University Hospital Southampton NHS
NHS Foundation Trust

Remifentanil Patient Controlled Analgesia for Labour

Version: 3.0
Issued: 3rd July 2015
Review date: 31st July 2018
Author: Lisa Relton - Senior Midwifery Practitioner
Richard Isaacs - Consultant Anaesthetist

The procedural aspects of this guideline can be found in the document entitled:-

Remifentanil Patient Controlled Analgesia for Labour Guideline Proforma

Contents

Executive Summary

This guideline is to facilitate safe practice in the use of remifentanil PCA for analgesia in labour.

1. Introduction

1.1 Remifentanil has been identified as a safe and effective option of analgesia for use in the intra-partum period. Acting within 1-2 minutes and suited to patient controlled administration (PCA), this offers another analgesia choice for women in labour. It has been shown to have provided higher patient satisfaction compared with pethidine with a comparable degree of adverse events (Shnabel, A. 2012)

1.2 Definitions

PCA - patient controlled analgesia

1.3 Related Trust Documents

None

2.0 Indications for Remifentanil PCA

2.1 Remifentanil PCA is an alternative form of analgesia for use in labour. It is a controlled drug and usage should comply with the requirements stated in Appendix H (Controlled Drugs-procedures and guidelines for good practice) of the Trust's Medicines- prescribing, acquisition, storage and administration policy.

2.2 Remifentanil is currently not licensed for use via PCA and must be prescribed by an anaesthetist prior to setting up.

3.0 Criteria for use

3.1 In general, any woman being offered remifentanil PCA should be more than 36 weeks' gestation and be in established labour.

3.2 If remifentanil is being considered for use at a gestation of less than 36 weeks a senior obstetrician must document in the clinical notes the reason for requesting remifentanil in that case.

3.3 Entonox may be used in addition to remifentanil.

3.4 SpO_2 monitoring must be established before the woman starts using the PCA and must be monitored continuously while the remifentanil PCA is being used.

3.5 Remifentanil observations must be completed on the MEOWS chart and the PCA chart while the PCA is in situ. This should include respiratory rate, pain score, oxygen saturation and sedation score.

3.6 A midwife, who has undergone local training in the use of remifentanil, must be assigned to give one to one care. The patient should under no circumstances have access to the PCA if the midwife is not present.

4.0 Absolute Contraindications for Remifentanil PCA

- Allergy to opioid drugs
- Other opioid administration within preceding four hours (primarily morphine (Oromorph) and pethidine)
  [Oral dihydrocodeine/ DF118 would not be a contra-indication).
  If they have had an epidural which has failed, subsequent use of remifentanil would need to be discussed with a senior anaesthetist due to the infusion of fentanyl].
- Intrauterine death - due to presumed potential pharmacodynamic changes in the woman; a morphine PCA would be the alternative drug of choice.

4.1 Relative Contraindications for Remifentanil PCA

- Any condition when an epidural is advantageous for medical/obstetric reasons, including but not limited to: pre-eclampsia, multiple pregnancy, cardiac or pulmonary pathology. In these circumstances decision to commence remifentanil PCA should be discussed as tripartite agreement with the anaesthetic team, obstetric team and midwifery staff.

5.0 Patient Preparation

- The patient should be issued with, and have read the remifentanil PCA patient information leaflet and had the opportunity to ask questions.

- The patient should be informed of the possible side-effects including drowsiness, itching, nausea and dizziness (see BNF for complete list).

- In particular the woman should be informed that at least one woman in ten using remifentanil PCA will experience transient lowered oxygen saturation levels requiring the administration of additional oxygen via nasal specs.

- A dedicated intravenous cannula (20g Pink) is required.

- Any other intravenous cannulae on the same arm should have an anti-reflux valve and any infusions delivered via a volumetric pump.

- The patient should be shown how to use the PCA and should be told to press the button just before or at the start of a contraction

- A pulse oximeter (oxygen saturation) probe must be attached before the PCA is started.

- Alarms for the pulse oximeter should be checked and set to function if SpO2 falls below 95%

5.1 Equipment required

- 50 ml bag 0.9% sodium chloride w/v
- 50ml BD plastipak syringe (luer lock)
- 2 mg ampoule of remifentanil (checked by two health professionals from the following list: registered midwives, anaesthetist or operating dept practitioner)
- **Dedicated remifentanil PCAM pump set to deliver 1ml (40 microgram) bolus over 15 seconds with a 2 min lockout**
- anti-syphon extension set
- dedicated pink (20G) IV cannula
- nasal O_2 cannula 'specs'
- Naloxone 400 micrograms

5.2 Syringe preparation

1. Remifentanil solution to be reconstituted as per attached schedule by an appropriately trained anaesthetist /midwife.

2. Mix 2mgs remifentanil with 50mls 0.9% sodium chloride w/v to make solution of 40microgram/ml remifentanil.
   *N.B.Remifentanil is stable for 24 hours at room temperature after reconstitution.

6.0 Observations

- Remifentanil PCA observations on Remifentanil PCA obs chart to be completed for all women using Remifentanil. (See appendix 1) This is in addition to observations recorded on the MEOWS chart (See section 3.5)
- This must include **every 30 mins** to **document time, pain score, sedation score, respiratory rate** and **SpO2.**
- Continuous SpO_2 monitoring must be established prior to starting PCA and recorded on observation sheet
- Commence O_2 via nasal specs if SpO_2 below 95%
- CTG monitoring is not required unless otherwise indicated as per 'Electronic Fetal Heart Rate Monitoring & Fetal Blood Sampling in Labour' Guideline

NOTE**:** Sedation score is recorded on a modified AVPU scale

- **Alert** Or slightly Drowsy
- **Voice**: Eyes closed but responds to Voice
- **Pain /Unresponsive**: Eyes closed but rousable by physical stimulus/ Pain/ Unresponsive

6.1 Indications for contacting the anaesthetist (bleep 2410) and withholding (i.e. stopping) remifentanil PCA until reviewed

- A sedation score where there is no response to voice, response only to pain/ physical stimulus or patient unresponsive
- Respiratory rate of less than 8 breaths per minute
- SpO_2 remaining below 90% despite oxygen via nasal specs (max 2l/min)
- Stopping of PCA for over 30 minutes and request to recommence it

6.2 Points of safety

- Always use a dedicated cannula. (Do not use Y connectors)
- Do not give any other drugs via the PCA cannula
- Only the patient is to use the PCA button
- The PCA button is not to be pressed by midwifery staff or the patient's relatives
- The PCA can be used during delivery and for the repair of tears and episiotomies. (Postnatal use is only as a continuation of a labour remifentanil PCA. If commencement is just for perineal repair then this needs to be assessed on a case by case basis by the consultant anaesthetist)
- The remifentanil syringe should not be connected to the patient unless it remains fully engaged in the syringe driver/ pump
- Remove cannula on completion of the PCA
- Unless required for alternative risk factors a CTG is not required.

6.3 Apnoea

- If there is a period of apnoea lasting > 10 seconds or respiratory rate < 8 then the patient should be verbally encouraged to breathe and the remifentanil bolus control removed from the patient.

- If there is still no respiratory response despite strong verbal encouragement (e.g. by 20 seconds) help should be sought (pull emergency buzzer). The patient should be laid flat in full left lateral position and 100% oxygen administered (via a self-inflating bag, valve, facemask until return of spontaneous respiration or by hudson mask if making respiratory effort) until the arrival of the emergency team (including anaesthetist) to determine optimum airway management.

- If there is thought to be the need for verbal encouragement for the patient to breathe on 2 or more occasions then the remifentanil PCA must be withheld until the patient has been reviewed by the Anaesthetic team with consideration of alternative pain relief options.

- **SpO2 91-95%** Commence 2l O2 via nasal specs

- **SpO2 below 90%** (despite O2) STOP PCA, Call for help, left lateral position and 15l O2 (via non rebreathe mask when available)

- **Respiratory rate below 8 or apnoea for greater than 10 seconds** STOP PCA, verbally encourage to breathe, Call for help, left lateral position and 15l O2 (via non rebreathe mask when available)

7.0 Other care issues

Eating. It is not recommended to eat whilst using the remifentanil PCA though the woman can drink clear fluids. Consider use of ranitidine if the woman is likely to be on remifentanil for more than 4 hours.

Mobility. Women should be risk assessed as to whether it is appropriate for them to mobilise, turn on all fours etc. Consider waiting for at least 30 minutes of using remifentanil or if adding entonox, to allow a period of adjustment, before making any such risk assessment.

8.0 Completion of use of remifentanil PCA

On completion of the PCA it is the responsibility of the midwife to dispose of any remaining drug in the syringe as per controlled drug policy (UHS).

- The pink (20g) i.v. cannula should be removed and not flushed.

- Please complete the audit (service evaluation) form.

9.0 References

Kan RE,Hughes SC,RosenMA et al. Intravenous remifentanil: placental transfer, maternal and neonatal effects. Anesthesiology. 1998 jun;88(6):1467-74

Blair JM,Hill DA,Fee JP.Patient-controlled analgesia for labour using remifentanil: a feasibility study.Br J Anaesth. 2001 Sep;87(3):415-20

Bonner JC, McClymont W. Respiratory arrest in an obstetric patient using remifentanil patient-controlled analgesia. Anaesthesia 2012; 67: 538–40.

Hodnett ED.Pain and women's satisfaction with the experience of childbirth: a systematic review. Am J Obstet Gynecol. 2002 May;186(5 Suppl Nature):S160-72. Review

Evron S,Glezerman M, Sadan O,Boaz M, Ezri T.Remifentanil: a novel systemic analgesic for labor pain. Anesth Analg. 2005 Jan;100(1):233-8

Kinney MA, Rose CH, Traynor KD, *et al.* Emergency bedside cesarean delivery: lessons learned in teamwork and patient safety. BMC Research Notes 2012; 5: 412.

Laird R, Hughes D, Hill D. Audit of remifentanil patient– controlled analgesia for labour.Abstracts of free papers presented at the annual meeting of the Obstetric Anaesthetists Association,Sheffield, 7-8 June, 2007. International Journal of Obstetric Anesthesia 2007 (Vol.16, S43)

Marr R*,* Hyams J*,* Bythell V*.* Cardiac arrest in an obstetric patient using remifentanil patient-controlled analgesia*.* Anaesthesia 2013*;* doi: 10.1111/anae.12099

Pruefer C*,* Bewlay A*.* Respiratory arrest with remifentanil patient-controlled analgesia – another case*.* Anaesthesia 2012*;* 67*:* 1044–5*.*

Shnabel, A, Hahn, N., Broschett, J., et al Remifentanil for labour analgesia: a meta- analysis of randomised controlled trials. *Eu J Anaesthesiol* 2012, 29: 177-185

Waring J,Mahboobi SK,Tyagaraj K et al.Use of remifentanil for labor analgesia: the good and the bad. Anesth Analg. 2007 June; 104(6): 1616-17

Appendices

Appendix 1 - Observation chart for PCA Remifentanil

Clinical Guidance

PCA Chart for Remifentanil PCA in labour

Patient Addressograph:

Date commenced: _____ Anaesthetist: _____

Protocol Summary: Remifentanil 2mgs in 50mls 0.9% sodium chloride w/v

PCAM Pump settings: Remifentanil 40micrograms in 1ml. 1ml bolus with 2 minute lockout.

PCAM Asset number: (found on blue strip) _____

Troubleshooting: Contact Labour Ward anaesthetist (bleep 2410) and labour ward coordinator /shift leader

Any parenteral opioids given in previous 4 hours? Y N (circle) Details _____

<u>Observations</u>:

Continuous SpO2 monitoring BASELINE SPO2 _____

½ hourly : Record Pain/sedation scores, Respirations, SpO2 (including amount of Oxygen if required), cannula site and nausea and vomiting

Pump observations:

½ hourly: Record Volume remaining/ total infused

Clinical Guidance

PCA Date

Patient Name
Date of Birth
Hospital Number

Time																							
SpO2																							
Air/ Entonox/ O_2 2l/min																							
Resp Rate																							
Pain score																							
Sedation score																							
Nausea (Y / N)																							
Pump Total Infused																							
Volume remaining																							

Any of: **Respiratory rate of 8 or below**
SpO2 of 90%or less
Unresponsive or only responding to pain

then: **STOP infusion and**
Give supplementary O2 and
Inform anaesthetist

Pain Score:

0	**no pain during height of contraction**
1	**mild pain**
2	**significant pain**
3	**severe pain**

Sedation Score

A	**Alert or slightly drowsy**
V	**Voice responds to voice**
P/U	**Responds to painful stimuli or unresponsive**

Other opioids only to be given on advice of anaesthetic staff