NB All bleeding in a patient on warfarin should be taken seriously. Bleeding may occur when the INR is therapeutic. If the INR is sub-therapeutic e.g. <1.5, bleeding may be due to factors other than warfarin and reversal may not be appropriate. Always check FBC and coagulation screen to identify other causes. If in doubt discuss with haematologist.

NORTHERN REGION HAEMATOLOGISTS GROUP GUIDE TO WARFARIN REVERSAL

BLEEDING

Life / Limb /Sight Threatening

CONTACT HAEMATOLOGIST

•Intracranial (CT or MRI)

If STRONG CLINICAL SUSPICION of intracranial bleed due to head injury, give Beriplex prior to the results of any investigations. Do URGENT INR and CT scan (within 1 hour). If INR>1.5, consider urgent reversal with Beriplex (see below), without waiting for CT scan.

•Retroperitoneal (CT or MRI)
•Intra-ocular (NOT conjunctival)
•Spontaneous muscle bleed with compartment syndrome
•Pericardial
•Active bleeding from any orifice plus either BP ≤ 90 mmHg systolic, oliguria or 2 g fall in haemoglobin

↓

Vitamin K 5 mg IV[2] and Prothrombin complex concentrate IV (Beriplex)[3] 30 units/kg

↓

Check INR Immediately

↙ Adequate correction

↓

Repeat INR & APTT in 4-6 hours

↘ Inadequate correction

↓

Consider other factors contributing to prolonged coagulation tests eg DIC, Congenital coagulation factor deficiency, Liver disease. **A further dose of 20 units/kg Beriplex may be indicated- seek haematological advice**

Significant bleeding[4] without haemodynamic compromise

↓

Vitamin K 2 mg IV[2]

↓

Check INR at 4-6 hours or sooner if clinical deterioration

Minor

↓

Vitamin K 2mg PO[1]

Oral vitamin K is safe and adequate treatment for the majority of patients. There may be some clinical circumstances when 1-2 mg IV vitamin K should be considered e.g. gross over-anticoagulation or unsteady patients

↓

Check INR at 24 hours or sooner if clinical deterioration

[1]Oral vitamin K - there are marked differences between formulations of vitamin K. The most effective preparation is IV Konakion (Roche) given orally. The vial contains 10 mg/ml - dilute appropriate dose in small amount of juice/water after drawing up in 1 ml insulin syringe. Alternatively the Konakion MM paediatric formulation may be used

[2]Vitamin K IV may rarely cause anaphylaxis. Give by slow IV bolus

[3]Prothrombin complex concentrate (PCC) may induce a prothrombotic state. Use with caution in patients with DIC or decompensated liver disease

[4]In serious but non-life-threatening bleeding (e.g. GI bleeding or epistaxis without haemodynamic compromise) prompt reversal with IV vitamin K is indicated

The use of FFP for warfarin reversal is no longer recommended

NORTHERN REGION HAEMATOLOGISTS GROUP GUIDE TO WARFARIN REVERSAL

NO BLEEDING

Remember to document any reason for high INR and check that follow up with the INR clinic is in arranged

INR >8

Vitamin K 1-2mg PO[1]

Oral vitamin K is safe and adequate treatment for the majority of patients. There may be some clinical circumstances when 1-2 mg IV vitamin K[2] should be considered e.g. gross over-anticoagulation or unsteady patients

Check INR
at 24 hours or sooner if clinical deterioration

INR 5 – 7.9[3]

Omit or reduce dose
or
Vitamin K 1-2 mg PO[1]
if considered "High Risk" of bleeding[3]

[1]Oral vitamin K - there are marked differences between formulations of vitamin K. The most effective preparation is IV Konakion (Roche) given orally. The vial contains 10 mg/ml - dilute appropriate dose in small amount of juice/water after drawing up in 1 ml insulin syringe. Alternatively the Konakion MM paediatric formulation may be used.

[2]Vitamin K IV may rarely cause anaphylaxis. Give by slow IV bolus

[3] Most patients do not require INR reversal at INR 5-7.9 but correction should be considered in "high risk" patients whose risk of bleeding is higher. **High risk:** Age > 70; Hypertension; Diabetes; Renal failure; Previous MI, CVA or GI bleed; Anti-platelet therapy

The use of FFP for warfarin reversal is no longer recommended

NORTHERN REGION HAEMATOLOGISTS GROUP GUIDE TO WARFARIN REVERSAL

NEED FOR SURGERY

Assess urgency of surgery and degree of reversal required

EMERGENCY SURGERY (IMMEDIATE):

Vitamin K 5mg IV[2] and Prothrombin complex concentrate IV (Beriplex)[3] 30 units/kg[4]

URGENT (WITHIN 24 HOURS):

If surgery can be delayed for 6-12 hours, give Vitamin K 2mg IV[2]. If it can delayed for 24 hours, give Vitamin K 1-2mg po[1]

[1]Oral vitamin K - there are marked differences between formulations of vitamin K. The most effective preparation is IV Konakion (Roche) given orally. The vial contains 10 mg/ml - dilute appropriate dose in small amount of juice/water after drawing up in 1 ml insulin syringe. Alternatively the Konakion MM paediatric formulation may be used.

[2]Vitamin K IV may rarely cause anaphylaxis. Give by slow IV bolus

[3]Prothrombin complex concentrate (PCC) may induce a prothrombotic state. Use with caution in patients with DIC or decompensated liver disease

[4]A lower dose of PCC may be adequate if full reversal is not required.

The use of FFP for warfarin reversal is no longer recommended