

Title: Intrathecal opioid analgesia

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Contents

1. Introduction	3
2. Purpose/Scope.....	3
3. Responsibilities	3
4. Guideline.....	4
I. Indications	4
II. Contraindications	4
III. Cautions	4
IV. Opiate prescribing/administration.....	4
V. Adverse reactions	5
VI. Post-operative management and monitoring	6
References.....	7

1. Introduction

Intrathecal opioids are frequently given as part of a spinal anaesthetic. Spinal anaesthesia, a term which implies an intrathecal injection of a local anaesthetic, possibly combined with other drugs, has potential advantages in lower limb, pelvic and abdominal surgery. These include reduced blood loss, improved stress response, fewer respiratory complications and reductions in thromboembolic disease. Adding opiates to the local anaesthetic agent in spinal anaesthesia has been shown to reduce post-operative analgesic requirements and improve patient pain and satisfaction scores. In the obstetric population it has been shown to improve the quality of the intra-operative block.

The clinical characteristics of this improved analgesia depend largely on the lipid solubility of the opioid. Hydrophilic drugs like morphine have a slower onset of action and longer half-lives in cerebrospinal fluid which leads to greater cephalad migration. Lipophilic drugs such as diamorphine, and to a greater extent fentanyl, have shorter half-lives and less cephalad spread.

2. Purpose/Scope

To aid with the prescribing, administration and monitoring of patients receiving intrathecal opiates in theatre and their subsequent care on the wards.

3. Responsibilities

Those responsible for the prescribing, administration and monitoring of patients receiving intrathecal opiates in theatre, and their subsequent care on the wards, should read and understand this guideline.

A named consultant must be responsible for each patient. The technique used must be consistent with this guideline.

A named consultant anaesthetist must supervise the prescribing and administration of intrathecal opiates by trainee anaesthetists.

4. Guideline

I. Indications

- Adult patients requiring surgery under spinal anaesthetic +/- general anaesthetic where moderate or severe post-operative pain is expected.

II. Contraindications

Contraindications to intrathecal opioids fall into two categories:

a. Contraindications to spinal anaesthesia itself

- Coagulopathy
- Uncorrected Hypovolaemia
- Localised infection at the site of intended injection
- Patient refusal
- Allergy to local anaesthetics

b. Contraindications to an intrathecal opioid

- Allergy to the proposed opioid medication

III. Cautions

- Patients <16 years and >90 years of age (respiratory depression is more likely to occur with extremes of age)

IV. Opiate prescribing/administration

Patients will receive an opiate combined with a local anaesthetic agent as a spinal injection in theatre (see below for doses of opiates). This is not a guideline about spinal anaesthesia itself but a few notes may be of assistance:

- a. spinal anaesthesia should only be carried out in the operating theatre.
- b. Asepsis must be maintained.
 - i. The operator should wear a gown, gloves hat and mask.
 - ii. The skin should be prepared with 2% chlorhexidine in alcohol and given time to dry.
- c. The opioids are normally supplied in non-sterile ampoules. This means that they should be drawn up through a bacterial (0.22 micron) filter to guard against bacterial infection.

- d. Dose volumes are small (from 0.1 ml to 0.5 ml). They should be drawn up in a 1ml syringe and then added to the local anaesthetic before the spinal anaesthetic is injected.
- e. Drugs for intrathecal injection should not contain preservatives, as these are often neurotoxic. Specific preparations are available for the opioids that are used intrathecally.

i. Morphine

Morphine provides the longest duration of block of those opioids commonly used intrathecally, lasting up to 24 hours in some patients.

- Preservative free morphine is available in the operating theatre. Concentration 1 mg/ml.
- Dose range: 100 to 300 micrograms (dose volume 0.1 to 0.3 ml)

ii. Diamorphine

Diamorphine usually provides post-operative analgesia for 12 hours.

- Diamorphine is supplied as a white powder. The usual ampoule contains 5mg of diamorphine and this needs to be dissolved in 5 mls 0.9% NaCl to a dilution of 1mg/ml.
- Dose range: 100- 300 micrograms (dose volume 0.1 to 0.3ml)

iii. Fentanyl

- Intrathecal fentanyl can provide analgesia for up to 6 hours after administration. This is a very similar duration of action to that of the local anaesthetic used for the spinal anaesthetic. Intrathecal Fentanyl is often used to improve the quality and duration of spinal anaesthesia rather than to provide postoperative analgesia.
- Dose range : 15-25 micrograms (dose volume 0.3 to 0.5 ml)

V. Adverse reactions

- Respiratory depression. At the doses of intrathecal opioid recommended in this document this should not be a clinical problem.
- Nausea and vomiting
- Hypotension (related to the dose of local anaesthetic rather than the intrathecal opiate dose)
- Pruritus
- Urinary retention (related to the dose of local anaesthetic rather than the intrathecal opiate dose. Most patients will be catheterised)

VI. Post-operative management and monitoring

Patients who have received intrathecal opiates in theatre may be managed postoperatively in one of three ways:

a. Use of Patient Controlled Analgesia System (PCAS)

This method limits parenteral opiate administration and ensures that the patient receives the following hourly observations:

- Conscious level
- Nausea and vomiting score
- IV site observations
- Opioid usage via PCAS
- Blood pressure
- Respiratory rate
- Oxygen saturations

Patients must be prescribed oxygen 2L/min or as otherwise prescribed.

Patients will be reviewed by the APS on the first post-operative morning

See the 'Patient Controlled Analgesia System' guideline and the Acute Pain Management Chart (APMC) for further details of the management of a PCAS

b. Use of APMC with regular and/or PRN analgesia

The use of an APMC allows specific extra post-operative monitoring to detect respiratory depression – respiratory rate, conscious level/sedation scoring and oxygen saturation. If a white sheet with appropriate details is left in the pain service folder in nucleus recovery the patient will be reviewed by the APS on the first post-operative morning

c. Use of regular and/or PRN analgesia

These patients will not be reviewed by the APS. An APMC must be completed if the responsible anaesthetist feels a review is required.

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