

Department of Neurosciences

Dorsal Root Ganglion (DRG) Stimulation

Information for patients



We have recently seen you in clinic as you have had pain for a long period of time. We have offered you Dorsal Root Ganglion stimulation (neurostimulation) as a treatment for your pain. This leaflet tells you about this treatment. It gives you the sort of information that you might need in order to decide if this form of treatment might be the right thing for you. If there is anything else you wish to know about this treatment please do not hesitate to contact us (see contact numbers at the end of this leaflet).

Dorsal Root Ganglion (DRG) stimulation

The Dorsal Root Ganglion is a small bundle of nerves involved with sending pain messages to your brain. The DRG acts like a traffic light; controlling when sensations can enter your spinal cord. There is a Dorsal Root Ganglion connected to every vertebra (section of bone) in your spine.

DRG stimulation uses equipment which is implanted in your spine, under your skin. This equipment sends mild electrical impulses to the area of a DRG in your spine. This stimulation can make the DRG create more 'red lights', which blocks pain signals from that area travelling to your brain. This creates either a comfortable tingling sensation in the area where you have pain or can stop the feeling of pain completely. The tiny electrical impulses are sent through a lead implanted on the nerve attached to the DRG. It is powered by a battery (the size of a large matchbox) which is implanted under the skin on the left or right side of your tummy, above your hip and near your belly button, or on the upper part of one of your buttocks.

This therapy is reversible, as it does not cause permanent changes or damage to the nerves. Most people who have success with DRG stimulation experience 80% coverage of the area of pain and greater than 50% pain relief. We expect that your ability to carry out general activities and your enjoyment of daily living will improve.

What are the benefits of DRG stimulation?

DRG stimulation works directly in the area where the pain signals come from. Stimulation can be directed to specific areas where you feel pain, as you can have more than one lead placed at different levels in your spine (up to four leads per battery). Most people feel a gentle tingling in the area of their discomfort, which masks the pain.

Dorsal Root Ganglion stimulation can be used to help reduce the effects of problems such as:

- post-amputation pain
- pain disorders, such as complex regional pain syndrome (CRPS) and failed back surgery syndrome (FBSS).

Typically, only small amounts of energy are needed to alter pain signals in a Dorsal Root Ganglion. For this reason, devices used for this treatment can usually keep working for a long time on limited battery power.

Does DRG stimulation completely eliminate pain?

DRG stimulation does not cure the source of the pain. Pain reduction varies from person to person, with most people experiencing greater than 50% reduction in pain. It can take a while for you to learn to effectively control your pain using DRG stimulation. Learning to operate the equipment and taking part in prescribed activities, such as physiotherapy and weight loss, will help make the treatment work for you.

Before you come in to hospital

In clinic we will give you some pain questionnaires and charts to complete. As well as these assessments, we will refer you to our Neuropsychologist who will help the team assess whether you are suitable for this therapy. We may also need to complete an up to date MRI scan of your spine, to check that there is space for the lead.

If all these assessments show that you are suitable for the stimulation, we will arrange a surgery date. Around two to four weeks before your surgery date, you will need to come to the outpatients department for a pre-operative assessment. At this appointment we will go through your detailed medical history and take blood samples. This is to make sure that you are well enough to have the sedation and operation. You will also be given information about when to stop eating and drinking and whether you need to stop certain medicines before you come in for the procedure.

How is the procedure carried out?

You will be admitted to the Neurosciences Ward, either the day before your surgery or on the morning of your surgery. You will be in hospital for between five to eight days, depending on the length of your trial period.

The procedure is performed in the operating theatre, with you lying on your tummy. You will be given an injection of local anaesthetic into the area on your back where we will place the electrodes. You will also be given some sedation medicine to make you feel drowsy, but you will still be able to talk.

The surgeon will place the electrode into your spine using a hollow epidural needle. The electrode will then be tested with you awake, so that we can check with you whether it is giving you the tingling sensation in the area where you have pain. If this

is successful, the electrode wire will be placed under your skin on your tummy or buttock through a small incision (cut) around 3cm long. We will then implant the battery and connect up the wires.

If the trial carried out in theatre doesn't give us a definite effect on your pain, we will secure the wire on the outside of your body with medical tape, so we can connect it to an external device to trial the stimulation when you are back on the ward.

After the procedure

After the surgery, you will be given time to recover from the sedation, which should wear off within an hour. You may be given some strong painkillers to help with any discomfort around the wounds.

The day after surgery (or when we feel you are recovered enough) we will come and set up the stimulator to try and achieve pain relief.

If you are having a trial period we will see you regularly to assess the level of pain relief that the stimulator is giving you. We will assess you when you are sitting, standing and walking. We will encourage you to be as active as possible during the trial so that we can see how well the stimulation is working. If you are getting enough pain relief then the second stage of the procedure will be carried out. This involves having a further procedure to connect the leads under your skin to the battery, which will be implanted on your tummy or buttock.

You will be given a patient controller to use to adjust your own settings. We will give you instructions and will make sure you can use the equipment before you go home.

Risks

As with all types of surgery, there is a risk of complications.

These risks include:

- infection in the area of the implanted leads or battery
- bleeding from wounds or where we have given injections of anaesthetic/sedation
- failure to relieve pain or an increase in pain
- no stimulation or irregular stimulation
- headaches
- allergic reaction to drugs given during the procedure
- stimulation of the wrong area
- stimulator device failure
- paralysis (this is very rare).

Success rates

We carry out this procedure routinely in our department and hope you will achieve at least a reduction of 50% or more in your pain scores, with about 80% of your pain area covered with a pleasant sensation. Around 80 in every 100 people will respond well to DRG stimulation, however everyone responds differently to pain treatments, and unfortunately this therapy is not successful for every person. If the DRG stimulation does not work well for you we will refer you back to the Pain Clinic and/or your GP.

Follow-up

You will receive a discharge information booklet before you go home. We will keep in close contact with you once you are discharged so that we can monitor your progress. You will see us for your six week review after the procedure and any future appointments will be agreed from then on with your Nurse Practitioner.

Questions and further information

We can be contacted on the numbers below if you have any questions or need any further information:

Advanced Nurse Practitioners – Pain Neuromodulation

Tel: 01865 231 874

(Monday to Friday, 8.00am to 4.00pm)

Personal Assistant to Nurse Practitioners

Tel: 01865 572 466

(Monday to Friday, 8.00am to 4.00pm)

Department address:

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Headley Way

Headington

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If you have a specific requirement, need an interpreter, a document in Easy Read, another language, large print, Braille or audio version, please call **01865 221 473** or email **PALSJR@ouh.nhs.uk**

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