

## Pre-optimisation

### Identify and treat reversible comorbidities

#### Analgesia

- Fascia Iliaca Compartment Block in ED
- Paracetamol QDS IV (15mg/kg if <50kg)
- Oxynorm 2.5-5mg or Oramorph 2.5-5mg prn 1-2hrly

**Hold ACE and ARB antihypertensives** until post-op

#### Risk stratify

- Nottingham Hip Fracture Score

### Minimise Fasting

- NBM 6hrs food, give clear fluids 2hrs
- Maintenance IVI if NBM

### Consider appropriate post-op level of care

#### Ensure

- Mental Capacity / Appropriate Consent
- DNACPR discussed
- Family informed
- Normothermia / Normoglycaemia
- Thromboprophylaxis
- Golden Patient



## Ascertain cause of fall

### Risk stratification

Nottingham Hip Fracture Score

### Correct comorbidities

Full details in AoA Hip Fracture Guideline

## Aim for Surgery within 36 hrs

### Nottingham Hip Fracture (Frailty) Score

Variable	Score	Total Score	Predicted 30 day mortality risk %
Age 66-85	3	0	0.4%
Age >85	4	1	0.6%
Sex: Male	1	2	1.0%
AMTS < 7	1	3	1.7%
Admission Hb <100g/L	1	4	2.8%
Resident in institution	1	5	4.6%
Comorbidities >= 2	1	6	7.4%
Malignancy (ex SCC/BCC)	1	7	11.8%
Total: (max 10)		8	18.2%
		9	27.0%
		10	38.0%

\*This is a prediction of mortality risk, does not take into account acute illness.  
AMTS = Abbreviated Mental Test Score

## Intra-operative

### Senior anaesthetist and surgeon

#### Fascia Iliaca Block - if not in last 12 hours

- USS guided ideally
- Pre Spinal: 15mls of 0.5% Chirocaine + 15mls 1% Lignocaine
- GA: 40mls 0.25% Chirocaine  
Chirocaine: Max 2mg/kg ∴ <50kg 30mls / >50kg 40mls

#### Strict BP control - low threshold for Art line

- Target MAP >75
  - < 20% deviation from baseline
  - Sys BP maintain >100 mmHg
- Vasoconstrictors for BP control
- Cautious use of fluids

#### Ensure

- WHO Checklist ? cement
- Antibiotics
- Normothermia / Normoglycaemia

### Tranexamic Acid

- 15mg/kg / decrease if <50kg
- Slow injection

### Spinal

- Maximum 2.5 ml H.Bup/Bup/Chiro
- Consider 2% H. Prilocaine 2-3 mls
- Use lowest dose possible for op. length
- NO intrathecal opiates**
- Avoid sedation
- If required use TCI propofol or small bolus
- NO Benzos / Ketamine** due increased risk of post op delirium

### General Anaesthesia

- Consider inhalational induction - avoid hypotension
- Age adjusted MAC (MAC<sub>50</sub> Sevo 80 yoa = 1.4)
- BIS (40-60 target)

### AVOID

Post-op Cognitive Dysfunction

## Post-operative

### Unstable patient = venous blood gas

#### Analgesia

- Paracetamol 1g QDS (<50kg 15mg/kg IV) IV first 48hrs then PO
- Oxynorm 2.5-5mg or Oramorph 2.5-5mg prn 1-2hrly
- AVOID Tramadol / Codeine / NSAIDs
- Senna BD, Glycerine sup PRN
- Ondansetron 4mg tds prn (review after 4 doses)

### "Sign Out" plan inc:

- Fluid plan
- Hb plan >90g/L (or 100g/L CVS patients)
- Antibiotics (as per hospital protocol)
- Thromboprophylaxis / DOAC
- Nutrition
- Glycaemic control

### Oxygen prescribed for all patients

### Consider appropriate post-op level of care

#### FICB

#### Positioning

Diakomi M *et al*, *RAPM* 2014; **39**: 394-8

#### Analgesia

Yun MJ *et al*, *Acta Anaes Scan* 2009; **53**: 1282-7.7

#### Reduces GA maintenance

Callear J *et al*, *BMJ Open Quality* 2016

#### Strict BP Control

MAP ~ <55mmHg increased 30d mortality in hip fracture patients

White SM *et al*, *Anaesthesia* 2016; **71**: 506-14.

Walsh M *et al*, *Anesthesiology* 2013; **119**: 507-15

#### Low dose spinal

< 1.5 - 2 ml 0.5% H.Bupi improved blood pressure control

White SM *et al*, *Anaesthesia* 2016; **71**: 506-14

#### TX Acid

TXA reduces bleeding and transfusion

Systemic review: Farrow LS *et al*, *Br J Clin Pharmacol*, 2016 Dec; **82**(6):1458-1470

Meta-analysis: Amer KM *et al*, *Journal of Ortho Trauma* 2017 Oct 31; **10**: 520-525

#### GA

Inhalational induction or 10-20mg primer propofol improved BP control

RCOP and AAGBI, NHD Anaesthesia Sprint Audit of Practice. 2014

Evidence base

<b>Anaemia</b>	Hb < 100g/L	Consider Pre op transfusion if Hb < 100g/L
<b>Anticoagulation</b>		<p><b>Single antiplatelet</b> medication no reason to delay surgery</p> <p><b>Dual antiplatelet</b> balance of risks, good reason to <b>not</b> perform neuroaxial block</p> <p><b>Warfarin</b> - assess thrombotic risk - Low risk (e.g. AF, recurrent DVT/PE, stop &amp; cover with LMWH - High risk -discuss with Haematologist</p> <p><b>DOACs</b> <b>Xa inhibitors</b> (suffix "-aban") Confirm time of last dose, surgery 24hrs after last dose <b>Thrombin inhibitors</b> (eg Dabigatran) - Blood test = Thrombin Time (TT) Confirm time of last dose, surgery next afternoon - TT 8am day of surgery Proceed if TT normal, if prolonged discuss with haematologist</p>
<b>Volume Depletion</b>		Fluid challenge in 250ml of balanced salt solution e.g. Plasmalyte Minimise Starvation Maintenance IVI 20ml/kg/day with 1mmol/day Na/Cl/K plus 50-100mmol Glucose
<b>Electrolyte imbalance</b>	<p><b>Sodium</b> mmol/l &lt; 120 or &gt;150</p> <p><b>Potassium</b> mmol/l &lt; 2.8 or &gt; 6.0</p>	<p>Assess cause, caution rapid fluctuations in Na</p> <p>Hypokalemia correct pre op - high risk for peri op arrhythmia Hyperkalemia may be due to rhabdomyolysis</p> <p>Daily U+E if abnormal</p>
<b>Diabetes</b>		Not a reason to delay unless patient ketotic or dehydrated
<b>Uncontrolled heart failure</b>		Surgery should <i>not</i> be postponed awaiting ECHO Give anaesthetic as if severe valvular disease
<b>Correctable cardiac arrhythmia ischemia</b>	AF - target rate < 100bpm	Factors that may lead to new or fast AF include: Hypokalemia and hypomagnesaemia, hypovolemia, sepsis, pain and hypoxia If treatment of these is ineffective, acute ventricular rate control may be achieved using beta-blockers (metoprolol) or verapamil, if unsure seek guidance
<b>Exacerbation of COPD/Chest infection</b>		Initiate medical management. Expedite surgery under regional anaesthesia