

## Guidance for the use of continuous infusion of local anaesthetic via elastomeric pump in post-operative analgesia

Reference Number: SA0105

<b>Author (name and designation):</b>	John Keeler, Consultant Anaesthetist
<b>Version:</b>	3
<b>Supersedes :</b>	2
<b>Approval Group:</b>	Speciality Governance
<b>Ratified by:</b>	Drugs and Therapeutic Committee
<b>Date ratified:</b>	30/11/2018
<b>Date issued:</b>	14/12/2018
<b>Review date:</b>	30/11/2020

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## 1. Introduction

Continuous infusions of local anaesthetics for peripheral nerve blockade are used for acute post-surgical pain as part of a multi-modal analgesic regimen, often with significantly reduced opiate requirements. They allow aggressive mobilisation programmes and aid rapid recovery from major surgery.

Continuous infusions of local anaesthetics have the following benefits:-

- Reduced opiate use and side effects e.g. nausea and vomiting, urinary retention and constipation.
- Improved patient satisfaction
- Improved sleep patterns
- More effective pain relief and less opiate side effects compared with morphine PCAS
- As effective pain relief, less hypotension and urinary retention compared with epidural analgesia
- Reduced hospital stays if combined with multi-modal analgesia, early oral nutrition and early mobilisation

They are not suitable for all patients and will not eliminate the need for opiates in all patients. They are particularly suitable for patients with pre-operative, difficult to control, chronic pain. These patients may be anxious and often have opioid resistant pain. Avoiding a painful post-operative period may have longer term benefits in reducing chronic neuropathic pain.

## **2. Purpose/Scope**

To aid with the prescribing, administration and monitoring of patients receiving continuous infusions of local analgesia via elastomeric pump.

## **3. Responsibilities**

Those responsible for the prescribing, administration and monitoring of patients receiving continuous infusions of local analgesia via elastomeric pump should read and understand this guideline.

## **4. Guideline/Procedure**

### **I. Indications**

Continuous infusions of local analgesia via elastomeric pump are used for the following indications:

- Lower limb surgery
  - Infusion into a joint
  - Peripheral nerve sheath infusion
- Major abdominal surgery where an epidural is not used
  - Wound infusion
  - Rectus sheath/transversus abdominis plane (TAP) infusion
- Upper limb surgery where an extended nerve block is required

## **II. Contraindications**

- Infection at the catheter insertion site
- Allergy to drugs

## **III. Cautions**

- Deranged clotting profile
- Generalised sepsis

## **IV. Catheter insertion**

- Insert the catheter under aseptic conditions using a sterile drape to produce a surgical field
  - Complete in a theatre environment where possible
- Use a small amount of surgical topical skin adhesive (Liquiband) at the point of entry to ensure fixation. Apply a sterile dressing to the entry site
- Clearly label all catheters/lines and pumps
- See section IX for details about specific catheters used

## **V. Catheter care**

- The infusion equipment must be checked by nursing staff at each shift change to ensure the catheter is not kinked or clamped, is not leaking and that the catheter entry site is clean and the dressing intact
- Catheter site inspections must be fully documented in the patient's nursing care plan and should be carried out at least daily.
- The catheter dressing must remain intact at all times
- Patients must not bathe due to the risk of cross contamination

- If there is evidence of infection at the catheter entry site e.g. redness, swelling or pus then the catheter should be removed and the tip sent to microbiology for cultures and sensitivities

## **VI. Monitoring and review of local analgesia**

- Prescribed analgesia should be reviewed daily by the acute pain team.
- Local anaesthetic usage via the system must be documented on the patient's observation chart, in the nursing care plan and communicated fully at each hand-over
- The use of a local anaesthetic via elastomeric pump should not limit the use of systemic analgesia
  - All patients should receive multi-modal analgesia i.e. regular paracetamol and an NSAID (if not contraindicated) and must have access to stronger painkillers such as strong opiates if required
- Ensure areas affected by local anaesthesia are protected from injury via sharp, blunt or thermal trauma, particularly ulnar, radial and common peroneal nerves
  - This includes checking arm slings/leg braces are fitted properly
- Any problems should be referred to the acute pain team

## **VII. Catheter removal**

- Catheters must be removed in the following instances:
  - Patient or surgical request
  - Signs/suspicion of infection /inflammation at catheter entry site
  - Symptoms of local anaesthetic toxicity\*
- Catheters may require removal in the following instances:
  - The sterility of the dressing has been compromised
  - The catheter has dislodged or is leaking
- It is standard practise to remove the catheter once the elastomeric pump is empty (40 hours at 10ml/hour).
- If it is felt that the patient will significantly benefit from a prolonged infusion then the elastomeric pumps may be changed under aseptic conditions by the responsible anaesthetist.
- Consult the APS if in doubt.

\* Symptoms of local anaesthetic toxicity include: confusion & dizziness, ringing in ears, somnolence, paraesthesia around the mouth, cardiac arrhythmias and seizures.

To remove the catheter:

- Clamp the catheter tubing
- Remove the dressing
- The catheter should come out easily and painlessly. If there is any difficulty stop and contact the APS.
- Cover the exit wound with a dressing

### **VIII. Disposal**

- Cut the catheter as close to the elastomeric pump as possible if any local anaesthetic remains in the pump. This will allow the elastomeric pump to empty and will release the pressure.
- Dispose of the catheter and elastomeric pump as per Trust waste policy

### **IX. Bolus and infusion regimens for adult patients >50kgs**

#### **Rectus sheath or TAP catheters:**

##### Catheter Insertion

- Use insertion needle to thread catheter, position entry site outside of wound dressing.
- Inserted by surgeons before closing or anaesthetists with ultrasound guidance.

##### Bolus

- 15mls 0.125% levo bupivacaine via each catheter

##### Infusion

- Uni or bilateral elastomeric pumps\*
- 400mls 0.125% bupivacaine 10ml/hr via each catheter

\* For patients **<50kg** only **one 400mls 10mls/hr pump** should be used. Therefore bilateral rectus sheath or TAP plexus catheters will not be possible in these patients. These patients should receive a single, pre-peritoneal wound infusion catheter instead. See next section.

#### **Abdominal wound infusions:**

##### Catheter Insertion

- Use insertion needle to thread catheter, position entry site outside of wound dressing.
- Position catheter immediately over peritoneum if closed, otherwise between deepest 2 muscle/fascial layers.

#### Bolus

- 20mls 0.125% levobupivacaine

#### Infusion

- Single elastomeric pump
- 400mls 0.125% bupivacaine at 10ml/hr

#### **Nerve sheath infusions:**

##### Catheter insertion

- Brachial plexus, femoral & sciatic nerve sheath catheters.
- Specific nerve sheath catheters (Contiplex- BBraun) or epidural catheters can be used.

#### Bolus

- 20mls 0.25% levobupivacaine

#### Infusion

- Single elastomeric pump
- 400mls 0.125% bupivacaine at 10ml/hr

### **X. Prescribing**

- The bupivacaine infusion(s) should be prescribed by the anaesthetist caring for the patient in theatre.
- Catheter techniques must be entered in the Nerve Blockade section of the Acute Pain Management Chart.
- The elastomeric pump and catheter technique must also be prescribed on the main drug chart.
- The elastomeric pump must be prescribed before it can be assembled and administered.
  - NB: Two elastomeric pumps must be prescribed for bilateral catheters
- Elastomeric pumps must be clearly labelled with the patient's details and route of administration

### **XI. Elastomeric pump availability and supply**

<b>Location</b>	<b>Quantity</b>
Pharmacy DSU	2
Nucleus Theatres	2

Theatres 7&8	2
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**Table 1: 400ml 0.125% bupivacaine 10ml/hour elastomeric pump stock locations**

- Always check stock in Nucleus Theatres or Theatres 7&8 before contacting Pharmacy DSU or the on call pharmacist
- During working hours (Monday- Friday: 09:00-17:15; Saturday: 09:30–13:30) elastomeric pumps can be ordered directly from Pharmacy DSU by theatre staff (extension 4239)
  - Pharmacy DSU only supply to Nucleus Theatres and Theatres 7&8
- Out of hours contact the on call pharmacist via the Clinical Site Team
- It is the responsibility of theatre staff to order replacement stock from Pharmacy DSU

**XII. Wards**

Staff must have received training on the use of elastomeric pumps.

Current wards where training is provided for nursing staff include 8, 11, 12, 14, 18, 20, 21, 23, 26, 27, 28, ICU, York Suite