

Medical Management Guide for Frail Patients under Orthopaedics

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Patient Admission

Falls

Falls are the commonest presentation to hospital over the age of 65 and are also the commonest adverse patient safety incidents which occur in hospital.

Falls and fractures over the age of 60 utilise more hospital bed days than admissions with myocardial infarction, heart failure and stroke combined.

All frail patients admitted with a fall require a comprehensive falls assessment. The aim of this will document a patient's falls risk factors, it is often easiest to group these into modifiable and unmodifiable risk factors.

When taking a falls history it is vital to understand the circumstances of the fall and what the patient was doing around the time of the fall. It must be documented: whether the patient had any preceding symptoms (for example light headedness, vertigo, SOB, chest pain etc); whether the patient recalled hitting the ground and what the symptoms were after the fall.

It is vital to never miss orthostatic hypotension. Postural blood pressures should be carried out on all patients who fall, ideally once daily in the morning for three consecutive days and if there is no significant postural drop then the assessments can stop. Patients should lie down for at least 5 minutes and then blood pressure should be taken at 0, 1 and 3 minutes all done manually. A significant postural drop is a drop on standing of 20mmHg systolic and/or 10mmHg diastolic, in a patient with symptoms.

Falls should be broadly divided into the following groups:

- Explained – should have no preceding symptoms and full recollection of events and an obvious fully explained cause, for example an explained trip.
- Multi-factorial – usually patients will have full recollection of events and no preceding symptoms in combination with multiple falls risk factors.
- Unexplained component – if a patient's fall cannot be fully explained, for example if a patient was walking then fell but cannot explain why, this may be unexplained.
- Transient Loss of Consciousness (TLOC) including syncope – if a patient cannot recall hitting the ground then please assume they were unconscious until proven otherwise. However, a significant percentage (approximately 30%) of patients who were unconscious 'recall' hitting the ground.

Initial Assessment

- All frail patients admitted to Orthopaedics should have a full clerking including a social history which must include information about patients level of mobility as well as their support network.
- All frail patients should have a cognitive assessment (abbreviated mental test score) performed on admission to hospital by the admitting SHO. This allows assessment of post-operative delirium through repeating of a cognitive screen after any surgery (if required). This frail population group often becomes significantly delirious early on in their admission thus knowing their cognitive status on arrival is vital.
- All patients should have an ECG on admission which must be reviewed and the findings documented by the admitting doctor.
- If a frail patient is admitted and has any significant respiratory symptoms, respiratory findings on examination, abnormal oxygen saturation (below 94% on air) or evidence of tachypnoea they should have a chest x-ray on arrival to hospital.
- Please ensure all frail patients admitted to hospital have the following tests:
 - FBC, U&E's, LFT's, Bone profile including Calcium, ESR, CRP, TFT's, PTH, Serum Immunoglobulin's and Protein Electrophoresis.
 - All men require a PSA to be checked.
 - Please also send a urine sample for urinary Bence Jones analysis.
 - Consider sending a sample for Vitamin D.
 - If patients are on any anticoagulants or have a history of high alcohol intake or liver disease please check their Clotting studies.
- **ACE Inhibitors / ARB's**
 - If frail patients who are admitted with a fracture are on ACE inhibitors or on Angiotensin II Receptor Antagonists please hold these on admission to hospital as they can cause significant problems with hypotension in frail older people, particularly post operatively which can cause Acute Kidney Injuries and worsen in-hospital mortality.
 - The reintroduction of these medications can be considered when patient's post-operative renal function and blood pressures are known to be normal.
- **Venous Thromboembolism**
 - Venous Thromboembolism is a significant complication occurring in immobile patients, especially after hip fracture or pelvic surgery.
 - Please complete the Health Board risk assessment form on admission.
 - Please ensure calf pumps are applied to both legs of patients with hip fractures, if there are no contraindications, as early as possible in combination with chemical DVT prophylaxis (as per local guideline), unless contraindicated.
 - All hip fracture patients should receive 5 weeks of extended VTE prophylaxis with low molecular weight heparin, unless contraindicated (as per local guideline). Patients should leave hospital with a supply of heparin to total five weeks from the date of their surgery.
 - Obviously if a patient is on treatment anticoagulation the LMWH prophylaxis is not required.

- **Analgesia**

- It is vital to assess **pain on movement** (dynamic pain), not pain at rest. If possible ask patients to move their affected limb to assess pain, or assess pain through passive movement of the affected limb.
- For hip fracture patients we should provide a Fascia-Iliaca Compartment Blocks (FICB) in the Emergency Department pre-operatively, when not contraindicated. If required please discuss with the on-call anaesthetist.
- Please ensure that frail patients, especially those admitted with a hip fracture, are prescribed Paracetamol unless there are contraindications.
- Paracetamol should be given intravenously pre-operatively and for **48 hours** post-operatively for frail patients.
 - If the patient weighs less than 50kg the IV Paracetamol dose will need reducing to 15mg/kg QDS (Maximum 60 mg/kg/day).
 - After 48-hours post-operatively the Paracetamol should be continued orally **if pain is controlled**.
 - The oral dose of Paracetamol should be 1g QDS if the patient weighs more than 50kg, and 500mg QDS for patients who weigh less than 50kg.
- As per the All Wales Best Practice Guidelines **Do not prescribe NSAID's, Codeine or Tramadol**.
- Ensure patients have Morphine Sulphate oral solution 2.5 – 5mg 1-2 hourly prescribed **on the PRN side** of their medication chart, unless contraindicated.
- Please monitor for any signs of opiate toxicity, particularly in patients with renal impairment.
- Patients who take regular analgesia prior to their admission may need a different regime, these patients can be discussed with the Ward Pharmacists, Orthogeriatric Service or the Pain Team.

- **Laxatives**

- Please ensure frail patients are prescribed appropriate laxatives, especially if they require opiate analgesia.
- Consider Senna at night and Sodium Docusate BD initially.

- **Catheters**

- If a patient has been catheterised in hospital please ensure that there is a plan to remove the catheter as soon as it is practicable.
- If a patient has acute urinary retention please ensure they have a PR examination to ensure they do not have concomitant faecal impaction.

- **Nutritional Supplements**

- Please ensure all frail patients have twice daily nutritional supplements prescribed **while they are inpatients** (for example Fortisip compact 125 ml BD).
- Patients who weigh less than 35 kg are at increased risk and may need discussion with the Orthogeriatric Service or Dieticians.

- **Anticoagulation**

- If patients are on anticoagulation (including Warfarin or DOACs) please document the reason for their anticoagulation as well as the intended duration of treatment, on admission.
- If patients are on anticoagulation for Atrial Fibrillation please assess their stroke risk by calculating their CHADS₂ score.
 - NB - The Health Board include the following patient groups as high risk: CHADS₂ of >4, previous history of TIA or stroke, recurrent DVT/PE, DVT/PE in last 3 months, known valve disease and an ejection fraction of <35%.
- Please refer to the Health Board guidelines 'Anticoagulation Therapy: Bridging Therapy – Perioperative Management of Patients on Warfarin Anticoagulation' and 'Direct Oral Anticoagulants DOACs in Patients Undergoing Elective Surgery Procedure'.
- If anticoagulation is stopped please ensure there is a documented plan to restart anticoagulation when appropriate.
 - The timing of when to restart anticoagulation needs to be decided in consultation with Health Board Policy as well as senior Orthopaedic input to balance the risk of bleeding etc.
- If in doubt, please discuss the patient with Haematology.

- **Antiplatelets**

- If on aspirin alone then do not stop the aspirin and do not delay surgery.
- Clopidogrel, Prasugrel or Ticagrelor must not be stopped if a patient has a cardiac stent.
- For patients on Dual Antiplatelet therapy (without a cardiac stent in situ) aspirin should continue and clopidogrel can be temporarily omitted and reintroduced as soon as possible.
- If possible clopidogrel should not be withheld during the peri-operative period due to an increased risk of cardiovascular events associated with stopping clopidogrel.
- In patients taking clopidogrel surgery should not be delayed, nor platelets administered prophylactically, but marginally greater blood loss should be expected.
- Hip fracture surgery can take place early in patients taking clopidogrel monotherapy.

- **Fluid Prescriptions**

- If possible please use Hartmann's for resuscitation fluid, unless there are concerns regarding an elevated lactate.
- For maintenance fluids please consider using Dextrose Saline.
- Please be guided by up to date electrolytes, and the patient's history and condition when considering intravenous fluid prescriptions.
- Consider varying the maintenance fluid rate depending on weight:
 - Weight <50kg rate of 60 mls/hour
 - Weight 50-80kg rate of 80 mls/hour
 - Weight >80kg rate of 100 mls/hour

- **Renal Impairment**

- Please compare results on admission to previous results to clarify if the renal impairment is new or the patient has CKD.
- If the renal impairment is new:
 - Check venous blood gas to assess acid base status.
 - Stop nephrotoxic medications.
 - Ensure appropriate supplemental IV fluids are administered.
 - Ensure blood pressure is appropriate for the patient.
 - Ensure that acute urinary retention has been excluded.
 - Ensure an accurate fluid balance chart is being completed.
 - Monitor urine output and ensure the urine output is greater than 0.5 mg/kg/hour.
 - If the patient suffered a long lie then check CK.
 - If any concerns then discuss with Orthogeriatrician or on-call Medical Team.

- **Anaemia**

- Chronic, mild anaemia should not delay surgery.
- If a patient is anaemic on admission then check the serum ferritin, iron, transferrin, transferrin saturations, vitamin B12 and folate **before** transfusing.
- If the haemoglobin is < 80 g/L:
 - Transfuse 2 units of blood on admission.
 - Consider Furosemide 20mgs with each unit of blood if there are any signs of fluid overload.
- If the haemoglobin is 80-100 g/L and the patient has a history of ischaemic heart disease then transfuse to an Hb > 100.
- If the haemoglobin is 90-100 g/L and the patient has no history of ischaemic heart disease then ensure the Group and Save is in place to enable blood to be obtained rapidly in theatre if required.
- Try to aim for a pre-operative haemoglobin of greater than 100 g/L.
- High risk individuals need a pre-operative haemoglobin of greater than 110 g/L. High risk individuals include those with increased bleeding risk and those with coagulation problems.

Post-Operative Care

- On day 1 after surgery please ensure that all frail patients have an ECG and blood tests (including FBC, U&E's and CRP). Please ensure the results of these are reviewed, acted upon appropriately and documented on day 1.
- If the blood tests on day 1 are abnormal compared to the baseline for that patient then these abnormalities must be managed and re-checked daily until the abnormalities resolve.
- All frail patients must have blood tests (FBC, U&E's, CRP) performed twice weekly during their inpatient stay.
- **Pain**
 - Ensure dynamic pain has been assessed and an appropriate plan to manage this is in place.
- **Transfusion**
 - The threshold for transfusion after a hip fracture is a haemoglobin of <90g/L if no evidence of significant cardiac disease, or <100g/L with cardiac disease.
 - Please ensure that patients with post operative haemoglobins below these levels are appropriately transfused.
- **Hypotension**
 - If a patient is hypotensive then please consider and manage any underlying causes. Please ensure that:
 - Patient's medications which can cause hypotension have been reviewed.
 - Anaemia has been ruled out.
 - Myocardial ischaemia has been ruled out.
 - Appropriate IV fluid supplementation is in place.
 - Urine output is acceptable.
 - Appropriate senior review has occurred.
 - If hypotension is persistent then ensure there is a documented escalation plan in the clinical record, and if appropriate ensure the Orthogeriatric Service, On-call Medical Team, Anaesthetic Team or ITU have been informed.
- **AKI**
 - Ensure any patient who develops an Acute Kidney Injury (AKI) has the AKI care bundle commenced.
 - Consider appropriate escalation as above.
- **Delirium**
 - Delirium is very common after a hip fracture particularly and there are usually multiple causes. It is not possible to prevent all episodes of delirium as the fracture itself can cause delirium, however, we can prevent some cases and lessen the intensity of others.
 - Delirium is strongly associated with numerous negative outcomes for patients.
 - Please ensure a 4AT delirium screening score is completed for all frail patients within the first week of their admission.
 - A score of 4 or greater suggests the possibility of delirium. Please refer to the Health Board Delirium Pathway for further information.

Multi-Disciplinary Working

The inpatients under the care of the Orthopaedic Department are often frail and elderly. In such patients it is vital that they are cared for by a well functioned Multi-Disciplinary Team. The Orthopaedic team including the junior doctors are a vital part of this team. Please ensure that when patients are reviewed not only their medical needs are considered, but also consider their current level of function.

Please discuss patients with Nursing, Physiotherapy and Occupational Therapy colleagues. It is highly likely that these MDT colleagues will have a wealth of experience in managing frail older people with orthopaedic problems.

If a patient is not progressing functionally as expected then please question why, is there a medical cause which requires management? For example: are they limited by pain or do they have significant orthostatic hypotension etc.

Discharge planning patients is the responsibility of the whole MDT. Documenting a plan such as 'home when safe' is **not appropriate**. If this is documented it must be challenged by all. Through clarifying what a patient's current functional level is, as well as knowing what they need to achieve to be discharged, more meaningful discussions can be had with patients.

Please note, that in line with National Guidelines, the majority of patients admitted with a hip fracture **should go home from the Acute Orthopaedic Ward**. Inpatient rehabilitation beds should be used in only a small minority of patients and can often be predicted on admission, for example in those patients with complex Parkinson's Disease.

Bone Health

National guidelines would suggest that if a patient has a fragility fracture under 75 years of age they should proceed to a DXA scan. Fragility fractures are caused by falls from standing height or less, in patients over 50 years of age, and include hip, distal radius and vertebral fractures. Proximal humeral and pubic rami fractures also probably represent fragility fractures. There are specific forms to request a DXA scan (not usual radiology form) which can be found on the wards.

However as with any guideline this needs to be interpreted into context considering a patient's physiological rather than just chronological age. For example, if a very fit 80 year old patient suffers a fragility fracture we need to consider whether a DXA scan would be an appropriate test for them, with appropriate patient consent regarding managing their fracture risk. If in any doubt please discuss with senior colleagues.

It is the responsibility **of all** to ensure that the results of patients biochemical osteoporosis screens (which should be performed on admission) are checked, and if abnormal acted on appropriately.

For example if a patients ESR is elevated then a plan to identify and manage the underlying cause for this must be put in place and documented. There are significant inflammatory conditions which can cause osteoporosis and elevate the ESR.

However, a fracture can obviously also elevate the ESR, so if the test is performed later in a patient's admission the ESR may be elevated.

Assessing and managing bone health is a vital aspect of providing care for frail patients admitted either with a fracture or who are at increased risk of fracture. The fracture risk of such patients must be assessed using the FRAX risk assessment tool available through the FRAX website. This tool links through to the National Osteoporosis Guidelines Group recommendations which must be used to guide bone health treatment.

Patients admitted after a fragility fracture who are on an oral bisphosphonate, that they have been taking correctly for more than 12 months, may have treatment failure of their osteoporosis medication. Please check the vitamin D level as early as possible in these patients as they will usually require second line treatment for osteoporosis after discussion with specialists. Please document 'osteoporosis ?for denosumab' on the blood form in the request box when testing Vitamin D for these patients. Discuss such patients with senior colleagues.

If there are any concerns regarding osteoporosis or bone health management then please discuss with senior colleagues or the Orthogeriatric Service.

If a patient has been seen by the Orthogeriatric Service please ensure that the plans have been reviewed and fully actioned. These plans may include information to be documented on patient's discharge summaries.