



<i>Pre-hospital management</i>	<i>Diagnostic investigations</i>	<i>Reducing the risk of vte &amp; dvt</i>
<i>Emergency department management</i>	<i>Timing of surgery</i>	<i>Anaesthetic management</i>
<i>Assessment in the emergency department</i>	<i>Reversal of warfarin anticoagulation</i>	<i>Surgical management</i>
<i>Immediate management</i>	<i>Antiplatelet therapy</i>	<i>Types of fracture</i>
<i>Fast tracking</i>	<i>Preoperative cardiac investigation</i>	<i>Intracapsular fractures</i>
<i>Pain relief</i>	<i>Prophylaxis against infection</i>	<i>Displaced intracapsular fractures</i>
<i>Rehabilitation</i>	<i>Early postoperative management</i>	<i>Hemiarthroplasty</i>
<i>Discharge</i>	<i>Pain relief</i>	<i>Total hip replacement</i>
<i>Scottish hip fracture audit</i>	<i>Oxygen</i>	<i>Extracapsular fractures</i>
	<i>Fluid and electrolyte balance</i>	
	<i>Early mobilisation</i>	

**PRE-HOSPITAL MANAGEMENT**

Transfer to hospital from the site of the injury should be undertaken as quickly as possible.

**EMERGENCY DEPARTMENT MANAGEMENT**

**ASSESSMENT IN THE EMERGENCY DEPARTMENT**

**D** Early assessment, in the ED or on the ward, should include a formal recording of:

- pressure sore risk
- hydration and nutrition
- fluid balance
- pain
- core body temperature using a low reading thermometer
- continence
- coexisting medical problems
- mental state
- previous mobility
- previous functional ability
- social circumstances and whether the patient has a carer.

Medical staff should assess patients suspected of having a fractured hip as soon as possible, preferably within one hour of arrival in the ED.

**IMMEDIATE MANAGEMENT**

**B** Patients judged to be at very high risk of pressure sores should ideally be nursed on a large-cell, alternating-pressure air mattress or similar pressure-decreasing surface.

**D** Patients admitted to the ED with a suspected hip fracture should be managed as follows:

- use soft surfaces to protect the heel and sacrum from pressure damage
- keep the patient warm
- administer adequate pain relief to allow for regular, comfortable change of patient position
- instigate early radiology
- measure and correct any fluid and electrolyte abnormalities.

**FAST TRACKING**

**D** Patients should be transferred to the ward within two hours of their arrival in the emergency department.

**PAIN RELIEF**

**D** Adequate and appropriate pain relief should be administered before the patient is transferred from a trolley to the X-ray table.

**Imaging**

The vast majority of hip fractures are easily identified on plain radiographs, but a normal X-ray does not necessarily exclude a fractured hip.

- D** MR imaging is the investigation of choice where there is doubt regarding the diagnosis. If MR is not available or not feasible, a radioisotope bone scan or repeat plain radiographs (after a delay of 24-48 hours) should be performed.

**TIMING OF SURGERY****REVERSAL OF WARFARIN ANTICOAGULATION**

- B** Withholding warfarin combined with administration of oral or intravenous vitamin K is recommended if reversal of the anticoagulant effects of warfarin to permit earlier surgery is deemed appropriate.

- FFP should not be used where there is no contraindication to the use of vitamin K.

- D** Where it is deemed appropriate to use it, FFP should be used in accordance with national guidelines from the British Committee for Standards in Haematology.

**ANTIPLATELET THERAPY**

- Surgery should not be delayed in hip fracture patients taking antiplatelet therapy.

- General anaesthesia is recommended for patients taking dual antiplatelet therapy. Neither spinal nor epidural anaesthesia are recommended.

**PREOPERATIVE CARDIAC INVESTIGATION**

- The need for echocardiography, based on clinical history, physical examination and ECG findings should not delay surgery unduly.

- Rapid access to an echocardiography service is recommended for appropriate patients to avoid unnecessary delay to surgery.

- C**
- Older people with hip fracture do not require routine additional cardiac investigation such as echocardiography before surgery.
  - Additional cardiac investigation may be considered in patients with clinical suspicion of perioperative cardiac risk.

**PROPHYLAXIS AGAINST INFECTION**

- A** All patients undergoing hip fracture surgery should receive antibiotic prophylaxis.



Recommendations on dosage and regimen are available from **SIGN 104: Antibiotic prophylaxis in surgery.**

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- Carriage of multiresistant organisms should be recognised as a potential risk factor for surgical site infection during hip fracture surgery
  - For patients with suspected multiresistance carriage undergoing hip fracture surgery preoperative care should include:
    - screening for relevant organisms
    - changing the antibiotic of choice for prophylaxis

**REDUCING THE RISK OF VTE & DVT**

- A** ▪ Heparin (UFH or LMWH) or fondaparinux may be used for pharmacological thromboprophylaxis in hip fracture surgery.
- A** ▪ Patients without a contraindication should receive thromboprophylaxis using fondaparinux for 28 days starting six hours after surgery.
- D** ▪ Aspirin monotherapy is not recommended as appropriate pharmacological prophylaxis for patients after hip fracture surgery.
- A** ▪ Mechanical prophylaxis should be considered in suitable patients to reduce the risk of DVT after hip fracture.

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- Fondaparinux should not be used before surgery because of the increased potential for spinal haematoma after spinal or epidural anaesthesia.
  - If surgery is delayed patients should receive thromboprophylaxis with heparin (UFH or LMWH).
  - Fondaparinux should be considered for all patients after surgery, unless contraindicated.

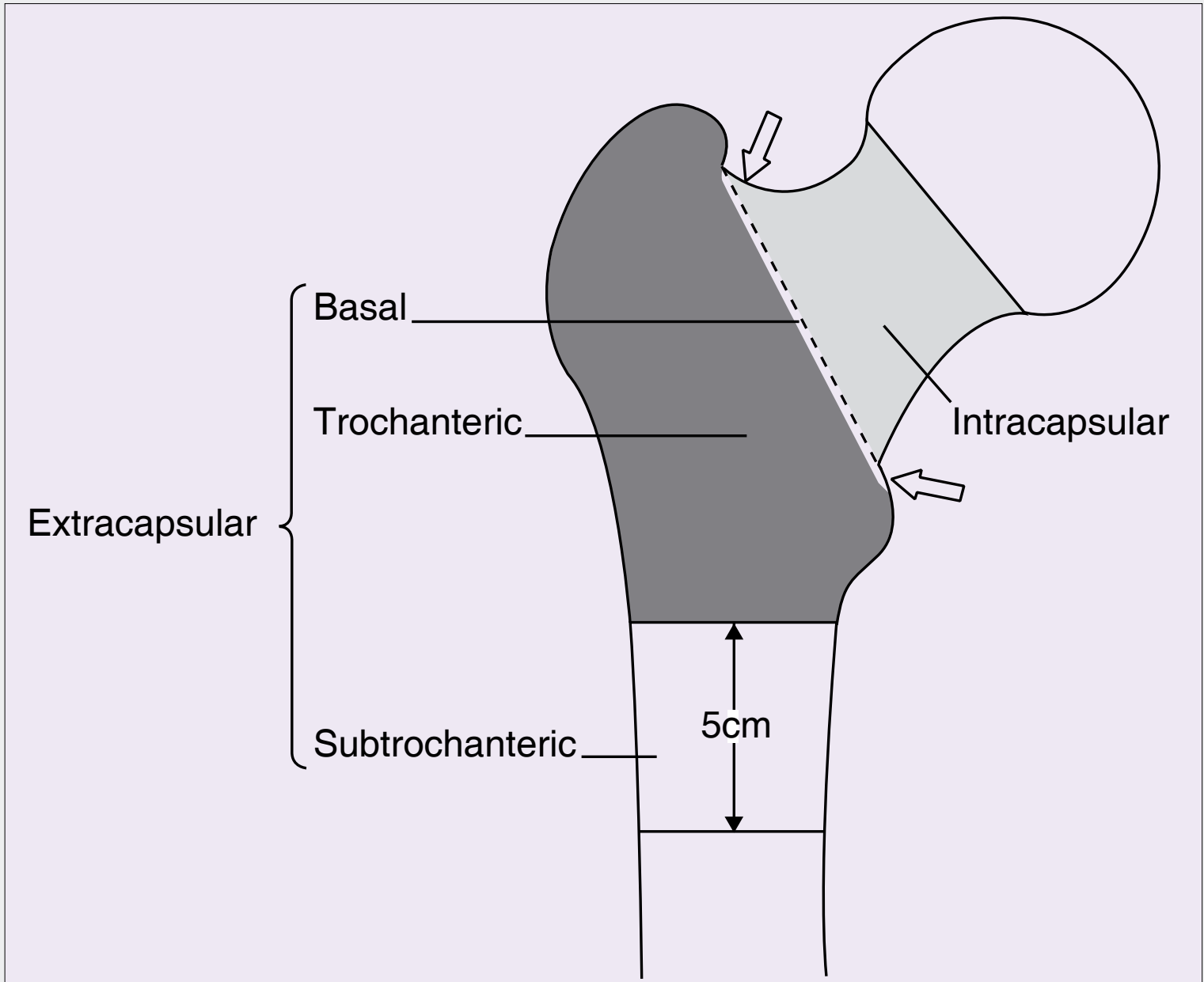
**ANAESTHETIC MANAGEMENT**

- D** Anaesthesia should be carried out, or closely supervised, by an anaesthetist experienced in anaesthesia in older people.

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- Spinal/epidural anaesthesia should be considered for all patients undergoing hip fracture repair, unless contraindicated.
  - The use of perioperative peripheral nerve blockade may be considered as part of the multimodal management of pain following surgery in hip fractures.



Hip fractures are classified as intracapsular or extracapsular depending on the site of the fracture in relation to the insertion of the capsule of the hip joint indicated with an arrow onto the proximal femur.



**Intracapsular fractures** include subcapital and transcervical fractures, and are best subdivided into undisplaced or displaced.

**Extracapsular fractures** include per-, inter- and sub-trochanteric, and are best subdivided by their degree of comminution. Basal cervical fracture lines tend to be approximately at the level of the insertion of the joint capsule, and they behave as extracapsular fractures (and should be regarded as such for prognostic and therapeutic considerations).

TREATMENT OF INTRACAPSULAR FRACTURES

**D** Patients with undisplaced intracapsular hip fracture should have internal fixation.

Arthroplasty should be considered in the biologically less fit.

DISPLACED INTRACAPSULAR FRACTURES

**A** Assessment prior to surgery must consider the patient's:

- mobility
- mental state
- pre-existing bone and joint pathology.

**A** In patients with displaced intracapsular hip fracture consider:

- closed reduction and internal fixation in "young" fit patients
- arthroplasty in "older" biologically less fit patients.

## SURGICAL MANAGEMENT (CONTD.)

### TYPES OF HEMIARTHROPLASTY

- C** Cement should be used when undertaking hemiarthroplasty, unless there are cardiorespiratory complications, particularly in frail older patients.
- B** Bipolar hemiarthroplasty should not be performed in preference to unipolar hemiarthroplasty, as there is limited evidence of any clinical benefit.
- C** The anterolateral approach is recommended for hemiarthroplasty surgery.

### THE ROLE OF TOTAL HIP REPLACEMENT

- A** Patients with pre-existing joint disease, medium/high activity levels and a reasonable life expectancy should have THR rather than hemiarthroplasty as the primary treatment.

### TREATMENT OF EXTRACAPSULAR FRACTURES

- B** Extracapsular hip fractures should all be treated surgically unless there are medical contraindications.

### EARLY POSTOPERATIVE MANAGEMENT

#### PAIN RELIEF



**Postoperative management in adults**  
[www.sign.ac.uk/pdf/sign77.pdf](http://www.sign.ac.uk/pdf/sign77.pdf)

- D** Regular assessment and formal charting of pain scores should be adopted as routine practice in postoperative care.

- Pain management in older people should be supervised by practitioners with appropriate specialised experience.

#### OXYGEN

- C**
  - Oxygen saturation should be monitored routinely to reduce the incidence of hypoxaemia and continued for as long as the tendency to hypoxaemia exists.
- C**
  - Supplementary oxygen is recommended for at least six hours after general or spinal/epidural anaesthesia, at night for 48 hours postoperatively and for as long as hypoxaemia persists as determined by pulse oximetry.

### FLUID AND ELECTROLYTE BALANCE

- B**
  - Fluid and electrolyte management in older people should be monitored regularly.
- D**
  - Fluid and electrolyte management should begin in the emergency department.

### EARLY MOBILISATION

- If the patient's overall medical condition allows, mobilisation and multidisciplinary rehabilitation should begin within 24 hours postoperatively.
  - Weight bearing on the injured leg should be allowed unless there is concern about the quality of the repair.

### REHABILITATION

#### EARLY ASSESSMENT

- B**
  - A corroborated history should be taken, including:
    - pre-morbid function and mobility
    - available social support (*including whether the patient already has a carer or whether someone is willing and able to provide such support*)
    - current relevant clinical conditions
    - mental state.

- A**
  - Supplementing the diet of hip fracture patients in rehabilitation with high energy protein preparations containing minerals and vitamins should be considered

- B**
  - A multidisciplinary team should be used to facilitate the rehabilitation process.

### DISCHARGE

- B** Supported discharge schemes should be used to facilitate the safe discharge of older hip fracture patients and reduce acute hospital stay.

- The patient should be central to discharge planning, and their needs and appropriate wishes taken into consideration. The views of a carer are also important.
  - Liaison between hospital and community (including social work department) facilitates the discharge process.
  - Occupational therapy home assessments assist in preparing patients for discharge.
  - Patient, carer, GP, and other community services should be given as much notice as possible of the date of discharge.
  - Discharge should not take place until arrangements for post-discharge support are in place and the patient is fit for discharge.