Enhanced Recovery After Surgery (ERAS)
Fractured Neck of Femur Perioperative Anaesthesia Protocol

Contents

1. Scope

This clinical pathway outlines the standard care for acute fractured neck of femur surgery

2. Preoperative Management

2.1 In Emergency Department

- ED best care bundle for traumatic hip pain adult (suspected fracture neck of femur) is designed specifically to Prepare the patient well and prevent any potential delays in surgery. The bundle can be accessed via the link below: Traumatic Hip Pain Adult (suspected fracture neck of femur) BCB Pathway

2.2 Fluid management:

- All patients to have ECG, FBC, U&Es, ferritin and blood group and hold. Coagulation screen, troponin, liver function, thyroid function dependent on history and examination.
- Preoperative echocardiography should not delay surgical management unless in exceptional circumstances where it will make an important difference to outcome.
- Normal diet allowed until six hours before anaesthesia.
- Clear oral fluids allowed until two hours before anaesthesia. All patients should *where possible* have an 18-gauge IV catheter in situ and fluids charted when fasting. (Greater than 40% of patients undergoing surgical treatment of fractured neck of femur will need blood transfusion).
- Normothermia should be maintained at all times. Consideration should be given to active warming preoperatively in ward or preoperative holding area to maintain a core temperature > 36 degrees.
- If surgery is delayed for medical optimisation, a referral should be made via the Anaesthetic co-ordinator or On-call Anaesthetist for placement of a femoral nerve catheter.

3. Intraoperative Management

3.1 Analgesia

- Consider repeat femoral nerve block or fascia iliaca block pre-turning for regional anaesthesia. This may avoid the need for longer acting sedatives or ketamine. Haemodynamic effects seem to be less with the lateral position versus sitting.

3.2 Spinal Anaesthetic

- Fluid preloading is not required unless considered hypovolemic
- Single shot spinal anaesthetic
- Bupivacaine plain or heavy 0.5% (1.0- 1.5ml). Plain bupivacaine may limit pain and minimise turning after block inserted. If patients have adequate pain relief with fascia iliaca block, heavy bupivacaine may also be appropriate at similar doses.
- Intrathecal morphine may be considered in appropriately well and uncomplicated patients. (For patients aged under 85 years use 100mcg intrathecal morphine; for patients aged over 85 years use 50mcg intrathecal morphine)
- Sedation if necessary, Propofol target controlled infusions (TCI) (0.5-2.0 microgram/ml – targeted to lowest level possible)

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- O2 via nasal prongs at 2-4 Litres per minute
- Ear phones with music of choice if tolerated or cognitively appropriate

3.3 General Anaesthetic

- General anaesthesia to be individualised. Consider use of Bispectral Index or Entropy to prevent excessive levels of anaesthesia.

3.4 Medications

- Prophylactic metaraminol or phenylephrine should be considered early to optimise blood pressure and minimise fluid administration to manage spinal anaesthesia induced hypotension
- Antibiotics post insertion of spinal
  - Patients < 50kg = Cephazolin 1 g
  - Patients 50-120kg = Cephazolin 2 g
  - Patients > 120kg = Cephazolin 3 g
  - Dose may be repeated if surgery > 3 hours
- Tranexamic acid 1g (or as specified by surgeon) IV over 10-20 minutes (1g in renally impaired patients; i.e. eGFR<60ml/min/1.73m²).
- Dexamethasone 0.1mg per kilogram IV.
- Consider Iron infusion as per WDHB policy on intranet. Typical dose: Ferinject® (ferric carboxymaltose) 1000mg in 250ml 0.9% sodium chloride over 15 mins, as per Ferinject® protocol.

3.5 Active warming:

- Core temperature target greater than 36°C by upper body warming and warm infusions. Consider use of active warming in pre and postoperative phases- including ward use.

3.6 Antiemetics:

- Follow the Fractured Neck of Femur Post-Operative Nausea and Vomiting Protocol
  - Ondansetron 4mg 6 hourly orally (dispersible tablet) or IV PRN
  - Cyclizine 12.5mg-25mg IV 6 hrly PRN
  - Dexamethasone 4mg IV 12 hourly PRN
  - Droperidol 0.625mg IV 12 hourly PRN

4. Perioperative

4.1 Intraoperative Fluid management:

- Plasmalyte-148 (PL148) 10 ml/kg and Gelofusine (6-7 ml/kg)
- Red Blood Cells as per protocol
  - If Hb is less than 80g/L, order 2 units of Red Blood Cells.
    - Administer first unit over a rate clinically indicated then recheck Hb
    - If repeat Hb is less than 80g/L, administer a second unit over a time clinically appropriate.
  - If Hb is between 81-99g/L, then repeat Hb in 30 minutes
  - If Hb is greater than 100g/L then no further action
  - Hb needs to be rechecked in PACU

4.2 PACU Discharge Criteria

- All patients have Hb checked in PACU 1 within 15 minutes of arrival.
  - If Hb is less than 80g/L order 2 units of Red Blood Cells
    - Administer first unit over 60 minutes then recheck Hb and discuss with anaesthetist
    - If repeat Hb is less than 80g/L, administer a second unit as charted
  - If Hb is between 81-99g/L, discuss with anaesthetist
  - If Hb is greater than 100g/L then no further action
- Hb needs to be rechecked at 0800 post-operative Day 1 or as per post-operative instructions.
- If PACU stay greater than 2 hours due to any of the following, discuss with Orthopaedic Trauma Anaesthetist

- Hypothermia (<35.5 degrees C)
- Hypotension
- Desaturation
- Sedation
- Orthopaedic Trauma Anaesthetist should refer the patient to HDU and document a plan of care.

5. Postoperative

- A referral to the Acute Pain Service should be made if deemed necessary; the Acute Pain Service will only follow up on patients with a nerve catheter or PCA
- Urinary catheters should be removed as early as possible
- All medications normally taken to continue unless active decision to withhold due to adverse effects

5.1 Post-operative multimodal analgesia to be prescribed by patients anaesthetist on day of surgery in theatre

- Femoral nerve or Fascia Iliaca Block catheter may be considered.
  - Remove post-operative Day 2
  - If the motor block is limiting mobilisation, to be discussed with Acute Pain Service

- Analgesia protocol to be prescribed on Electronic MedChart
  - Regular Paracetamol 1g orally 6 hourly. If patient < 50kg 1g orally 8 hourly.
  - Oxynorm® (short acting oxycodone) 2.5 - 5mg orally 1 hourly PRN. (Max dose usually 20mg/24 hrs)
  - If unable to tolerate oral intake, Oxycodone IV protocol (0.5mg bolus)
    - May consider PCA or nurse controlled analgesia if appropriate, refer to Acute pain service if required.
  - NSAIDS. There is always a risk/benefit prescribing in the elderly. If normal eGFR on admission (>60ml/min/1.73 m²), NSAIDS can be considered. If eGFR lower, OR uncertain omit NSAID. Omit NSAID in those with significant cardiac risk.
    - Celecoxib 100mg orally BD (*patients with history of GI disease*)
      OR
      Naproxen orally 500mg PO 12 hourly **PLUS** omeprazole 20mg IV or orally daily
    - NSAIDS should be administered for a maximum of three days and then reviewed

5.2 Post-operative medication to be prescribed by patient's anaesthetist on day of surgery in theatre

- Oxygen at 2 litres per minute via nasal prongs preoperatively and for 3 days postoperatively when supine, or at night or if resting SpO2 below 94% on room air.

- **Post-operative nausea and vomiting protocol**
  - Ondansetron 4mg orally or IV 6 hourly PRN
  - Dexamethasone 4mg IV 12 hourly, PRN
  - Cyclizine 12.5mg-25mg IV 6 hourly PRN
  - Droperidol 0.625mg IV 12 hourly PRN

- **Constipation protocol**
  - Docusate and Senna 1-2 tablets, orally BD
  - Lactulose 10-20ml, orally BD

- **Agitation/Confusion**
  - Haloperidol 0.25-0.5mg, PO/SC/IM/IV PRN 12 hourly
  - Cease droperidol if haloperidol is commenced
  - Cease tramadol and cyclizine if patient delirious

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- **Postoperative anticoagulation**
  - Enoxaparin 40mg subcut at 20:00h daily, (OR 20mg if CrCL <30ml/min **or** weight <45kg).

- **Antibiotics**
  - Cephazolin 2 g IV 8 hourly for 3 doses. Reduce to 1g 8 hourly if less than 50kg

5.3 Post-operative investigations

- Day 1 FBC, U&Es, troponin
- Day 2 FBC, U&E, troponin
- Day 3 FBC, U&E and troponin if indicated