University College London Hospitals NHS
NHS Foundation Trust

Patient and Nurse Controlled

Analgesia Policy

The Pain Management Department, UCLH

Contents

INTRODUCTION

This policy covers the care and maintenance of patient controlled analgesia (PCA) and nurse controlled analgesia (NCA) systems within University College London Hospitals (UCLH). This policy is applicable to adults and children.

This policy only applies to wards that have received training in caring for patients receiving PCA/NCA.

PCA is an effective and efficient manner of providing analgesia to hospitalised patients. PCA is a technique that delivers small amounts of opioids intravenously or subcutaneously. It is controlled by the patient only and is delivered by a specified pump.

Nurse controlled analgesia is a PCA where one nurse per shift is solely responsible for pressing the button and delivering the drug. This is mainly applicable to the paediatric wards Carousel, Galaxy, Adolescent Unit and Teenage Cancer Trust Unit, and for adults after prior consultation with the Acute Pain Team (APT).

AIMS

The patients will have a pain score of one or less within four hours of surgery (see appendix).

The patients will have a nausea score of zero within four hours of surgery (see appendix).

The patients will be provided with appropriate information regarding their analgesia system preoperatively.

KEY WORDS

PCA	Patient Controlled Analgesia
UCLH	University College London Hospitals
CD	Controlled Drug
NSAID	Non-Steroidal Anti-Inflammatory Drug
APT	Acute Pain Team
NCA	Nurse Controlled Analgesia
NHNN	The National Hospital for Neurology and Neurosurgery
THH	The Heart Hospital
EGA	Elizabeth Garrett Anderson Hospital

SUPPORT MECHANISMS

Through implementing this policy the nurse will be required to inform the APT during the day and the on-call anaesthetist at night. The numbers listed below are for the various sites. Please contact the acute pain team during the day or the night sister or night co-ordinator prior to contacting the on-call anaesthetist.

University College Hospital
Acute Pain Team bleep 2257
Anaesthetist bleep 4300

The Middlesex Hospital
Acute Pain Team bleep 2257
Anaesthetist bleep 6242

The National Hospital for Neurology and Neurosurgery
Acute Pain Team bleep 813
Anaesthetist bleep 713

Elizabeth Garrett Anderson Hospital
Acute Pain Team bleep 2257
Anaesthetist bleep 4300

The Heart Hospital
Acute Pain Team air-call MX240
Anaesthetist bleep 2100/2285

Private Patients
Acute Pain Team may be called for advice.

Acute Pain ward rounds will occur at the Middlesex Hospital, THH and UCH sites on a daily basis. They are performed by the Acute Pain Team on weekdays and in the evenings, and weekends by the anaesthetist on call.

PATIENT EXCLUSION CRITERIA

Patients with the following will not be suitable candidates for PCA use and an alternative analgesia must be prescribed (contact APT if in doubt).

- Known drug allergies
- Pregnancy
- Breast feeding
- History of IV drug abuse
- Patients with rheumatoid arthritis or any disability of their hands that prevents the effective use of the device
- Patients who are unable to understand how to use the device

ADMINISTRATION OF POLICY

Criteria

1. All Graseby PCA pumps are stored in the recovery of main theatre at the UCLH site, theatres at THH site and the recovery area at NHNN. Vygon disposable PCA's are kept only in following areas: recovery at The Middlesex site, recovery of A&E at the UCH site, recovery at the EGA site, HDU and 4th Floor at The Heart Hospital.

2. A record of the pump numbers and the ward where the pumps are sent will be kept in recovery/theatre.

3. All wards must have a key for PCA pumps and it must be kept with the ward/unit controlled drug (CD) keys.

4. All patients must have their observations recorded on a patient observation chart at the sites where these are available (see below). Continuation sheets can be ordered from the stationary stock list and must be used for the duration of the analgesia system

   4.1 At the NHNN site all PCA observations must be recorded on the standard observation charts in the section dedicated for PCA observations.

   4.2 All PCA observations are commenced in the recovery/theatre areas and must be continued to be recorded on the appropriate charts for the duration of the PCA.

5. Patients receiving PCA or NCA are to be cared for by registered nurses who have completed the Distance Learning Package for PCA Care and the Intravenous Therapy Administration Learning Package and assessed as competent.
   This includes agency and bank nurses.

6. All wards that accept patients with analgesia systems must have an Acute Pain Link Nurse.

7. There must be an acute pain resource folder available on the ward, which will be provided and updated by APT.

Process criteria

1. Pumps will be programmed in recovery by the designated recovery nurses, APT or anaesthetist. The settings must be checked by 2 people. Should re-programming be necessary only the above people may do it.

2. The drug used will be morphine sulphate and only if the patient has an adverse reaction to morphine or poor renal function should fentanyl be used. See page 9 for prescribing guidelines.

3. All patients must receive oxygen for the duration of the PCA/NCA unless otherwise documented by the anaesthetist. All oxygen must be prescribed.

4. Respiratory rate, blood pressure, heart rate to be performed and recorded 1/4 hourly for first hour, 1/2 hourly for the next 4 hours. Thereafter, observations should be performed according to patient's clinical need apart from the respiratory rate, which should be monitored and recorded hourly until 6 am of the morning following surgery.

    4.1 At NHNN the respiratory rate should be recorded hourly until PCA is discontinued.

5. If patients sedation score is 2 or 3, turn off machine and inform (see support mechanisms).

6. If patients respiratory rate < 10 inform (see support mechanisms).

7. If patients respiratory rate < 8 turn off machine and inform (see support mechanisms).

8. If patients respiratory rate < 6 turn off machine, prepare naloxone and inform (see support mechanisms).

9. Naloxone should be administered in small titrated doses e.g. 100 mcg, wait 1 minute then administer further 100mcg up to a maximum of 400mcg. If given too quickly naloxone will distress patient as it reverses not only respiratory depression but also analgesics effects. Naloxone has a short half-life 40 minutes to an hour – may require further administration after this time lapse depending on clinical need.

10. The amount of demands, good demands and total amount of drug given must be recorded concurrently with the clinical observations.

11. Patients nausea score must be recorded with every observation. For a nausea score above 1 an antiemetic must be given using the PONV flow chart (see page 14)

    11.1 All adult patients in receipt of a PCA will have a white sticker attached to the PRN side of the prescription chart prescribing a selection of anti-emetics to be used in accordance with PONV guidelines.

11.2 PONV stickers are not available at NHNN site; see NHNN Acute Pain Management Guidelines for management of nausea and vomiting.

12. A pain score must be recorded with every observation. If the pain score is greater than 1 inform (see support mechanisms).

13. Patients receiving subcutaneous (SC) PCA must have delivery via 23g Y cannula (not butterfly). Anti-syphon tubing must be used.

13.1 All patients at NHNN will have PCA via SC route.

14. The delivery site must be checked as per the Marsden manual.

15. No other opioid to be given whilst the patient is receiving PCA or NCA, this includes drugs such as Co-proxamol.

16. All PCA/NCA will be prescribed on the appropriate green sticker. The green PCA sticker must be stuck onto the regular side of the drug chart, completed, signed and dated by the prescriber.

16.1 Paediatric PCA/NCA will be prescribed on a variable dose green PCA sticker and stuck onto the regular side of the drug chart.

16.2 At the NHNN site the green sticker will be placed on the PRN section of the drug chart.

17. The drug must be checked with 2 nurses as per UCLH policy.

18. The anti-syphon giving set must be used on both IV and SC PCA's and changed every 48 hours as per the trust policy. When IV fluids are required with IV PCA, it is essential to use an anti-reflux valve. Use of three-way tap is not permitted.

19. The syringe and pump settings must be checked against the prescription by the nurse caring for the patient, on return from theatre and at least once per each shift.

20. Only one nurse per shift is to be responsible for pressing the button if the patient is receiving NCA.

21. If the patient is moved to another ward the Acute Pain Team must be informed, as per the support mechanisms.

22. If the patient is cared for in a single room the door must remain open at all times until PCA is discontinued.

PRESCRIPTION GUIDELINES

Adult

Morphine sulphate is the drug of choice. If the patient has an adverse reaction to morphine or renal failure, fentanyl can be used as per the protocol.

Route	Drug	Machine	Standard Prescription
IV	Morphine	Graseby	50 mg in 50 ml of sodium chloride 0.9% Concentration - 1 mg/ml Lockout - 5 mins Bolus - 1 mg Dose duration - Stat
IV	Morphine	Vygon	100 mg in 50 ml of sodium chloride 0.9% Concentration - 2 mg/ml Lockout - 5 mins Bolus - 1 mg (fixed) Dose duration - Stat
IV	Fentanyl	Graseby	1000 mcg made up to 50 ml with sodium chloride 0.9% Concentration - 20 mcg/ml Lockout - 5 mins Bolus - 20 mcg Dose duration - Stat
SC	Morphine	Graseby	100 mg in 50 ml of sodium chloride 0.9% Concentration - 2 mg/ml Lockout - 10 mins Bolus - 2 mg Dose duration - 1 min

** PCA with a continuous background infusion is only supported by the APT for patients under 50 kg on the paediatric wards and for more complex pain patients.*

** More complex pain patients i.e. those already requiring opioids pre-operatively will require additional amounts of opioids and therefore will deviate from standard prescriptions. Please contact APT for advice.*

PRESCRIPTION GUIDELINES

Paediatric

Morphine sulphate is the drug of choice. If the patient has an adverse reaction to morphine, pethidine can be used as per the protocol.

Patient Controlled Analgesia

Over 50 kg - Standard adult prescription

Under 50 kg

The body weight of the child in mg of morphine should be diluted to 50 ml with glucose 5%
i.e. for a 35 kg child use 35 mg of morphine.
This gives a concentration of 20 micrograms/kg/ml.

Route	Drug	Machine	Prescription
IV	Morphine	Graseby	Bolus: 10 - 20 micrograms/kg (= 0.5 - 1 ml) Lockout: 5 mins * Continuous infusion: 2 - 8 micrograms/kg/hr (= 0.1 - 0.4 ml/hr)

The body weight of the child in mg x10 of pethidine should be diluted to 50 ml with glucose 5%
i.e. for a 35 kg child use 350 mg of pethidine.
This gives a concentration of 200 micrograms/kg/ml

Route	Drug	Machine	Prescription
IV	Pethidine	Graseby	Bolus: 100 - 200 micrograms/kg (= 0.5 - 1 ml) Lockout: 5 mins * Continuous infusion: 20 - 80 micrograms/kg/hr (= 0.1 - 0.4 ml/hr)

Paediatric (continued)

Nurse Controlled Analgesia

Nurse controlled analgesia incorporates the equipment and principle of PCA but puts the control in the hands of the nurse. The patient is protected from over administration by careful observations and a long lockout interval.

Over 50 kg - Standard adult prescription

Under 50 kg

The body weight of the child in mg of morphine should be diluted to 50 ml with glucose 5% i.e. for a 35 kg child use 35 mg of morphine.
This gives a concentration of 20 micrograms/kg/ml.

Route	Drug	Machine	Prescription
IV	Morphine	Graseby	Bolus: 10 - 20 micrograms/kg (= 0.5 - 1 ml) Lockout: 30 - 60 mins * Continuous infusion: 10 - 20 micrograms/kg/hr (= 0.5 - 1 ml/hr)

The body weight of the child in mg x10 of pethidine should be diluted to 50 ml with glucose 5% i.e. for a 35 kg child use 350 mg of pethidine.
This gives a concentration of 200 micrograms/kg/ml

Route	Drug	Machine	Prescription
IV	Pethidine	Graseby	Bolus: 100 - 200 micrograms/kg (= 0.5 - 1 ml) Lockout: 30 - 60 mins * Continuous infusion: 100 - 200 micrograms/kg/hr (= 0.5 - 1 ml/hr)

These settings apply to Graseby PCA machines only.

** PCA with continuous background infusions for paediatric patients are used at the discretion of the Anaesthetist.*

Alarms

1. The Graseby 3300 PCA pump has three different alarm sound types:

    - Loud continuous
    - Quiet “chirping”
    - Loud “pulsed”

2. The cause of the alarm should be noted and the alarm cleared by pressing the alarm key. With some alarms other actions will be necessary, as detailed on the screen.

3. Do not attempt to use the pump if a fault code occurs. Make a note of the fault code number, switch off the pump and send it to Medical Physics.

4. Always connect the PCA pump to the AC (mains) power. The batteries will be fully charged if the pump has been connected to mains (AC) power for at least 14 hours. When fully charged, the batteries will power the pump for approximately 8 hours.

5. Protect the 3300 pump from strong magnetic and electronic fields such as hospital x-ray machines, magnetic scanners and use of mobile phones.

APPENDIX 1

PAIN SCORE at R (rest) and M (movement)

4 – Worst possible pain

3 – Severe pain

2 – Moderate pain

1 – Mild pain

0 – No pain

LEVEL OF SEDATION

3 – Asleep (unrousable)

2 – Asleep (rousable)

1 – Drowsy

0 – Awake

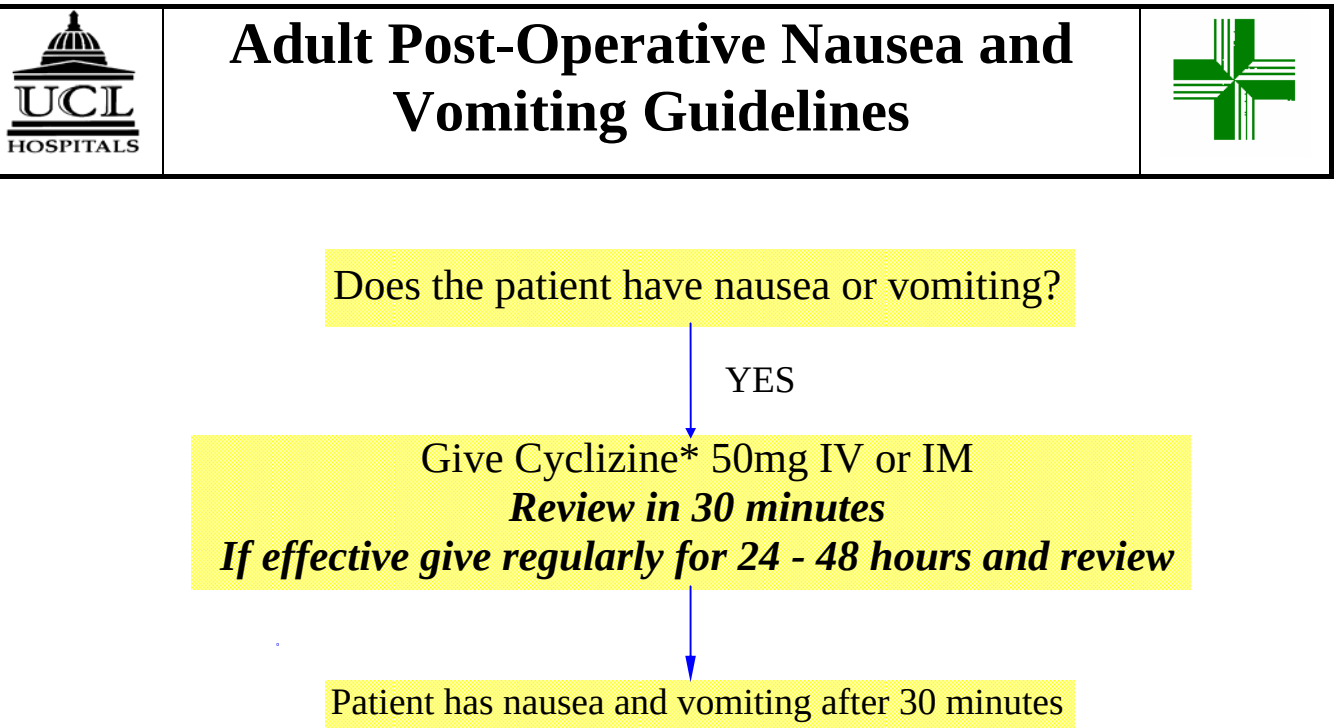
NAUSEA SCORE

2 – Vomiting

1 – Nausea

0 – None

Adult Post-Operative Nausea and Vomiting Guidelines



* unless contraindicated