Mayday Fractured Neck of Femur Proforma

Guidelines for patients on Warfarin who have hip fracture

All patients taking warfarin should have their INR measured as well as LFTs. If there is evidence of a new stroke or possibility of extra-dural or sub-dural haematoma discuss the management of the patient with Medical SpR immediately.

Do not list patient for surgery until the INR less than 1.2.

Haemorrhage

If there is evidence of current haemorrhage discuss the management of the patient with Medical SpR immediately.
If the INR is greater than 5 discuss with Medical SpR. (Fractures Bleed)
If anticoagulation is to be permanently reversed methods include stopping Warfarin, administration of Fresh frozen plasma and Vitamin K 5-10mg iv. For life threatening bleeding Prothrombin complex concentrate (Octaplex) may be indicated. The method used will depend on the urgency of the clinical situation. Discuss with Medical SpR.or duty Haematologist.
Haematology advice will be needed to obtain FFP or Octaplex.

Methods of reversing Warfarin for surgery

Patients on Warfarin may be categorised according to thrombo-embolic risk.

High thrombo-embolic Risk

Metallic Prosthetic Heart valve, recent DVT/PE (within 6 weeks), antiphospholipid syndrome; some inherited thrombophilias with DVT/PE, cardiac mural thrombus; LV aneurysm; Recent Arterial thrombosis; Cavernous sinus thrombosis.

For high risk patients, the need for operation needs to be balanced against the risks of reversing it. Anticoagulation should be reversed for the minimal time possible. Management should be discussed with the medical registrar of day or consultant. The principles will be to stop warfarin and if surgery within next 48 hrs, give Vitamin K 1mg iv daily till INR in acceptable range for operation.(Avoid higher doses of Vitamin K as it will be very difficult to re-anticoagulate) It is preferable to avoid giving Vitamin K to patients with prosthetic valves except for life threatening bleeding. Once the INR is less than 2 maintain anticoagulation till operation by an infusion of iv unfractionated Heparin (see protocol on Mayday intranet) adjusted to give APTT Ratio of 1.5-2.5

The patient should have a definite time for operation and should not be cancelled. Heparin should be stopped **four** hours before operation and restarted **two** hours after it is finished, providing haemostasis is established. Restart Warfarin on the evening of the procedure unless surgically contraindicated, using a loading dose of Warfarin for 2 days. This should usually be 150% of the patient's usual maintenance dose. Check the INR on the third day, adjust does and continue the Heparin, checking daily APTR, until INR is in the therapeutic range (generally 2-3, though prosthetic valves will have higher target range. (Check the target for all patients in their yellow warfarin book).

Moderate Thrombo-embolic Risk

Such patients include: DVT/PE more than 6 weeks previously, Recurrent (more that one) DVT/PEs. Stop Warfarin. If timing of surgery demands it, give Vitamin K 1mg iv on successive days till INR less than 1.2 and then list for surgery. Once INR <2 give Low molecular weight heparin cover, Tinzaparin 4500 units s.c.at 18.00 hours. This should be continued post operatively until INR back in therapeutic range. Restart Warfarin on evening (18.00) of procedure unless surgically contraindicated. Use a loading dose of Warfarin for 2 days. This should be 150% of patient's usual dose. Check INR on the third day.

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Lower risk patients

For Example: Atrial Fibrillation, Paroxysmal Atrial fibrillation or other arrhythmia, Atrial septal defect, enlarged cardiac chamber, tissue cardiac valve replacement, single PE/DVT more than 6 months ago.

Stop Warfarin. If timing of surgery demands it, give Vitamin K 1mg iv on successive days till INR less than 1.2 then list for operation.
Once INR less than 2 the patient should receive standard DVT prophylaxis to cover orthopaedic surgery that is s/c Tinzaparin 3,500 units at 18.00 hours. This should be continued post operatively daily till INR back in therapeutic range Restart Warfarin on the evening of the procedure unless surgically contraindicated, using a usual maintenance dose of Warfarin.. Consider medical review of the need for anticoagulation.
For all patients, on discharge an appropriate anticoagulant clinic appointment should be made

Patient on Warfarin.

Check INR and LFTs. Not for theatre unless INR < 1.2

If signs of a new stroke or possibility of extra-dural or subdural haematoma discuss with medical SpR immediately.

If INR > 5 Discuss with medical SpR immediately.

If evidence of haemorrhage discuss with medical SpR immediately.

High Thrombotic Risk

Metallic Heart Valve, LV aneurysm or mural thrombus, Recent (6/52 ago) DVT/PE, antiphospholipid syndrome, thrombophilia with DVT/PE, Recent (3/12 ago) arterial thrombosis or embolus, Cavernous sinus thrombosis.

Stop Warfarin
Discuss with SpR

Vit K1mg iv daily till INR < 1.2. Once INR < 2.0 infuse Unfractionated Heparin i.v. (Protocol on Intranet) and keep APTT ratio in range 1.5 to 2.5. Stop Heparin 4 Hr before operation & restart 2 Hr after. Restart warfarin evening of operation. Use a Warfarin dose of 150% of maintence dose for 2 days. Continue Heparin till INR in target range.

Moderate Thrombotic Risk

DVT/PE more than 6/52 ago but less than 6/12 ago.
Recurrent (2 or more) DVT/PEs.

Stop Warfarin

Give i.v. Vit K1mg daily till INR < 1.2 and then operate. Once INR < 2 give s.c. Tinzaparin 4,500 units s.c. at 18.00.
Restart warfarin on evening of operation. Use a Warfarin dose of 150% of normal maintence dose for 2 days. Continue Tinzaparin post-operatively till INR in therapeutic range.

Low Thrombotic Risk

Atrial Fibrilation, Paroxysmal AF or other arrhythmia, enlarged cardiac chamber and/or tissue cardiac valve replacement, Atrial septal defect.
Single DVT/PE more than 6/12

Stop Warfarin

Give i.v. Vit K1mg daily till INR < 1.2 and then operate. Once INR < 2 give Tinzaparin 3,500 units s.c. at 18.00. Restart warfarin evening of operation. Use a Warfarin dose of 150% of maintence dose for 2 days. Continue Tinzaparin post-operatively till INR in therapeutic range. Review the need for warfarin.