TWIN CITIES ORTHOPEDICS

Spinal Cord Stimulation Patient Education

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WHAT IS SPINAL CORD STIMULATION?

Spinal cord stimulation (SCS) is a specific type of neuromodulation used to treat chronic pain. Small electrodes are implanted in the epidural space of the spinal canal that send low-level electrical current to the spinal cord to change or modify how pain signals from the body are carried to the brain, where pain is experienced. Chronic pain is a condition that develops when the body's natural injury protection mechanism, pain, continues beyond the expected time it takes injured tissues to heal. As these continued pain signals are no longer providing protection, and are in fact harmful in their own right, interrupting them often provides significant benefit. This therapy may improve pain, function, sleep, and mood.

HOW IS THE PROCEDURE PERFORMED?

Spinal cord stimulation implants are performed in two parts. The first part is the SCS trial, where temporary electrodes are implanted in order to see how much pain reduction you experience before a permanent implantation. In this procedure, electrodes are placed in the epidural space of the spinal column through needles in the skin. The needles are removed and the wires, called leads, remain in place and are attached to an external battery, which is taped to the skin. The battery is then programmed to provide stimulation and you get to go home with the device to see how it affects your pain and function. You will then follow-up with your implanting provider in 5-7 days at which point the leads and battery will be removed and your pain and function assessed. If you get significant improvement with the SCS trial, the next step is the permanent implant.

Permanent implantation is a little bit more involved. Leads are again placed via needle, or in some cases, open surgery referred to as a laminotomy. Two incisions will be made in the skin: one for the purpose of anchoring the leads, and one for the battery, which sits 1-2 cm under the skin. Once the device is implanted, it is tested in the OR before the incision(s) are closed and a sterile bandage is placed over the skin. The skin will heal in 1-2 weeks. Depending on the device implanted, it may be turned on the day of surgery or after the skin is healed.

HOW LONG DOES THE EFFECT LAST?

Once you heal from the implantation, typically days to weeks, you should start experiencing relief of your chronic pain. In theory, pain relief should be indefinite, but this is not always the case. Oftentimes, the SCS device programming needs to be adjusted over time to provide optimal pain relief and coverage of your pain, which will require a meeting with your device representative. Implanted batteries need to be replaced roughly every 5-12 years and the timeframe for this depends on the device, battery usage, and whether the battery is rechargeable or not. One benefit to this battery change is that new batteries will usually feature technology advancements relative to older batteries.

WHAT IS THE NEXT STEP AFTER THE IMPLANTATION?

You will be given temporary movement restrictions to follow after the implantation. These are very important to follow, as failure to do so can lead to movement of the leads and loss of pain relief. You will be taught how to use your personal controller and how to adjust the available settings. If you have staples in the skin you will need to come in for an office visit to have those removed. You may need to meet with the device representative a few times to optimize the settings of the device to provide maximal pain relief.

WHAT ARE THE RISKS AND SIDE EFFECTS?

Serious side effects and complications are rare. The most common problems after the implantation is movement of the leads, hardware malfunction, discomfort at the battery site, lack of efficacy, and superficial infection. More severe but less common side effects are deep tissue or epidural infection. Depending on the complication, parts or the entire device may need to be removed, either temporarily or permanently.