Management Of Bleeding In Patients Taking a Newer Oral Anticoagulant (NOAC)

The NOACs currently licensed for stroke prevention in atrial fibrillation (SPAF) are dabigatran and rivaroxaban.

Dabigatran is a direct thrombin inhibitor

Rivaroxaban is a factor Xa inhibitor

There is no specific antidote available for either agent. Management of bleeding should be through cessation of the drug and general haemostatic measures (see subsequent flow chart). For major and life threatening bleeding, additional guidance is available in the North West Regional Transfusion Centre Massive Haemorrhage protocol.

Both agents work by direct clotting factor inhibition and not clotting factor depletion. Therefore the administration of clotting factors (FFP, PCC etc) is not anticipated to be wholly effective in reversing their effect. Discussion with a haematologist is recommended.

Neither agent works by blocking the effect of Vitamin K in the production of clotting factors therefore vitamin K administration will have no benefit.

Interpretation of routine laboratory coagulation tests may prove difficult and the relevance of these should be discussed with a haematologist.
Guidelines For Management Of Bleeding With Dabigatran And Rivaroxaban

**Initiate standard resuscitation measures**

- **STOP Dabigatran / Rivaroxaban**
- Consider stopping any antiplatelet therapy

**Request:**
1. Coagulation screen to include APTT (consider thromboplastin time), prothrombin time, fibrinogen - discuss results with haematologist
2. Full blood count, urea and electrolytes, group and save. Indicate time of last dose of anticoagulant, if known

There is currently NO specific reversal agent for dabigatran or rivaroxaban and vitamin K will have no effect on their anticoagulant effect.

- Consider oral charcoal for dabigatran ingestion < 2 hours ago

**Major Bleeding**

- **Mechanical compression**
- **Delay next anticoagulant dose or discontinue treatment as appropriate**
- **Maintain blood pressure and urine output**
- **Control haemorrhage**
  - Mechanical compression
  - Surgical/radiological intervention
  - Wound packing
- Tranexamic acid 1g bolus over 10 mins, followed by 1g IV infusion over 8 hours
- Red cell transfusion
  - Aim Hb > 7g/dl
- Platelet transfusion
  - Aim Platelets > 50 x 10^9 or
  - If CNS bleed aim > 100 x 10^9/l
- **Discuss** the use of haemostatic agents with haematologist on call

**Life Threatening Bleeding**

- **As for major bleeding**
- **Discuss** the use of haemostatic agents with haematologist on call

**Minor Bleeding**

- **Mechanical compression**
- **Delay next anticoagulant dose or discontinue treatment as appropriate**

**Notes:**
- **Major bleed:** reduction in Hb > 2g/dl, transfusion of > 2 units of red blood cells or symptomatic bleeding in critical area (i.e. intraocular, intracranial, intraspinal, intramuscular with compartment syndrome (be aware of concealed bleeding), retroperitoneal, intraarticular or pericardial bleeding)
- **Life threatening bleed:** Symptomatic intracranial bleed, reduction in Hb > 5g/dl, transfusion of > 4 units of red cells, hypotension requiring inotropic agents or bleeding requiring surgical intervention

*The choice of haemostatic agent is currently based on limited published evidence and will depend on availability as well as advice from the haematologist*

*The choice of haemostatic agent should be discussed with haematology as above. Protocol can be found at: [http://www.transfusionguidelines.org.uk/Index.aspx?pageid=7675&section=28&publication=RTC](http://www.transfusionguidelines.org.uk/Index.aspx?pageid=7675&section=28&publication=RTC)*