe you on a TV monitor (CCTV) whilst you are in the PDR treatment room. This means that the nursing staff can make their routine checks without having to enter the room itself multiple times. This CCTV does not include the bathroom area and it does not record. The nurses call in regularly to change your position and make sure you are comfortable. You can also contact them at any time using the nurse call system.

In the treatment room the tubes that were put in place in the operating theatre are connected to the PDR machine. The machine sends a small radioactive pellet into the hollow treatment tubes for approximately 10 to 30 minutes each hour to deliver the radiotherapy treatment. This is called the treatment pulse. While the treatment pulse is being given no one else can be in the room with you but the staff can see you on the CCTV monitor. There is also a two-way call system and a buzzer so you can make contact with the staff at any time.

How long will treatment last?

Every treatment is planned for the individual needs of each patient, but most treatments last between 12 to 21 hours. The PDR machine automatically delivers treatment for the correct time. Every two to three hours your nurse will call into the room to check that you are comfortable and help you to adjust your position. If you want to speak to the nurses at any time you do not need to wait for these visits. You can contact the nurses at any time by using the call system.
Can I eat and drink?

Once you have recovered from the anaesthetic you can eat and drink, the staff will offer you regular food and drinks. Most people find that light meals, such as sandwiches, are easier to manage when lying down.

What can I take with me?

There is a television in your room. Many people also bring in something to read, puzzle books and personal music systems. Some patients have brought in sweets and snacks to help pass the time more pleasantly. There is a light in the room that stays on during the night so the nurses can see you on the monitors. You may like to bring in an eye mask to wear to help you sleep.

What does the treatment feel like?

The actual radiotherapy treatment is not painful, but many people have a feeling of pressure around the treatment tubes. To make sure the tubes stay in the correct position you will need to lie fairly flat, with a maximum of two pillows to support your head, during treatment. This can lead to some back stiffness and discomfort. You do not have to lie completely still like a statue! It is a good idea to tighten and relax the muscles of your legs and buttocks several times each hour. This can ease the pressure and help the circulation. Gentle exercises and movements of your ankles are quite safe and will not disturb the position of your treatment tubes.

We want you to feel comfortable during your treatment so please do not hesitate to tell the nurses if you are having any problems. They can give you painkillers to help you get comfortable and can also give you medication to help you relax and relieve any build up of muscle tension. To help us make sure you are comfortable we have designed a chart for you to keep a record of any problems you are having during treatment - please ask the nurse if you would like to use this.
Can I have visitors?

While you are connected to the treatment machine you are not allowed visitors. This is to help us to make sure your treatment is delivered safely. Please talk to the nurses on the ward if you have any questions about this.

What happens when the treatment is finished?

The machine switches off automatically when your treatment is complete. The nurse will then remove the catheter from your bladder, disconnect the treatment tubes and gently remove them. There is no need to return to theatre for this as removing the applicators is a simple and quick procedure that only takes a few minutes. You will then be taken back to the main ward area.

Most people recover quickly from their treatment and are ready to go home later that day, or the following day, depending on the time that treatment finishes.

Are there any side effects?

Pulse dose rate brachytherapy does have some side effects. Some patients experience cystitis, diarrhoea and tiredness which should resolve after a few days. However, vaginal changes can occur, such as dryness and loss of elasticity, which can affect sexual relationships. The risk of these changes can be minimized by using vaginal dilators. The nurses will explain this to you when you come for your treatment.
What should I look out for when I go home?

You may have **cystitis, diarrhoea and tiredness** but these are not usually severe and should resolve in a few days. However, if you have diarrhoea more than 4 times a day or for longer than 2 days you should contact us for advice. Please ring 0114 226 5000 and ask to be put through to the assessment nurse practitioner at Weston Park Hospital.

You should also contact us if you develop any signs of **infection**. This includes:

- fever/temperature above 37.5°C
- vaginal discharge that is discoloured or smells offensive
- pain on passing urine that does not resolve within 2 days after treatment
- feeling hot or cold and shivery.

**Risk of blood clots** - Cancer can increase your risk of developing a blood clot (thrombosis), and having PDR treatment may increase this risk further. A blood clot may cause symptoms such as pain, redness and swelling in a leg, or breathlessness and chest pain. Blood clots can be **very serious** so it is important to seek medical advice **straight away** if you have any of these symptoms. However, most clots can usually be successfully treated with drugs to thin the blood. Your doctor or nurse can give you more information.
Who should I contact if I think there is a problem?

If you develop any of the problems above or you have any concerns about the effects of your treatment please contact the ward on 0114 226 5302. Alternatively ring 0114 226 5000 and ask to be put through to the assessment nurse practitioner at Weston Park Hospital.

Further information is also available from:

Weston Park Cancer Information and Support Centre
23 Northumberland Road
Sheffield
S10 2TX

Telephone: 0114 226 5391

Website: www.cancersupport.co.uk

Email: info@cancersupportcentre.co.uk