Occipital Nerve Stimulation – patient information

What is Occipital Nerve Stimulation?

Occipital Nerve Stimulation is a surgical procedure which is helpful for the treatment of headaches that have not responded to conservative treatment. Occipital Nerve Stimulation works by targeting one or more of the occipital nerves (greater, lesser and/or third occipital nerves) as these nerves are most likely responsible for the transmission of most headache pain. In certain other headache syndromes there may be other nerves which may be targeted including the supratrochlear and/or supraorbital nerves.

Occipital Nerve Stimulation involves the insertion of electrodes close to the nerves responsible for causing the sensation of pain. The electrodes deliver a low level electrical impulse ('stimulation') that interferes with the perception/feeling of pain transmitted from the nerves to the brain by replacing the sensation of pain with a sensation of 'tingling,' 'buzzing' or 'numbness'.

Conditions that may respond to Occipital Nerve Stimulation:

- Occipital Neuralgia
- Whiplash related headache
- Cervicogenic neck structure related (ie vertebral misalignment) headaches
- Nerve injuries from a trauma or a previous surgery

What happens during an Occipital Nerve Implant procedure?

Implantation of an Occipital Nerve Stimulator requires two stages: a trial stage and an implantation stage.

Stage one - Trial

A trial of temporary stimulation is typically required for up to 4 weeks to assess whether it helps a person with their particular pain. During this period you will be asked to monitor how well your pain responds to the stimulation and to increase your activity level.

A trial of stimulation requires an admission to hospital for a procedure (approximately 45 minutes) which is performed in a sterile operating theatre. An anaesthetist places a cannula (a small plastic tube) in your hand to give you pain relief and sedation (a light anaesthetic). At the start of the procedure the doctor places local anaesthetic under your skin to numb the area that is to be operated on. An incision is made and the nerve(s) causing your pain are identified. The doctor places a 'trial' or temporary stimulator electrode along the site of the nerve(s). A wire from the trial stimulator electrode is brought

out to the surface of your skin at the back of your head and secured in place with a stitch and a dressing. The trial electrode wire is then connected to a small external stimulation device. When the device is turned on it will release electrical stimulation to the nerves that send the sensation of pain to your brain. This stimulation will replace the pain with a tingling sensation. It will be tested by your doctor while you are in the operating theatre to ensure that it covers your area(s) of pain. The external device remains with you throughout the duration of the trial and can be attached to your belt or placed in your pocket.

You are required to remain in hospital overnight following your procedure and the trial will begin the morning after the procedure. A technician will visit you in hospital to provide education, to program your stimulation device and to assess your level of stimulation before you are discharged.

The effect of the stimulation on your pain will be assessed over several weeks during which time you will be required to monitor your level of pain. During this period you and your doctor will meet on a weekly basis to assess if the stimulation is beneficial for your pain or not. A programming technician will also be present at these consultations and will be available to provide support if required between appointments. A dressing will be placed over the electrode wire insertion site during the trial and it is important that only the doctor who has performed the procedure or the technician makes any adjustment to this. The stimulation electrodes are removed at the end of the trial period at your doctor's office.

Stage two - Implantation

If you and your doctor are happy with your level of stimulation and pain reduction during the trial period then you will be offered the option of permanent implantation of electrodes and a stimulation battery. Implantation requires an admission to hospital for a procedure (approximately two hours) which is performed in a sterile operating theatre. An anaesthetist places a cannula (a small plastic tube) in your hand to give you pain relief and sedation (a light anaesthetic). The doctor will insert soft wires with electrodes on their tip through a needle under your skin to position them in the same area as your trial. An incision will be made in your buttock to house the stimulator battery. The electrodes are then attached to the battery.

You are required to remain in hospital overnight following your procedure. A technician will visit you in hospital to provide education, to program your stimulation device and to assess your level of stimulation before you are discharged. Your doctor will monitor your wound and level of stimulation closely for the first month following your procedure and the technician will continue your education and programming adjustments as your wounds heal.

Potential complications and side effects

- lead migration/movement and lack of therapeutic benefit
- pain and bruising over the insertion site
- potential risk of introduction of infection
- risk of blood vessel and nerve injury