CLINICAL GUIDELINES ID TAG	
Title:	Management of a Head Injury in Patients on Anticoagulants
Author:	Dr H K Boyd, Dr M Feenan, Mrs S Doyle
Speciality / Division:	Haematology/ ED/ Pharmacy
Directorate:	Acute Services
Date Uploaded:	06/02/2019
Review Date	31/01/2021
Clinical Guideline ID	CG0262[4]

Guidance on the Management of a Head Injury in Patients on Warfarin / Therapeutic LMWH / Dabigatran / Apixaban / Rivaroxaban / Edoxaban

- All patients with a head injury, however minor, should be advised to attend the Emergency Department for assessment.

- Patients on therapeutic anticoagulation are more likely to have a cerebral bleed with a minor injury and there should be a low threshold for CT scanning.
    - For example if head injury was sufficient to cause:
        Facial or scalp laceration
        Bruising
        Persistent headache
        Loss of consciousness
        Amnesia
        Reduced Glasgow Coma Scale (below baseline for patient)

- All patients with a head injury on anticoagulation should have an urgent coagulation screen or, if on warfarin, an INR. The time the last dose of direct oral anticoagulant (DOAC) was ingested is needed to assist interpretation of coagulation screen and assess the likelihood of an anticoagulant effect of the drug contributing to bleeding. Coagulation screen may be normal despite the patient being fully anticoagulated with either LMWH or DOAC.

- Patients on warfarin, with a strong suspicion of an **expanding intracranial haematoma** after a clear head injury should have their anticoagulant **reversed immediately** and **before the CT scan**. Similarly patients on a DOAC or therapeutic enoxaparin, depending on time since last dose, should be considered for measures to reverse the anticoagulant effect. See specific guidance below for each drug.

- The Public Health Agency (PHA) advises that a **CT scan should be completed within 1 hour of referral (2014)**. This advice applies to all therapeutic and potentially prophylactic dose anticoagulant therapy. A provisional written radiology report should be available within 1 hour of the scan being completed. The referrer should clearly indicate '***Acute Head Injury with patient on therapeutic anticoagulant'*** on the referral form so that the Radiology team can then prioritise undertaking the scan within 1 hour of referral, as indicated by the PHA.

- **Strong suspicion of, or if CT scan confirms, intracranial haemorrhage:**
    - Warfarin
        - Vitamin K and PCC (see Warfarin reversal guideline)
        - In the absence of INR result a dose of 3000 units PCC is recommended for an adult.
        - If it is possible to obtain the INR immediately using POC (Coagucheck analyser), then this result should be used to guide dosing.
        - Stop warfarin
    - Enoxaparin / OTHER LMWH
        - Discuss the use of protamine with haematologist
        - Stop enoxaparin / LMWH
    - Dabigatran
        - Refer to haemorrhage algorithm for dabigatran and discuss with haematologist
        - Idarucizumab (Praxbind®) is available in ED
        - Stop dabigatran
    - Apixaban, Edoxaban or Rivaroxaban
        - Refer to haemorrhage algorithm for antiXa oral anticoagulants and discuss with haematologist.
        - Stop anticoagulant

- **To order PCC:** e.g. Octaplex® or Beriplex®
  Contact blood bank and request appropriate number of 500unit vials

- **For administration of PCC** see Guidelines for the administration of Prothrombin Complex Concentrate (PCC)

- If neurosurgeons advise a repeat scan, hold anticoagulation until scan has been repeated and then use the result to make anticoagulation decisions:

- **The decision on when to restart** anticoagulants must be taken on an individual basis, taking into account the bleeding and thrombotic risks for the individual. The risks and rationale for decisions should be explained to the patient. Review indication for ongoing anticoagulation to confirm anticoagulation is required.

- **Patients without evidence for intracranial haemorrhage** and with a supratherapeutic INR should have this corrected into their therapeutic range with oral Vitamin K and if INR is above 5, discuss use of PCC with a Haematologist (see Warfarin reversal guideline). Admit until INR is <3.0

- **Delayed intracranial bleeding can occur even when the initial CT scan is normal**.
  - Warfarin:
    - Patients with a supratherapeutic INR should have his corrected into the therapeutic range with oral Vitamin K. The INR should be maintained as close to 2.0 as possible for 4 weeks after a significant head injury and a normal CT scan.
  - Enoxaparin:
    - Patients on therapeutic enoxaparin, the indication and dose should be reviewed and a lower dose considered for a period if there was a significant head injury.
  - DOACs
    - The indication and need for dose reduction/omission should be considered.

- After a significant head injury with a normal CT scan, a repeat scan is not needed unless there is a change in the clinical picture (new symptoms).

- **All patients** on warfarin or other therapeutic dose anticoagulation should be given detailed head injury advice prior to discharge. Patients should be advised of the symptoms of raised intracranial pressure and be instructed to seek urgent medical assistance if the symptoms develop.

References:
Keeling D et al. Guidelines on oral anticoagulation with warfarin - fourth edition. BJH 2011; 154:311-324
NICE CG 176, Head injury: assessment and early management. 2014, updated June 2017
PHA: Safety and Quality Learning Letter: Head Injury in Patients on Warfarin: LL/SAI/2014/025 (AS)

Developed by: Dr H K Boyd on behalf of ST Anticoagulant Service: May 2012
Reviewed: March 2016 by Dr Mark Feenan, Dr Boyd and Mrs Sinead Doyle
Reviewed: October 2018.
Approved D&T Committee: January 2019
Next review: January 2021