Guideline for the use of Remifentanil, patient-controlled analgesia in labour

Remifentanil is an ultra-short-acting opioid, which can deliver intravenous pain relief during a contraction and wear off between contractions (similar time-frame to entonox). It crosses the placenta, but does not accumulate in the neonate. Its use in labour is widespread but unlicensed. Remifentanil PCA has been agreed by the Trust Drugs and Therapeutics Committee for use in labour only.

Indications

There are very few women for whom remifentanil PCA is indicated. These women will usually have been identified antenatally and assessed by a Consultant Obstetric Anaesthetist. Remifentanil PCA may be considered for analgesia in labour when epidural analgesia is contraindicated, and pethidine is unsuitable. Use of remifentanil PCA should be agreed by the Consultant Anaesthetist on call for labour ward unless pre-arranged. Examples of times when it may be appropriate include;

- coagulopathy, thrombocytopenia or full anticoagulation or
- metalwork in the lumbar spine or
- sepsis

...together with one of the following;

- high expected total dose of pethidine (eg primigravida, induction, large baby) or
- pethidine particularly undesirable for its neonatal effects (eg IUGR or prematurity)

...or

- previous experience of pethidine perceived as unpleasant or ineffective

Contraindications

- Allergy to remifentanil (would be most unusual)
- No midwife to ‘special’ the patient

When patient arrives in labour ward

Inform the anaesthetist on call for labour ward, who will;

- Confirm with the coordinator whether there is a midwife available to ‘special’ patient. Inform the Consultant Anaesthetist on call.
- Assess whether patient may want remifentanil PCA later.
- If patient is not yet in established labour and requesting analgesia, but is expected to be many hours before delivery, then consider a small dose of pethidine first eg 25-50mg. This is because it is difficult to anticipate the next contraction and press the button early enough when the pains are irregular, and it requires intense concentration with no possibility of sleep. After many hours of this the woman may find herself unable to concentrate at the time when she really needs to do so, ie in advanced labour. A small dose of pethidine may allow her to get some rest before she is established in labour.
- Obtain a Graseby Omnifuse PCA machine from Labour Ward (LW) or gynae theatres.
- When the remifentanil is needed, the anaesthetist will obtain a 2mg ampoule from the LW controlled drugs cupboard. The anaesthetist will mix 2mg to a volume of 40ml in saline, and label it appropriately (countersigned by another trained
member of staff). This gives a concentration of 50 micrograms / ml, with a shelf life of 24 hours. One 2mg syringe is likely to last 2 – 12 hrs according to usage.

- Contact pharmacy to arrange a further supply of remifentanil syringes, with plenty of time to spare to avoid running out.
  - Mon – Fri 9am-5pm bleep obstetric pharmacist (2268)
  - Mon – Fri 5pm - 9am, or Sat / Sun phone resident pharmacist (88364)

- Anaesthetist will set up pump as follows;
  - The remifentanil programme is found below the other drugs, separated by 5 blank spaces to avoid ward staff from accidentally accessing the remifentanil programme. Scroll down the list of drugs and you will find it after 5 rows of dots.
  - Concentration 50 microg / ml (not mg / ml!) – it appears as ‘µg/ml’ on pump display
  - PCA Bolus Dose 20mcg (= 0.4ml) – appears as ‘µg’ on display. This is the only adjustable parameter.
  - PCA dose time – stat
  - Lockout Period – 2 minutes (written as ‘00:02 hh: mm’)

There is no background infusion.

- Site a dedicated cannula as proximally as possible on the arm to reduce arm-brain circulation time. If there is a vein above the elbow, then use it. No flush or fluid line is used.

- If patient is excessively drowsy between contractions, or oxygen saturation falls below 93%, or respiratory rate falls below 10/min accompanied by sedation, give facial oxygen, tell patient to take a deep breath, remove push button from patient, and call anaesthetist to decrease bolus dose size. Any respiratory depression would only last a minute or two, therefore naloxone is not appropriate.

- If analgesia is inadequate, check that patient is pressing button as early as possible in the contraction, then increase bolus dose to 30 mcg (0.6ml), and then 40 mcg (0.8ml) if needed, at 10-minute intervals. The maximum recommended bolus size is 0.5mcg/kg (estimate lean body mass if obese). Lockout remains at 2 mins. The dose may need to be increased as labour progresses. When fully dilated and pushing, patient’s requirements will usually be less, so if she is very drowsy between contractions or finding it difficult to cooperate, call anaesthetist to reduce bolus size.

- Inadequate analgesia, followed by drowsiness between contractions, suggests either that the patient is pressing the button too late, or that the cannula needs to be re-sited more proximally. If this is still problematic, it may rarely be necessary to deliver the drug through an antecubital long line, to ensure more central delivery of the drug.

- Continue PCA up to and during delivery if required, then dispose of it by emptying syringe into sharps bin, (not down sink) and recording amount wasted in controlled drugs book.

Like any opioid (eg pethidine), remifentanil can cause respiratory depression and drowsiness, although fortunately, if these effects occur they will only be transient (1-2 minutes).

Use of this drug requires

- constant presence of the midwife in the room
- observation of conscious level (just after each contraction)
- recording of the respiratory rate every 15 minutes (just after a contraction)
- continuous CTG monitoring and
- continuous pulse oximetry (recorded every 15 minutes)
- use of the special remifentanil PCA observations sheet
- hourly recording of the number of presses, and the number of doses received
Although significant neonatal depression is unlikely, (and will be transient if it does occur), please inform paediatrician and ask to attend if baby is compromised at delivery. Explain that remifentanil is an ultra-short acting opioid, which may have short-lived pethidine-like effects. Naloxone is most unlikely to be required.

In the event that the anaesthetist for labour ward is busy with other patients, please contact ED1 or Consultant on call.

References:

(NB meperidine is another name for pethidine)