Fractured Neck of Femur

Hx/Exam – Its not just "the bone is broken I must fix it"

- **Why did They Fall** – was this a collapse?
- **Are they sick** – Co-morbidity/illness is common in this group and must be recognised
- **Anticoagulants** - This affects treatment
- **Other injuries** – >65's the most common mechanism of TARN major trauma is fall <2m
- **Typically** – Pain hip/buttock, shortened, externally rotated
- **Atypical** - Few signs (can they lift their leg & is rotation at the hip painful)

Analgesia

These are generally frail elderly patients, and **OPIATES** have been show to both significantly **INCREASE MORTALITY & TIME TO RECOVERY**

- IV Paracetamol should be first line
- Use Opiates sparingly
- Perform Femoral Nerve Block (FNB) - as soon as practical

FNB, can reduce pain for the patient for many hours and often upto the point of operation. It reduces opiate requirements, and aids recovery.

Femoral Nerve Block

See guidance on pages 2/3

- Trained operator
- Ultrasound guided
- Aseptic
- Use Nerve block needle
- Recommended mix

10ml 2% Lidocaine
&
10ml 0.25% Levobupivacaine

- Adjust dose to weight
- Document – ADHOC > ED procedure

Anticoagulants

- Ensure "Ortho" aware
- WARFARIN
  - Finger prick INR if available
  - If INR >1.5 OR Unavailable
    - Give Vit K 5mg

Investigations

- X-ray (Hip, pelvis, CXR)
- X-ray femur if pathological
- FBC
- Clotting
- Group/Save
- U&E, Bone profile
- ECG

On EPR all required investigations can be found on the: **Adult NoF order set**

Post-Block

Obs. every 5min (for 15min)

- 3 Lead ECG
- BP
- SaO_2
- Symptoms of Toxicity

LA – Toxicity

- Altered mental state
- Fits
- Arrhythmias
- Perioral numbness
- Tinnitus

Treatment Guide page 4/5

Coding

When you have done such great work please help us get paid for it.

- Check Ultrasound (£50)
- Check Nerve block

Guideance Notes

- **Peripheral nerve blocks may only be conducted by doctors** trained and competent to do so and competent to manage any complications.
- **Check no contraindications** e.g. anticoagulants, infection, neuropathies etc.
- **Consented** for the peripheral nerve block. Discussion of consent should include; indications, advantages, analgesic alternatives, the process of performing the peripheral nerve block and potential complications. Advise the patient to report any symptoms of LA toxicity e.g. perioral numbness or tinnitus. Where consent cannot be obtained then the doctor must decide if a PNB is in the patient's 'best interest'.
- **Monitoring must include, as a minimum, 3 lead ECG, non-invasive blood pressure (recording at a minimum of 5 minute intervals) and continuous pulse oximetry. Monitoring must be continued for at least 15 minutes post block performance.**
- **Intravenous access must be established**
- **Skin preparation** is with 0.5% chlorhexidine in alcohol ("Hydrex Pink© spray) or suitable alternative, but not 2% chlorhexidine.
- **Aseptic**, non-touch technique must be employed with the use of **sterile** gloves. Peripheral nerve catheters must not be inserted in the ED.
- **Ultrasound guidance** with an appropriate sterile cover (e.g. sterile plastic sheath or rectangular Tegaderm©) and sterile gel is highly recommended.
- **Designated peripheral nerve block needles**, of the minimum appropriate length, must be used. The use of hypodermic needles is **not** recommended.

STOP BEFORE YOU BLOCK!

- Prevent wrong sided peripheral nerve blocks by checking laterality of the intended block e.g. ask the patient, check x-rays and documentation
- **Local anaesthetic agents** used must be appropriate with regards to onset and duration and must not exceed the maximum safe dose for that drug. For a femoral nerve block for a #NOF, a mix of 2% lidocaine (quick onset) and 0.25% levobupivacaine (long duration but without an incapacitating motor block) is suggested. Volumes should not exceed 20mls in total for a femoral nerve block, or be a proportion of maximum recommended LA doses based on mg/kg body weight.
- **LA injections** should be made around, and **never** in, the nerve(s). They should be of low volume (5mls or less), after negative aspiration and be of low pressure.
    - Pain/Paraesthesia: should repositioning of the needle before injecting.
- **Sharps** must be disposed of safely in an approved sharps bin
- **Protection:** Gel should be removed from the patient's skin and the limb blocked be adequately supported as to protect it from accidental injury due to the anticipated sensory and motor weakness post block.

Table 2 Relative risk related to neuraxial and peripheral nerve blocks in patients with abnormalities of coagulation.

	Block category	Examples of blocks in category
Higher risk	Epidural with catheter	
	Single-shot epidural	
	Spinal	
	Paravertebral blocks	Paravertebral block
		Lumbar plexus block
		Lumbar sympathectomy
		Deep cervical plexus block
	Deep blocks	Coeliac plexus block
		Stellate ganglion block
		Proximal sciatic block (Labat, Raj, sub-gluteal)
		Obturator block
		Infraclavicular brachial plexus block
		Vertical infraclavicular block
		Supraclavicular brachial plexus block
	Superficial perivascular blocks	Popliteal sciatic block
		Femoral nerve block
		Intercostal nerve blocks
		Interscalene brachial plexus block
		Axillary brachial plexus block
	Fascial blocks	Ilio-inguinal block
		Ilio-hypogastric block
		Transversus abdominis plane block
		Fascia lata block
	Superficial blocks	Forearm nerve blocks
		Saphenous nerve block at the knee
		Nerve blocks at the ankle
		Superficial cervical plexus block
		Wrist block
		Digital nerve block
		Bier's block
Normal risk	Local infiltration	

Notes to accompany Table 2

There have only been 26 published reports of significant haemorrhagic complications of peripheral nerve and plexus blocks [1]. Half of these occurred in patients being given anticoagulant drugs and half in patients with normal coagulation. Patient harm has derived from:

- Spinal haematoma after accidental entry into the spinal canal during attempted paravertebral blocks as defined in the Table.
- Exsanguination.
- Compression of other structures, e.g. airway obstruction, occlusion of major blood vessels or tissue ischaemia.

The one death in this series was that of a patient on clopidogrel who underwent a lumbar plexus block and subsequently exsanguinated. The majority of the 26 cases underwent deep blocks or superficial perivascular blocks. From these data, and from other data relating to neuraxial blocks, we have placed blocks in the order of relative risk shown in the Table.

Catheter techniques may carry a higher risk than single-shot blocks. The risk at the time of catheter removal is unlikely to be negligible.

Ultrasound-guided regional anaesthesia, when employed by clinicians experienced in its use, may decrease the incidence of vascular puncture, and may therefore make procedures such as supraclavicular blocks safer in the presence of altered coagulation.

AAGBI Safety Guideline

Management of Severe Local Anaesthetic Toxicity

1 Recognition

Signs of severe toxicity:

- Sudden alteration in mental status, severe agitation or loss of consciousness, with or without tonic-clonic convulsions
- Cardiovascular collapse: sinus bradycardia, conduction blocks, asystole and ventricular tachyarrhythmias may all occur
- Local anaesthetic (LA) toxicity may occur some time after an initial injection

2 Immediate management

- Stop injecting the LA
- Call for help
- Maintain the airway and, if necessary, secure it with a tracheal tube
- Give 100% oxygen and ensure adequate lung ventilation (hyperventilation may help by increasing plasma pH in the presence of metabolic acidosis)
- Confirm or establish intravenous access
- Control seizures: give a benzodiazepine, thiopental or propofol in small incremental doses
- Assess cardiovascular status throughout
- Consider drawing blood for analysis, but do not delay definitive treatment to do this

3 Treatment

IN CIRCULATORY ARREST

- Start cardiopulmonary resuscitation (CPR) using standard protocols
- Manage arrhythmias using the same protocols, recognising that arrhythmias may be very refractory to treatment
- Consider the use of cardiopulmonary bypass if available

GIVE INTRAVENOUS LIPID EMULSION
(following the regimen overleaf)

- Continue CPR throughout treatment with lipid emulsion
- Recovery from LA-induced cardiac arrest may take >1 h
- Propofol is not a suitable substitute for lipid emulsion
- Lidocaine should not be used as an anti-arrhythmic therapy

WITHOUT CIRCULATORY ARREST

Use conventional therapies to treat:

- hypotension,
- bradycardia,
- tachyarrhythmia

CONSIDER INTRAVENOUS LIPID EMULSION
(following the regimen overleaf)

- Propofol is not a suitable substitute for lipid emulsion
- Lidocaine should not be used as an anti-arrhythmic therapy

4 Follow-up

- Arrange safe transfer to a clinical area with appropriate equipment and suitable staff until sustained recovery is achieved
- Exclude pancreatitis by regular clinical review, including daily amylase or lipase assays for two days
- Report cases as follows:
  - in the United Kingdom to the National Patient Safety Agency (via **www.npsa.nhs.uk**)
  - in the Republic of Ireland to the Irish Medicines Board (via **www.imb.ie**)

If Lipid has been given, please also report its use to the international registry at **www.lipidregistry.org**. Details may also be posted at **www.lipidrescue.org**

Your nearest bag of Lipid Emulsion is kept .....

IMMEDIATELY

Give an initial intravenous bolus injection of 20% lipid emulsion

1.5 ml.kg^{-1} over 1 min

AND

Start an intravenous infusion of 20% lipid emulsion at **15 ml.kg^{-1}.h^{-1}**

AFTER 5 MIN

Give **a maximum of two** repeat boluses (same dose) if:

- cardiovascular stability has not been restored **or**
- an adequate circulation deteriorates

Leave **5 min** between boluses

A maximum of **three** boluses can be given (including the initial bolus)

AND

Continue infusion at same rate, but:

Double the rate to **30 ml.kg^{-1}.h^{-1}** at any time after 5 min, if:

- cardiovascular stability has not been restored or
- an adequate circulation deteriorates

Continue infusion until stable and adequate circulation restored or maximum dose of lipid emulsion given

Do not exceed a maximum cumulative dose of 12 ml.kg^{-1}

An approximate dose regimen for a 70-kg patient would be as follows:

IMMEDIATELY

Give an initial intravenous bolus injection of 20% lipid emulsion 100 ml over 1 min

AND

Start an intravenous infusion of 20% lipid emulsion at 1000 ml.h^{-1}

AFTER 5 MIN

Give a **maximum of two** repeat boluses of 100 ml

AND

Continue infusion at same rate but **double** rate to 2000 ml.h^{-1} if indicated at any time

Do not exceed a maximum cumulative dose of 840 ml

This AAGBI Safety Guideline was produced by a Working Party that comprised:
Grant Cave, Will Harrop-Griffiths (Chair), Martyn Harvey, Tim Meek, John Picard, Tim Short and Guy Weinberg.

This Safety Guideline is endorsed by the Australian and New Zealand College of Anaesthetists (ANZCA).