Epidural Percutaneous Neurostimulator Lead Removal

Site Applicability

SPH Interventional Pain Clinic

Practice Level

RN

Advanced Competency: Neuromodulation nurse with additional education in spinal cord stimulation

- RN must be supervised by a neuromodulation anesthesiologist or neuromodulation nurse with experience for the first time they remove an epidural percutaneous neurostimulator lead

Requirements

An order from the Neuromodulation Chronic Pain physician is required before removal of epidural percutaneous neurostimulator leads.

Need to Know

- Only the chronic pain physician can write an order discontinuing an epidural percutaneous neurostimulator lead
- A trial with an epidural percutaneous lead can help determine if a permanent implant could provide adequate pain relief and/or improvements to function and quality of life
- Epidural temporary percutaneous leads are inserted by anesthesiologists/neurosurgeons—leads must be inspected post removal to ensure entire lead is intact
- Neuromodulation registered nurses do not remove tunneled percutaneous leads.
- If patient is on anticoagulation, ensure anticoagulation has been stopped as directed by MD.
- Spinal cord stimulation can be used in the management of some chronic neuropathic pain conditions, for example complex regional pain syndrome, failed back surgery syndrome or chronic peripheral neuropathies. It can also be used to treat refractory angina.

Equipment and Supplies

1. Non-sterile gloves
2. Adhesive tape remover swabs (if necessary)
3. Chlorhexidine swabs
4. Sterile gloves
5. Stitch cutter
6. Dressing tray

7. Small dressing; for example small Mepore or Band-Aid

Procedure

Steps

Procedure	Rationale
1. Verify the correct patient identity using two identifiers	
2. Ensure the neuromodulation physician has assessed the patient's coagulation status prior to removal, ensure patient is not currently taking anticoagulation, and if regularly prescribed has stopped taking prior to removal as advised by their physician	Anticoagulants must be stopped prior to removal of the epidural neurostimulator lead
3. Gather equipment and supplies	
4. Position patient on bed or stretcher in fetal position (bent at waist, knees to chest)	To separate the vertebrae to that the epidural neurostimulator lead can be removed easily
5. Perform hand hygiene	
6. Don non-sterile gloves	
7. Open dressing tray and open and place supplies on sterile field	
8. Loosen tape and dressing while holding loops of epidural neurostimulator lead to keep it secure	May need adhesive tape remover
9. Inspect site for signs of infection e.g. redness and/or swelling	Inform Chronic Pain physician if any signs of infection/inflammatory response
10. Using aseptic technique, clean site with chlorhexidine swab	
11. Remove gloves and perform hand hygiene. Don sterile gloves	

12. Grasp the lead(s) close to the insertion site with sterile gloves, identify and cut only stitch by: a) Grasp a knot of suture with the forceps and gently pull it up while slipping the tip of the stitch cutter under the suture near the skin. b) Cut the suture as close to the skin as possible at the end distal to the knot c) Grasp the knotted end with the forceps and pull the suture through in one continuous, smooth action. Discard	Be cautious to not cut the lead. A second person may be necessary to assist with additional lighting for better visualization
13. Grasp the lead(s) close to the insertion site and pull straight towards you using steady tension. If you encounter resistance, stop. Have patient reposition and try again, If you continue to feel resistance, stop, cover site with dry dressing and notify the chronic pain physician	
14. Once lead is removed, count the number of electrodes and compare to expected number. If the number is not the same or there are other signs the lead is not intact, notify the neuromodulation chronic pain physician	
15. Cover insertion site with a small dressing such as a small Mepore or Band-Aid	
16. Patient may be discharged home immediately following removal	

Documentation

Create a note in Cerner Documentation section. Document:

- All assessments and interventions
- Document the number of electrodes seen on removal and the condition of the lead(s)
- Document site appearance
- Document patient assessment and tolerance of procedure

Patient and Family Education

- Reinforce to contact emergency pager 604 252-4011 if experiencing **new** onset back pain, **new** numbness or tingling to legs, or **new** leg weakness, if concerned should go to ER
- After lead removal ensure patient aware not to use hot tubs, bath tubs or pool for 72 hours. Patient may shower.
- Ensure patient has follow up appointment with chronic pain physician

Related Documents

1. B-00-13-10053 – Spinal Cord Stimulation: Trial Screening Period
2. B-00-13-10054 – Spinal Cord Stimulation: Implanted Spinal Cord Stimulator

References

1. Fishman, M., Antony, A., Esposito, M., Deer, T., & Levy R. (2019). The evolution of neuromodulation in the treatment of chronic pain: Forward-looking perspectives. *Pain Medicine, 20 S58-S68.* Doi: 10.1093/pm/pnz074
2. Giberson, C., Barbosa, J., Brooks, E., McGlothlen, G., Grigsby, E., Kohut, J., Wolbers, L & Poree, L. (2014). Epidural hematomas after removal of percutaneous spinal cord stimulator trial leads. *Regional Anesthesia and Pain Medicine 39(1)* p.73- 77 doi: 10.1097/AAP.0000000000000026
3. Narouze, S., Benzon, H., Provenzano, D., Buvanedran, A., Andres, J., Deer, T., Rauck, R & Huntoon, M. (2018). Interventional spin and pain procedures in patients on antiplatelet and anticoagulant medications (Second Edition). Guidelines from the American Society of regional anesthesia and pain medicine, the European society of regional anesthesia and pain therapy, the American academy of pain medicine , the international neuromodulation society, the North American Neuromodulation society and the World institute of pain. Regional Anesthesia and Pain Medicine. 43 (3) p 225- 238 doi: 10.1097/AAP.000000000000700
4. Stolzenberg, D., Aln, J., Lendner, M & Kurd, M. (2021). Thoracolumbar spinal cord stimulator trial. Procedural technique. *Clinical Spine Surgery, 34 (2).* P 51- 55

Persons/Groups Consulted

Physician Lead, Pain Program PHC, Neuromodulation

Anesthesiologist, Neuromodulation

Neuromodulation Nurse

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