

GUIDELINE FOR THE ANAESTHETIC MANAGEMENT OF HIP FRACTURES IN THE FRAIL ELDERLY PATIENT

BACKGROUND

This guideline has been developed to minimise morbidity, provide adequate analgesia, promote early patient mobilisation (ideally postoperative day 1) and reduce length of stay. Consider applying the following elements to frail elderly neck of femur fracture patients if clinically appropriate.

NO DELAYS TO SURGERY ¹

Every effort should be made to ensure that surgery occurs within 36 hours as mortality increases by 25% for every 24 hour delay past 48 hour. Surgery beyond 48 hours more than doubles the risk of post-operative complications such as pneumonia, urinary tract infections, deep venous thrombosis and pulmonary embolism. Surgery should take place during 8am-8pm and should involve senior clinicians.

Surgery should only be delayed if there is a realistic goal to be achieved over 24 hours and the benefits of delaying outweigh the risks. **The reason for delay and the management plan for optimization should be clearly documented in the notes.**

Appropriate to consider delay:	Inappropriate to consider delay:
Active sepsis	Antiplatelet therapy
Correctable arrhythmia > 120/min	Awaiting echocardiography
Uncontrolled heart failure	Chest infection
Uncontrolled diabetes (with ketosis and dehydration)	Minor electrolyte abnormalities
Major electrolyte abnormalities <ul style="list-style-type: none"> • Na < 120 or > 150 mmol/L • K < 2.8 or > 6.0 mmol/L 	Lack of theatre space (escalate to surgical services manager)
Hb concentration < 8 g/dl (refer to Avoid Anaemia section for Hb target advice)	Unavailable surgical or anaesthetic expertise (escalate to surgical services manager)
Reversible coagulopathy (refer to Scottish Hip Fracture Audit Consensus statement ²)	

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ANAESTHESIA ³

Anaesthetic should be tailored to the individual patient:

- Anaesthetic type (GA vs spinal) does not appear to influence mortality or outcome.
- General anaesthesia in combination with spinal anaesthesia can cause profound hypotension in this patient group and should be avoided.
- **Peripheral nerve blocks should be considered in all patients** (GA and spinal) to reduce opioid requirement ¹.
- High dose intrathecal anaesthetic doses can cause hypotension (avoid giving > 2.5ml).
- **Intrathecal fentanyl is preferred to diamorphine** in the frail elderly (less respiratory and cognitive depression).
- Consider invasive arterial monitoring and Level 2 care post-operatively in high-risk patients.
- Caution should be exercised if cancelling a patient due to lack of a Level 2 bed – the risks of delays to surgery > 48 hours may be greater than the benefits.

POSTOPERATIVE ANALGESIA

Good analgesia is essential to reduce the risk of complications (e.g. delirium) and to allow early post-operative mobilisation.

- **Paracetamol** unless contraindicated (reduce the dose in < 50kg).
- NSAIDs should generally be avoided in this patient group.
- Oxycodone may cause fewer side effects than morphine.
- Consider regimen of **Oxycodone Hydrochloride Immediate Release solution (IR) 2mg eight hourly with 2mg as required for breakthrough (liquid formulation)**.
- This should be reviewed at 48 hours.
- Nerve blocks reduce pain, opioid consumption and should be offered to all patients unless a contraindication exists.
- Routine prescription of prophylactic laxatives (e.g. senna and / or lactulose).
- Consider prescribing supplemental oxygen for the first 24 hours (must include individualised target SpO₂ on the prescription).

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AVOID ANAEMIA

Anaemia is associated with cardiac complications and poor rehabilitation. Patients who are anaemic pre-operatively will require investigations (including haematinics) and transfusion as appropriate but this should not delay time to theatre.

- A transfusion trigger of 10 g/dl is suitable for most patients but this should be individualized.
- Meticulous intra-operative haemostasis should be encouraged.
- **Tranexamic acid** (15 mg/kg IV on induction) reduces blood loss and should be considered (reduce in renal impairment to 10 mg/kg).
- Enoxaparin should be withheld until at least 6 hours post-op and only be given then if there is no sign of wound bleeding.
- **Check FBC on postoperative day 1** in all patients.

AVOID DELIRIUM TRIGGERS

Delirium is associated with an increase in 30 day mortality from 5% to 20%, poor rehabilitation and prolonged length of stay. Hip fracture patients are at especially high risk of delirium (incidence may be as high as 50%). Early recognition and prompt treatment is essential.

Many risk factors for delirium are not amenable to modification but those that are include:

- **Avoid prolonged fasting.** Where afternoon surgery is anticipated, all patients should be given oral fluids and / or breakfast.
- **Hypoxia** and **hypotension** should be aggressively treated.
- A single episode of **severe pain** leads to a 9x increase risk of delirium.
- **Use of a peripheral nerve block** to allow positioning for spinal.
- Where spinal anaesthesia is used, **avoid deep intra-operative sedation.**
- **Avoid (or limit) known delirium triggers:**
 - **Sedatives** and **benzodiazepines** (unless for treatment of alcohol withdrawal).
 - **Drugs with anti-cholinergic properties**, e.g. cyclizine, atropine (use glycopyrolate where possible).

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AVOID POST-OPERATIVE HYPOTENSION

Post-operative hypotension is associated with a delay to first mobilisation (and the associated risks of delayed mobilisation) as well as the increased risk of post-operative events such as acute coronary syndrome, acute kidney injury, cerebrovascular accident and delirium.

The cause of post-operative hypotension is multifactorial and the approach must be tailored to the individual. Prolonged or severe hypotension (MAP > 20% of baseline) should be treated aggressively.

- Treat hypotension initially with increased IV fluids (take care to avoid EXCESSIVE IV fluids in this population).
- Consider the use of ephedrine (30mg IM) to prevent or treat post-operative hypotension.
- Actively seek out and treat post-operative anaemia.
 - Document pre-operative haemoglobin and intra-operative blood loss.
 - Consider point of care haemoglobin testing in recovery (e.g. Hemocue).
 - Consider peri-operative transfusion in those with a low or borderline pre-operative haemoglobin or significant blood loss.
- Consider other causes of hypotension.

The following are points to consider for all hip fracture patients:

- Setting an individualised MAP or SBP target for each patient.
- Writing guidance on when anti-hypertensives should be restarted post-operatively.

REFERENCES

1. Management of Proximal Femoral Fractures. AAGBI 2011.
2. Consensus Statement for Management of Anticoagulants and Antiplatelet drugs in Patients with Hip Fracture. NHS Scotland 2018.
3. CM O'Donnell et al. Perioperative outcomes in the context of mode of anaesthesia for patients undergoing hip fracture surgery: systematic review and meta-analysis. BJA (2018); 120(1):37-50

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