CONTINUOUS NARCOTIC (OPIOID) INTRAVENOUS INFUSIONS

Guideline purpose and related documents
This medication management guideline has been prepared to help guide dosing, intravenous administration and monitoring of continuous narcotic (opioid) infusions in patients.

Please refer to the individual Medication Management Guidelines on the intranet for guidance on the following;
- Clonidine for Pain Management
- Continuous Peripheral Nerve Infusions
- Epidural Analgesia Infusions
- Ketamine for Pain Management
- Lignocaine Infusion for Headache
- Subcutaneous Lignocaine Infusion for Neuropathic Pain
- Tramadol

Clinical documents related to this guideline include;
Medication Policy - Medication Administration Procedure and section 14- Drugs of Dependence S8/S11
Medication Management
Acute Pain Service Manual – Section 3, 4 & 6 (only Anaesthetists have access to this)
Patient Controlled Analgesia (PCA) Protocol – (for Morphine, Fentanyl, Hydromorphone or Oxycodone PCA)

Prescribing requirements and restrictions
Continuous opioid infusions are restricted to prescribing by Palliative Care, Anaesthetics, the Acute Pain Service and ICU.

Indications
- Intravenous opioid infusions provide a means for improving pain relief by achieving stable blood levels of opioids without the peaks and troughs associated with intermittent intramuscular regimes.

Contraindications (1,2,3,5)
- Hypersensitivity to the prescribed opioid or any other opioid of component of the formulation.
- Obstructive airways disease or respiratory failure
- Severe CNS depression
- GIT obstruction
- Patients who are taking or who have taken MAO inhibitors within the previous 14 days
- Cardiac arrhythmias, heart failure secondary to pulmonary disease
- Acute alcoholism or delirium tremens
- Head injuries, brain tumour or raised intracranial or cerebrospinal pressure

Special Precautions
- Opioid infusions must be administered via
  - A dedicated line; OR
  - A side arm with a non-return valve on the main IV line.
- When setting rate/dosage at the beginning of the infusion, after purging, or following alteration in dosage/rate per hour, two Registered Nurses must check that the rate/dosage is correct and sign the analgesia treatment sheet (SV754).
- Liver or kidney impairment – may require opioid dosage reduction – consult licensed product information in MIMS(2,3)
Dosage (1, 2, 3)

- **Bolus IV Dosage**: Morphine - within range 1 - 3 mg  
  Fentanyl - within range 10 - 25 microg

Infusion Prescribing and Preparation

Prescribing Information: The order should be written on the Analgesia Infusion Treatment Sheet (SV754)

- Currently approved solutions are:
  - **Morphine**: 100 mg in 100 mL = 1 mg/1 mL
    - **Usual Dose Range** = 0.5 to 3 mg/hour  
      = 0.5 to 3 mL/hour of 1 mg/1 mL solution  
    - **Maximum Infusion Rate** = 5 mg/hour
  - **Fentanyl**: 1000 microg in 100 mL = 10 microg/1 mL
    - **Usual dose range** = 10-30 microg/hr  
    - **Maximum infusion rate** = 50 microg/hr
  - For example; To prepare 1000 microg /100mL i.e. 10 microg/mL  
    - Remove 20 mL from 100 mL infusion bag and then add  
      - 2 X 500 microg/10 mL fentanyl ampoules = 1000 microg (20 mL) to the infusion bag  
      = 1000 microg/100 mL

- **Infusion Preparation**: The opioid is added to the infusion by either two registered nurses, or a registered nurse and an authorised witness (doctor, pharmacist, or nurse practitioner), and an appropriate entry made in the Schedule 8 Register.

- **Regulation of Infusion Rate**: Infusion rate may ONLY be varied according to the prescription on the Analgesia Infusion Treatment Sheet (SV754).

- **Destruction**: A registered nurse may destroy/dispose of any unused contents of a previously sterile S8 ampoule/vial, in the presence of another authorised person (i.e. another registered nurse, nurse practitioner, doctor or pharmacist). This includes a portion of a used vial, and the remainder of an S8 infusion/ syringe – see Medicines policy Section 14 Drugs of Dependence.

Administration

- **Administration**: intravenous infusion should be administered via an Alaris® pump with preprogramed guardrails

- **Compatible Solutions**: glucose 5%, sodium chloride 0.9%; (Fentanyl and Morphine), Hartmann’s (Morphine only)(3)

Monitoring

- Refer to the Special Analgesia Observation Chart (SV167) and Special Analgesia Nursing Observations Policy

Additives to Narcotic (Opioid) Infusions:

- Additives are not permitted to an opioid infusion bag unless authorised by a Department of Anaesthesia protocol, however additives or injections via the side arm are permitted subject to compatibility. Check with your ward Pharmacist, Pharmacy Department or the Medicines Information Pharmacist (ext 4359) if in doubt.

Co-Administration of Blood and Narcotics (Opioids)

- Opioids and blood can be co-administered, when necessary, if the following conditions are observed:
  - The blood must be administered through a line with a non-return valve to prevent reflux of the opioid solution into the blood line.
  - The opioid infusion is made up in *0.9% sodium chloride (Normal Saline) and infused through the side arm, with a luer lock.

* **Solutions other than sodium chloride 0.9% (Normal Saline) may cause haemolysis or aggregation of blood/ blood products**
**Adverse Effects (1, 2, 3)**

- Respiratory depression, apnoea
- Nausea and vomiting, constipation, urinary retention, loss of appetite
- Pruritis, urticaria, other skin rashes
- Drowsiness/sedation, confusion, hallucinations, delirium, agitation
- Hypotension, bradycardia, tachycardia, syncope, sweating, facial flushing, chills
- Anaphylaxis has been reported

**Drug Interactions (1,2,3,6)**

- Buprenorphine, a partial opioid agonist, may antagonise the analgesic effects of other opioids – APS will adjust opioid requirements accordingly.

- Concomitant use of other central nervous system depressants may produce additive depressant effects. Respiratory depression, hypotension, and profound sedation or coma may occur. Avoid if possible or monitor closely.

- Antihypertensive agents and medications that may cause bradycardia - may cause additive effects.

- MAOIs intensify the effects of morphine and other opioid drugs which can cause anxiety, confusion and respiratory depression, sometimes leading to coma – Avoid opioids whilst on MAOIS and for 14 days after ceasing (7)

- SSRIs – occasionally the use or SSRIs with some opioids may affect serotonin metabolism and cause serotonin syndrome

- Naltrexone is a competitive antagonist at opioid receptors. Rapid reversal of opioid effects may precipitate acute withdrawal syndrome in opioid dependence.

- Naltrexone reversibly blocks opioid receptors and reduces effects of opioids; use a non-opioid analgesic.

**Use in pregnancy and lactation (8)**

- Maternal use of morphine and fentanyl in early pregnancy has not been associated with an increased risk of congenital malformations, however as they cross the placenta, regular use in the last trimester may cause respiratory depression in the neonate and neonatal abstinence syndrome. If required, use the lowest effective dose for the shortest duration possible, and monitoring may be required during the third trimester. Morphine is preferred to Fentanyl.

- Small amounts of morphine and fentanyl are excreted into breast milk but are considered safe to use at the lowest effective dose. Observe the breastfed infant for adverse effects such as drowsiness, sleeping pattern changes and poor feeding (8). Consult the Medicines information Pharmacist ext 4359 or Royal Womens Hospital Pain Service regarding specific opioid analgesics before use.

**Presentation and Storage (2,3)**

- Morphine Sulfate injection 5mg/mL, 10 mg/mL, 15mg/mL, or 30mg/mL ampoules (DBL®)
- Fentanyl Citrate injection 50microg/mL, 100microg/2mL, 500microg/10mL ampoules (DBL®)
- Store ampoules below 25°C. Protect from light. Discard infusion solution 24hours after preparation.

**REFERENCES**


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