Hip Fracture Management
Clinical Guideline

Site | Department | Applicable to:
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Royal Perth Hospital | All Wards | Medical, Nursing, and Allied Health

Related Policy
RPH Nursing Practice Standard for Fractured Neck of Femur (#NOF) Patient Management

General Information/Preamble
The Royal Perth Hospital Hip Fracture Management Guideline aims to deliver evidence based clinical practice in the care of older patients with hip fractures. It is developed according to the most up-to-date evidence to achieve the best possible outcomes.

These guidelines are a joint and collaborative effort by the Ortho-geriatric Service, the Departments of Orthopaedic Surgery, Geriatric Medicine, Trauma, Emergency Medicine, Anaesthesia and Pain Medicine, and the Nursing and Allied Health Services.

Definitions

<table>
<thead>
<tr>
<th>Guideline</th>
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<tbody>
<tr>
<td>Guideline</td>
<td>A guideline aims to streamline particular processes according to a set routine or sound practice.</td>
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<tr>
<td>Acute Care</td>
<td>Admission to a designated Orthopaedic Ward (5G/5H/ State Major Trauma Unit (SMTU) where admission is initially under a joint care model between Department of Orthopaedics/Department of Geriatric Medicine via the Ortho-Geriatric Service</td>
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<td>Sub Acute Care</td>
<td>Care provided post-acute in a Geriatrician led multidisciplinary rehabilitation unit with access to Orthopaedic review on site when required.</td>
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Pre-Operative Assessment and Team Roles

• **Emergency Department**
  - ED physician diagnoses a neck of femur fracture.
  - Consider a trauma call – NB - under triage in the elderly remains a cause of morbidity and mortality.
  - The Fractured Neck of Femur (NOF) Collaborative Management Plan is commenced, including:
    - IV access and appropriate fluid resuscitation
    - Blood tests FBC, UEC, LFT, COAG, Ca, G&H, Vit D, Mg, BGL and Iron studies
    - X-rays of pelvis (AP) and hip views.
    - ECG, Chest X-ray ± CT Head (refer to Trauma Team if mechanism of injury suggests further assessment)
    - Urinary catheterisation
  - Analgesia
    - Femoral nerve block (FNB) / femoral nerve catheter (1st line) to be administered by the Emergency team or Anaesthetic Team (referral via regional/pain service)
    - Chart regular paracetamol and PRN oxycodone
  - Orthopaedic Team is notified of admission and after hours the Safety Afterhours for Everyone (SAFE) Clinical Lead contacted

• **Orthopaedic Surgery**
  - Optimal procedure and treatment course determined clinically by surgeons, and recommended to the patient / NOK. Informed consent obtained for the treatment course decided.
  - Book bed and theatre as required
  - Results of Pre-operative tests checked.
  - Refer patient to Anaesthetic and Orthogeriatric teams (or SAFE registrar outside office hours)
  - Chart regular medications, IV fluids
  - Review antiplatelet and anticoagulation therapy
  - Ensure patient’s pain is controlled.
  - Document planned theatre date and procedure. Document any reason for delay to procedure.
  - Nutrition status reviewed – n.b. only fast if patient is confirmed for theatre.
  - Goals of Patient Care (GoPC) documented within 48 hours of admission as per the CPS for The End of Life
    - GoPC Form MR00H.1
  - Prophylactic regimens for thromboembolism, blood management and infection are commenced (eg: tranexamic acid, IV cephaloxin)
• **Anaesthetics**
  - Preoperative assessment (via e-referral) to be carried out on all patients
  - If indicated, facilitate administration of femoral nerve catheter insertion and subsequent management
  - Acute Pain Service review if clinically indicated

• **HDU / ICU**
  - Consult as clinically indicated for post-operative care, and for consideration in select pre-operative patient situations.
  - Refer to the [Metaraminol infusion clinical guideline for use in SMTU](#) the State Major Trauma Unit (SMTU), for management of post-operative hypotension in Fracture Neck of Femur patients.

• **Orthogeriatric Team**
  - Geriatric medicine assessment occurs during weekdays (working hours) in a joint care model.
  - The patient is to be reviewed by the Orthogeriatric Team or SAFE Registrar within 12 hours of admission.
  - After hours or during weekends/public holidays, SAFE Registrar review should be sought.

The Focus of the Initial Assessment should be:
  - Medical optimisation for surgery.
  - Falls screening.
  - Ensure a thorough medical history is documented, including co-morbidities and falls history.
  - Clarify premorbid physical function and determine cognitive status.
  - In collaboration with allied health team ascertain social history.
  - Determine if more specific investigations or referrals to other subspecialty teams are required pre-operatively (in consultation with orthopaedics/anaesthetics).
  - Ensure that family is aware of the patient’s management plan if appropriate.
  - Goals of Patient Care is clearly defined, check if Advance Health Directive (AHD) is in place.

**Pre-operative Cardiac Investigation**
  - The need for echocardiogram should not delay surgery unduly.
  - Decision for investigations should be discussed with Anaesthetics and/or Orthogeriatric team.
  - Permanent pacemaker/defibrillators need to be checked (If no routine check within the last 12 months). Automatic Implantable Cardioverter-Defibrillators (AICD) need to be discussed with anaesthetist in theatre.
Timing to Surgery

- To facilitate optimal outcomes the patient should proceed to surgery where practical within 48 hours of hospital presentation

Analgesia

Refer to the RPH Fractured Neck of Femur Collaborative Management Plan
- Regular paracetamol and oxycodone IR 2.5mg-5mg pm to be prescribed
- If more analgesia is required, please contact the Acute Pain Service (APS) Registrar page 6450
- In addition to the FNB in ED, all NOF patients should have a FNB performed in theatre.

Anticoagulants & Antiplatelet Medications

Refer to:
- RPH Anticoagulation Perioperative Guidelines - Warfarin/Heparin
- RPH Anticoagulation Perioperative Guidelines – NOAC’s
- RPH Anticoagulation Reversal Guidelines - Warfarin/Heparin

Delirium

- Patient with delirium are at risk of developing post-operative complications, prolonged hospital admission, and have an increased risk of hospital acquired complications e.g. falls and infections
- An abbreviated mental test (AMT)\(^1\) is to be performed on any patient \(>65\) years of age/ \(>45\) years Aboriginal Torres Strait Islander (ATSI) , or any patient who is assessed not to be alert and orientated:
  - On admission and/or
  - At any time during hospitalisation
- Should the AMT score be \(<8/10\), further cognitive assessment needs to be completed
- Refer to CPS for Delirium Management
- Chemical restraint to be used only when a patient is a danger to self and others. (Refer to NPS Safe Use and Management of Patient Restraints
- Collateral history for every delirious patient
- Low bed for every agitated patient likely to attempt to get out of bed without assistance
- Orientation chart for all delirious patients
- Support sleep wake cycle with appropriate lighting/darkness
Anaemia

Guidelines for Management of Anaemia for Older Patients (65 years and over) with Acute Orthopaedic Injuries

- This guide is intended for older patients who present to Royal Perth Hospital after acute orthopaedic injuries (e.g. hip fractures) in which substantial blood loss is anticipated in the peri-operative stages.
- General measures should be undertaken to prevent or reduce blood loss, such as warfarin reversal for over-anticoagulation, or platelet transfusion for thrombocytopenia.
- Clinical triggers for blood transfusion may include:
  - symptoms of anaemia (such as chest pain that is deemed to be cardiac in origin,
  - congestive cardiac failure, unexplained tachycardia
  - hypotension, presyncope/syncope and delirium
  - haemodynamic compromise attributable to significant blood loss

Recommended Pre-Operative & Post-Operative Blood Investigations and Management

Pre-operative:
Full blood picture, U&E, ferritin:
- Pre-operative Hb < 80 g/dL → Transfuse packed red blood cells (1 unit, then reassess)
- Administer iron infusion (if ferritin < 100mcg/L or transferrin saturation <20%).
Note: Iron infusion, if required, needs to be arranged by treating team on the ward and should not delay time to theatre (i.e. can be given post-operatively if needed).

Post-operative:
Haemacue in recovery / formal FBC and U&E on Day 1 post-op:
- Post-operative Hb < 80 g/dL → Transfuse packed red blood cells (1 unit, then reassess)
- Administer iron infusion if pre-operative iron deficiency detected (ferritin < 100 mcg/L or Transferrin saturation < 20%) and if not given pre-operatively.
Note: this transfusion trigger of 80g/dL should not be followed rigidly: e.g. younger and fitter patients, who are asymptomatic, could have a lower Hb threshold, and may be considered for a pre/post-op Iron transfusion only.

Reference:
1. Professor Michael Leahy, HoD Haematology, RPH. Personal communication.

Bladder & Bowel Management

Bowel management
- Patients with hip fractures are at increased risk of constipation due to immobility and adverse effects of opiate analgesia.
- Constipation can increase the risk of delirium and bowel obstruction in older patients.
- Nurse-initiated suppositories should be given early on Day 1 post op
- If bowels not open adequately after suppositories inform medical staff
- Refer to CPS for Bowel Management
Bladder management
- Patients with hip fractures are at increased risk of urinary retention. This can lead to bladder stretch injury and predispose to urinary tract infection (UTI).
- Urinary retention ± UTI can increase the risk of delirium in older patients.
- Remove indwelling catheter on Day 1 post-op after bowels open.
- Refer to CPS for Urethral Catheterisation

Other Management Priorities

Antibiotic prophylaxis
- Surgical Antibiotic Prophylaxis Guideline Orthopaedic Surgery

Fluid Management
- A Fluid Balance Chart is used to document intake and output for all patients during the intraoperative period.
- Urine output of 15-20 mL/hr may be adequate for some older patients. If concerned, discuss with the Orthogeriatric team or SAFE RMO/Registrar to determine the level of fluid resuscitation (Caution: Older patients are susceptible to fluid overload).
- Patients should be encouraged to maintain adequate oral fluid intake if possible. (Some patients may need nursing staff to assist or encourage feeding.)

Nutrition
- The Malnutrition Screening Tool (MST) must be completed on admission to acute ward and weekly thereafter. The patient may be referred to a Dietician if indicated.

Pressure Care
- Braden score assessment must be completed on admission to acute ward and on any changes in patient condition/status.
  Refer to RPBG NPS for Pressure Injury: Risk Assessment and Minimisation
- Preventative strategies should be implemented according to this NPS.

Mobility
- Physiotherapy: Mobilise day 1 post op unless otherwise documented perioperative medical notes.
- Day 2 post-op: sit out of bed for all meals. Patient to use toilet and shower if capable.

Cognition
- Occupational therapy to assess cognition if AMT <8/10

Oxygen therapy
- Wean oxygen if saturations >94%, unless oxygen medically prescribed

Hip precautions
- As per RPH NPS for Fractured Neck of Femur Patient Management
Thromboprophylaxis
- As per RPBG CPS Venous Thromboembolism Risk Assessment and Management for Adult patients
- Enoxaparin should be commenced at 2000 hours for patients operated on during a morning theatre list and 0800 hours the following day for patients operated on during an afternoon theatre list.

Pathology
- Post-operative blood tests, including Haemoglobin or UEC, are ordered Day 1 after surgery.

Osteoporosis

Principles of Management
- All patients presenting with a minimal trauma hip fracture should be assessed to determine their need for calcium/vitamin D supplementation and specific anti-resorptive therapy.
- The following blood tests are advised:
  - Full blood picture (FBP), Renal function (U&E), Liver function (LFT), Calcium and 25-hydroxyvitamin D [25(OH)D]
  - Additional investigations for secondary causes of osteoporosis may be required for selected patients
  - The need for Bone Mineral Densitometry or Fasting Metabolic Bone Studies will be advised by the Orthogeriatric team

Where clinically indicated consider administering the following medications
- 25(OH)D < 50 nmol/L in Winter/Early Spring (< 60nmol/L in Summer )
  Consider administering colecalciferol 50 micrograms daily
- 25(OH)D < 25 nmol/L
  Consider administering colecalciferol 50 micrograms TDS for 2 weeks, then 50 micrograms daily
- Calcium 600mg daily may be prescribed in the absence of hypercalcaemia if dietary calcium intake < 1200 mg/day (3 servings of dairy products, with at least one being calcium-fortified)
- Anti-resorptive therapy should be considered for older patients with minimal trauma fractures of the hip, wrist or vertebral body. The decision and choice of therapy will be advised by the Orthogeriatric team. Osteoporosis follow up must be documented in the discharge summary.
Multidisciplinary Rehabilitation

Principles of Management

- Geriatrician-led multidisciplinary rehabilitation begins in the acute ward from the first post-operative day.
- Early mobilisation is encouraged and the physiotherapist will perform an initial mobility assessment Day 1 post-operative.
- The nursing staff and allied health professionals may initiate assessment and discharge planning upon admission to the acute ward.
- Other allied health members including the speech pathologist, dietician and pharmacist may also participate in the rehabilitation/discharge process as required.
- Patients who are suitable candidates for inpatient rehabilitation will be considered for referral to a subacute care facility by the 2nd post-operative day, in order to maximise their chances of returning to their previous domicile.
- The destination for subacute care will be determined by the address/district of the domicile and will be advised accordingly by the Orthogeriatric team.
- Patients who are previously from a residential care facility will be assessed by the Orthogeriatric team and will be considered for inpatient rehabilitation on an individual basis.
- The Orthogeriatric team may also assist in the review of patients for medical stability and coordination of care before discharge to their residential facilities.

Contraindications for procedure

When hip fracture occurs in the setting of terminal illness, surgery may still be indicated for pain and symptom management.

A patient’s wishes for their care should be considered and palliative care service consultation sought if assistance with decision making is needed.

Related Policy/Clinical Practice Standard

Refer to Hyperlinks throughout the document

Additional:

RPBG CPS for Medical Emergency and Cardiorespiratory Arrest Management

Related NSQHS Standards

Standard 1 - Governance for Safety and Quality in Health Service Organisations
1.1.1 An organisation-wide management system is in place for the development, implementation and regular review of policies, procedures and/or protocols.
1.1.2 The impact on patient safety and quality of care is considered in business decision making.

Standard 2 - Partnering with Consumers
2.2 Implementing policies, procedures and/or protocols for partnering with patients, carers and consumers in:
- Strategic and operational/services planning
- Decision making about safety and quality initiatives
- Quality improvement activities

**Standard 3 - Preventing and Controlling Healthcare Associated Infections**

3.3 Developing and implementing systems and processes for reporting, investigating and analysing healthcare associated infection, and aligning these systems to the organisation’s risk management strategy. (All subsequent actions under these criteria are applicable.)

3.8 Compliance with the system for the use and management of invasive devices is monitored

3.14.3 Monitoring of antimicrobial usage and resistance is undertaken

**Standard 4 - Medication Safety**

4.1.1 Governance arrangements are in place to support the development, implementation and maintenance of organisation wide medication safety systems.

**Standard 5 - Patient Identification and Procedure Matching**

5.1.1 Use of an organisation-wide patient identification system is regularly monitored.

5.2.2 Action is taken to reduce mismatching events.

**Standard 8 – Preventing and Managing Pressure Injuries**

8.5 Identifying risk factors for pressure injuries using an agreed screening tool for all presenting patients within timeframes set out buy best practice guidelines

8.7 Implementing and monitoring pressure injury prevention plans and reviewing when clinically indicated

**Standard 10 – Preventing Fall and Harm from Falls**

10.4 Implementing falls prevention plans and effective management of falls

10.5 Using a best practice tool to screen patients on presentation, during admission and when clinically indicated for the risk of falls

10.6 Conducting a comprehensive risk assessment for patients identified at risk of falling in initial screening processes

**Compliance Monitoring**

Evaluation, audit and feedback processes are required to monitor compliance.

Time to theatre, length of stay will be monitored; compliance with this guideline will be audited.

Results to be tabled at Royal Perth Hospital Trauma Committee.
Acknowledgements

We acknowledge the following previous site endorsed work and/or contributors used to compile this document:

Katherine Birkett, SDE Service Innovation RPBG
Dr Sapna Samida, Ortho Geriatric Consultant RPH
Sam Jenaway, NUM Ward 5G RPH
Dr John Burke, Registrar
Dr Dieter Weber, Trauma Consultant, RPH
Assoc. Professor John Buchanan, Allied Health Admin Services, RPH
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Reviewed and approved by the Trauma Committee December 2017

Reference: