Spinal Cord Stimulation/Dorsal Root Ganglion Stimulation (Stage 1 and 2): Care of the Patient in the Trial Screening Period

Site Applicability

SPH Pain Clinic and Surgical Day Care (SDC)

Practice Level

Basic: Surgical Day Care RN, LPN for patient assessment

Advanced: Neuromodulation Nurse for all aspects of the Spinal Cord Stimulator care.

Need to Know

1. Spinal Cord Stimulation (SCS)/Dorsal Root Ganglion (DRG) Stimulation is a system that delivers a low voltage electrical stimulation to the spinal cord, or nerve roots to block/reduce the sensation of pain and/or replace the painful sensation with a tingling sensation (most commonly used are paresthesia free settings).

2. It is used for the management of certain types of chronic pain such as failed back syndrome (continued back pain following back surgery), complex regional pain syndrome, arachnoiditis, radiculopathies, phantom limb pain, residual limb pain, peripheral neuropathies, and treatment refractory angina.

3. SCS/DRG has been shown to improve pain relief, increase activity levels and reduce the need for the use of opioids and other medications used to manage pain.

4. Spinal Cord Stimulation system consists of 3 to 5 components:
    - A lead(s) which delivers electrical stimulation to the spinal cord or dorsal roots
    - An extension wire(s) which connects the lead to a power source (not all patients require an extension)
    - A power source that generates electrical current
    - A remote control for patient
    - A charging system if the implanted battery is rechargeable

Programming includes:

- Electrode polarity
- Amplitude: the strength or intensity of the stimulator. Low amplitude provides a mild tingling sensation while higher amplitude provides a stronger tingling sensation.
- Rate: the number of times per second an electrical pulse is delivered
- Pulse Width: the length or duration of an electrical pulse
- There are many different programming algorithms dependent on specific patient needs and device used.

5. There are two ways to conduct a SCS trial:
    - The 2 - stage procedure which involves: Stage 1: implantation of a permanent lead(s) with temporary extension(s) and temporary battery for trial screening. (2 week duration)
    - Stage 2: removal of temporary extensions and addition of permanent spinal cord stimulator battery pack.(IPG)..
6. The second way of conducting SCS trial is a percutaneous temporary lead trial for 7 to 10 days. At the end of the trial, leads will be removed in clinic. If the trial is deemed a success the patient is brought back at a later date for implantation of a complete system (Stage 2).

7. MRI compatibility varies from system to system and depends on the implanted parts. Some combinations of Spinal Cord Stimulators and MRI scanners are not compatible and could pose a danger of injury to the patient or damage to the Spinal Cord Stimulator. Check with the company to determine if a patient's system is MRI compatible. Patients are provided an MRI eligibility form post implant with specific instructions.

8. Patients are generally admitted through Surgical Day Care and discharged same day. They are followed up in the Pain Clinic.

NOTE re patients with angina: These patients proceed directly to implantation of the complete system, and do not go through a trial phase.

Protocol

Pre-operative Stage 1 & 2

- Conduct a thorough pain assessment including how pain affects quality of life, sleep, and activity and use of pain medications. . A detailed pain map is required for the operative procedure. Have the patient indicate the area of their pain and any areas of numbness.

- Ensure the patient understands what his/her role is during the spinal cord stimulator trial screening and follows all instructions (for example activity restrictions).

Post-operative Stage 1 & 2

SDC nurse:

1. Assess pain intensity (at rest/movement), sedation using POSS, , and vital signs
2. Connect patient leads to temporary battery.
3. Inform patient/family (support person) not to change the dressing, only reinforce. The temporary lead is sutured to the skin only and can be easily dislodged. Dressing to temporary extensions or permanent leads should only be changed by a Neuromodulation nurse or physician. Call nurse/clinic if saturated
4. The Neuromodulation Nurse will assess efficacy of the SCS/DRG and make adjustments to the SCS/DRG programming as necessary on an on-going basis.
5. Neuromodulation nurse will instruct patient on how to adjust therapy parameters.
6. Reinforce patient teaching.
7. Neuromodulation nurse follows patient during the trial, including care of dressing, device programming and therapy specific instructions.
8. Patient usually goes for lead placement XRAY prior to first post operative appointment in clinic.

Stage 2 Specifics:

Post operative:

1. Inform patient that dressing removal and incision check should be done by their primary care provider at 7 days post operative
2. If rechargeable stimulator (IPG), instruct patient to **not charge** for 2 weeks post operatively (IPG was fully charged on implant), there will be a specific charging demo at the 2 week follow up appointment.
3. Give patient device wallet identification (ID), direct patient to obtain medical alert bracelet (neuromodulation nurse will provide specifics)
4. Provide patient with **permanent** device- specific literature
5. Provide patient with permanent device- specific MRI information (completed MRI eligibility form)
6. Ensure patient has certificate of value for device accessories

7. Complete spinal cord stimulator/DRG post operative checklist with patient
8. Not to drive for 8 weeks post op and thereafter with stimulator turned off only
9. Arrange for 8 week post operative follow-up appointment for the chronic pain clinic.

Documentation

Complete appropriate documentation in Cerner PowerChart

- Complete pain clinic neuromodulation nurse narrative note

Patient and Family Education

Teaching:

- Have a family member or support person attend the teaching session if possible.
- Provide the patient with the following:
    1. Company trial literature/booklet
    2. Activity restriction handout, “SCS going home”
    3. Pre-op SCS/DRG instruction sheet
        a. Including use of pre-op skin prep
    4. Review basic concepts of SCS/DRG programming
    5. Review trial equipment, what to expect on trial day and duration of trial
- Review, and ensure the patient understands the following restrictions in movement during the trial to prevent dislodgement of the lead(s)(note: these restrictions would continue for 8 weeks if patient continues to full implant)
    - Do not bend more than 45 degrees, reach overhead (do not sleep with arms over head), or twist at the waist.
    - Do not lift more than 5 pounds (2.5 Kg).
    - Must log roll to get in and out of bed
    - A reacher may be helpful
    - Bathing restrictions
- Inform patient not to drive during trial and if going for permanent implant, do not drive for 8 weeks post op and thereafter with stimulator turned off only.

9. When patient is discharged home post op: Instruct patient and/or family (support person) to check temperature once daily (in the evening) and check dressing(s). Provide the patient with the after hour emergency pager number 604-252-4011 in case of temperature equal or greater than 38 Celsius or chills.

References

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Persons/Groups Consulted:

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First Released Date:	SEP-2000
Posted Date:	31-MAR-2022
Last Revised:	31-MAR-2022
Last Reviewed:	31-MAR-2022
Approved By:	PHC
	Professional Practice Standards Committee
Owners:	PHC
	Pain Service