

Nerve Block Catheter for Post-Operative Pain - Amputation - Full Clinical Guideline

Reference no.: CG-PM/2014/018

1. Introduction

Guidelines on the use of continuous nerve block catheters using elastomeric pumps for post-operative pain control – ABOVE and BELOW KNEE AMPUTATION

2. Aim and Purpose

Purpose

Continuous Nerve Block Catheters using either a standard percutaneous epidural needle with catheter pre-incision OR placed under direct vision intra-operatively by the surgeon. The catheters allow infusion of local anaesthetic along the nerve sheath enhancing post-operative pain relief.

Aim

- 1) To improve post operative pain control and improve recovery
- 2) Alternative to opiate analgesia benefiting both CKD/Diabetic patients and those with other comorbidities
- 3) Earlier OT/PT input meaning decreased length of stay
- 4) Avoid use of epidurals
- 5) Reduced nursing time

Scope

Patients requiring above knee (AKA) or below knee (BKA) amputations including stump refashioning

3. Definitions

- 1) Elastomeric pump – an infusion device that uses an elastic balloon to deliver a continuous flow rate of Local Anaesthetic
- 2) Nerve block catheter – Standard 16g epidural catheter
- 3) APS – Acute Pain Service

4. Guideline

Preop

All patients will be given pre-emptive paracetamol and NSAID loading dose, and regular postoperative paracetamol and Codeine OR Tramadol unless contraindicated.

Method

- 1) A **270ml pump** (5.0 mL/hr) elastomeric pump will be used.
- 2) Pumps will be filled with **Bupivacaine 0.25%**, and the line primed prior to connection.
- 3) Infusions are prescribed on EPMA (Electronic Prescribing Medication Administration), using the anaesthetic order sets
- 4) Pumps will be labelled using the stickers provided in the pack

AKA

- 1) The anaesthetist will perform a single shot Femoral Nerve Block either before or immediately after the start of the procedure using a long acting Local Anaesthetic (Bupivacaine 0.5% 10ml)
- 2) The epidural catheter will be placed directly into to nerve sheath of the severed Sciatic nerve by the surgeon and sewn in place. The end will emerge from the skin.

BKA

- 1) The anaesthetist will perform a single shot Femoral Nerve Block either before or immediately after the start of the procedure using a long acting Local Anaesthetic (Bupivacaine 0.5% 10ml)
- 2) The anaesthetist will site a percutaneous nerve/epidural catheter, using ultrasound control, next to the sciatic nerve at a point above its bifurcation

Commencement of infusion

- 1) The catheter will be secured to the skin using steristrips and a transparent occlusive dressing, ensuring dose restrictor is taped flat directly onto skin.

DO NOT ATTACH THE FILTER THAT IS SUPPLIED WITH THE EPIDURAL SET AS THIS OBSTRUCTS THE CORRECT FUNCTIONONG OF THE PUMP

- 2) The pump will be attached and started by the anaesthetist in theatre at the end of the procedure **or** in recovery by the recovery staff.

- 3) Bupivacaine stickers will be placed every 20 cm along the tubing connecting the pump to the wound catheter.
- 4) The pump will be labelled using the stickers provided in the pack.
- 5) All patients will have a subcutaneous cannula sited and will be prescribed PRN subcutaneous morphine as per guidelines.

Post operatively

- 1) Patients will be managed on the ward, unless co-morbidities or intra-operative complications dictate a higher level of care.
- 2) If the catheter becomes dislodged or disconnected then the wound catheter should be removed and the entire system discarded. **DO NOT RE-ATTACH THE CATHETER TO THE PUMP**
- 3) The infusion will last up to 54hrs. The catheter should then be removed by the nursing staff and the entire system discarded as clinical waste. On removal of the catheter(s), ensure the radio-opaque tip is seen. If it is not present – keep the catheter and contact the Acute Pain Team (during office hours) or the patient's surgical team to discuss as there may be a remnant left in the wound
- 4) If pain control is difficult and the catheter has been removed for whatever reason then contact the APS in normal hours or anaesthetic T1 after hours and on weekends.
- 5) The APS will collect all data for audit, please inform them when you have placed a catheter.
- 6) If appropriate, when the initial infusion has run out, a second, full elastomeric pump can be attached and run for a further 48-54 hrs. No further infusions are permissible after this and the catheter should be removed the 2nd infusion has run out.

Monitoring for signs of local anaesthetic toxicity

- shortness of breath, chest discomfort
- Tingling around mouth +/- lips
- Numbness of tongue
- Tinnitus or visual disturbances
- Convulsions
- Respiratory arrest or cardiac arrest

Actions

- Stop infusion immediately
- Patient alert and orientated – call Acute Pain Team, or on-call anaesthetist out of hours and ensure alternative analgesia is available. Observe closely
- Drowsy / Sedated – call ward doctor or on-call anaesthetist, administer Oxygen via Hudson mask. Consider airway support
- Cardiac and/or Respiratory arrest – call cardiac arrest team

Removal

- The continuous infusion catheter should be removed by the nursing staff when empty up to 54 hrs post operatively and discarded in Clinical Waste

5. References

1. **A randomized trial of bupivacaine pain pumps to eliminate the need for patient controlled analgesia pumps in primary laparoscopic Roux-en-Y gastric bypass.** Obesity surgery, {Obes-Surg}, May 2007, vol. 17, no. 5, p. 595-600, ISSN: 0960-8923.
2. **Use of the ON-Q pain management system is associated with decreased postoperative analgesic requirement: double blind randomized placebo pilot study.** Journal of the American College of Surgeons, {J-Am-Coll-Surg}, Feb 2006, vol. 202, no. 2, p. 297-305, ISSN: 1072-7515.
3. **Efficacy of continuous wound catheters delivering local anesthetic for postoperative analgesia: a quantitative and qualitative systematic review of randomized controlled trials.** Journal of the American College of Surgeons, {J-Am-Coll-Surg}, Dec 2006 (epub: 25 Oct 2006), vol. 203, no. 6, p. 914-32, 67 refs, ISSN: 1072-7515. Liu-Spencer-S, Richman-Jeffrey-M, Thirlby-Richard-C, Wu-Christopher-L.
4. **Continuous postoperative regional analgesia by nerve sheath block for amputation surgery--a pilot study.** [Fisher A¹](#), [Meller Y.](#) [Anesth Analg.](#) 1991 Mar;72(3):300-3

Documentation Control

Development of Guideline:	Clinical Nurse Specialist, Acute Pain Team (Vicki Yates) Reviewed by Dr Sarno 14/3.23
Consultation with:	
Approved By:	Acute Pain & Anaesthetics BU - 14/3/23 Surgery March 2023
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Key Contact:	Clinical Nurse Specialist, Acute Pain Team (Vicki Yates) Dr Sarno Anaesthetic and Acute Pain Consultant