Introducing the Direct Oral Anticoagulants into Clinical Practice

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Discuss practical measures SHSCT employed to safely introduce the DOACs into clinical practice

- Audits performed
- What are the current issues with DOACs?
- What next?
The Anticoagulant Team consists of:

- Consultant Haematologist
- Anticoagulant pharmacist prescribers
- Administrative support
Anticoagulants are considered high risk medicines and if not carefully monitored can lead to serious adverse events.

Anticoagulants, in particular vitamin K antagonists, need to be managed carefully, to ensure patient safety.

With the introduction of DOACs to practice, opportunity for patients requiring anticoagulation to be improved, as well as providing a more efficient option for prescribers?

The need to ensure patient safety
Our Initial Concerns

- NPSA Safety Alert 18
- General public and professional awareness about the DOACs
- Drug selection and patient choice
- Continuity of care
- Pre-op + post-op management
- Combination therapy
- No antidote (as yet)
- Follow-up, monitoring, lab tests
- Compliance and concordance
- Cost pressures (long term use)
Introducing DOACs into SHSCT

- Intranet
- Prescribing Advice
- Patient counselling checklists
- Trust awareness campaign
- Peri-operative guidelines
- Emergency management

Anti-coagulant Team
Are you aware of the Newer Oral Anticoagulants?

**Increasing Awareness**

Developed by BHSCT Lead Cardiology Pharmacist and modified by the regional primary and secondary care Medicines Governance teams March 2014

**www.medicinesgovernance.hscni.net**

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**What are they and what are they licensed for?**

<table>
<thead>
<tr>
<th>Licensed products (December 2013)</th>
<th>DABIGATRAN Pradaxa® (Thrombin IIa Inhibitor)</th>
<th>APIXABAN Eliquis® (Factor Xa Inhibitor)</th>
<th>RIVAROXABAN Xarelto® (Factor Xa Inhibitor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke prevention in AF (Non Valvular)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Stroke prevention in AF (Prosthetic Heart valve)</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Prophylaxis of recurrent DVT and PE</td>
<td>×</td>
<td>×</td>
<td>✓</td>
</tr>
<tr>
<td>Treatment DVT and PE</td>
<td>×</td>
<td>×</td>
<td>✓</td>
</tr>
<tr>
<td>VTE prevention in hip and knee replacement</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Prescribing advice**

- **Monitoring**
  - Assess renal & hepatic function prior to treatment
  - Monitor for signs of bleeding
  - Annual haemoglobin, renal and liver function (bi-annually if >75 years, renal impairment, on dabigatran)
  - INR or routine monitoring of anticoagulation level is not required

- **Renal impairment**
  - Contraindicated if CrCl < 30ml/min
  - Caution required if CrCl 15 – 29ml/min
  - Contraindicated if CrCl < 15ml/min

- **Hepatic impairment**
  - Avoid in SEVERE hepatic impairment especially if prolonged prothrombin time (dabigatran) and if associated with coagulopathy (apixaban & rivaroxaban)

- **Contraindications**
  - Check prescribing information for contraindications.

- **Reversal**
  - Dabigatran, rivaroxaban and apixaban are powerful anticoagulants which cannot be easily reversed.

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**Are you aware of the Newer Oral Anticoagulants?**

**CAUTION**

Risk of serious haemorrhage – Check for contraindications

Never administer with LMWH (enoxaparin)

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[www.medicinesgovernance.hscni.net](http://www.medicinesgovernance.hscni.net)
Information on Trust Intranet

- Apixaban
- Counselling Checklists Other Languages
- Dabigatran
- Enoxaparin
- Rivaroxaban
- Unfractionated Heparin
- Warfarin
- A Guide to Safe Anticoagulation with NOACs or ODI's
- A Guide to Safe Anticoagulation with Warfarin
- Baseline Bloods for Anticoagulants
- NOACs Warfarin Conversion Advice
- Primary Care NOAC Discharge Letter Info (reviewed by IBM)

- Apixaban Starter Pack
- Apixaban Practical Guide
Looking for a policy or protocol? Press 'Ctrl' and 'F' and type the word/phrase you require, such as 'Gentamicin'.

Contact the Communications Team on 028 3861 3954 for details of how to post Guidelines on this page.

ALGORITHMS FOR RESUSCITATION
- Adult Advanced Life Support
- Adult bradycardia algorithm
- Adult tachycardia algorithm
- Anaphylaxis Algorithm
- In-hospital resuscitation
- Newborn Life Support
- Paediatric Basic Life Support
- Paediatric choking treatment
- Paediatric Advanced Life Support

ANTICOAGULATION
- Emergency Management of Anticoagulation
  - Warfarin reversal guidelines July 2012
  - Guidelines for use of Prothrombin Complex Concentrate to reverse warfarin
  - Guidelines for the administration of Prothrombin Complex Concentrate
  - Dabigatran Emergency Surgical Algorithm
  - Dabigatran Haemorrhage Algorithm
  - Dabigatran Overdose Algorithm
  - Rivaroxaban Emergency Surgical Algorithm
  - Rivaroxaban Haemorrhage Algorithm
  - Rivaroxaban Overdose Algorithm

Venous Thromboembolism (VTE) Prophylaxis and Management
- Anticoagulation in Venous Thromboembolism
- Management of Patients with Suspected DVT (approved by Dawn Richardson)
- Medical VTE Risk Assessment Form
- Surgical VTE Risk Assessment Form
- Perioperative Management of Anticoagulation
Continuing DOACs on Admission

- Ensure staff involved in patients care are aware that agent is an anticoagulant
- Highlight in medical notes and kardex
- No need for separate anticoagulant form
- VTE prophylaxis section completed
  - *No need for enoxaparin whilst on these agents*
- Check U+E – may need to withhold if renal function impaired
- Use of antiplatelets currently contraindicated
- If held ensure it is not forgotten
Examples of Medication Incidents with DOACs

- Dabigatran + enoxaparin both prescribed & both being administered on kardex while inpatient

- Rivaroxaban 20mg daily started for acute DVT treatment as inpatient for 7 days - noticed @ discharge

- Discharge letter with apixaban + aspirin both prescribed & both being administered on kardex while inpatient – aspirin was not indicated

- Root cause analysis of the incidents has identified that:
  - Health care professionals did not recognise these medicines as being potent anticoagulants

  - Patients did not receive adequate counselling when these medicines were commenced.
Audit 1 – Inpatient DOAC prescribing

- Retrospective audit of inpatient prescribing of DOACs over a six month period (October 2013 – March 2014)

- Data was retrieved from patients’ discharge letters

- 37 patients were identified as having been initiated on a DOAC
Audit 1 – Inpatient DOAC prescribing

- Correct Indication → 100%
- Correct Dose → 100% for riv and dag, 84% for apix,
- Baseline Renal Function → 100%
- Contraindications → 5% (2 cases)
- Drug Interactions → 3% (1 case)
- Appropriate length of Treatment → Poorly documented – apix 0%, dab 0%, riv 36%
- Counselling provided to patient → Poorly documented – apix 29%, dab 75%, riv 0%
- Follow up information provided to GP → Poorly documented – apix 27%, dab 40%, riv 43%
Primary Care Information & Follow up for APIXABAN

Indication:
Length of treatment:
Written + verbal counselling provided and by whom:
Patient Weight:
CrCl (ideally by Cockcroft Gault method):

Date:

Recommended blood monitoring: Hb, U&E, LFTs at least annually or more frequently according to clinical concern (NB check every 6 months if CrCl 30-60 ml/min, >75 years or fragile OR every 3 months if CrCl 15-30 ml/min).

The usual dose of apixaban for stroke prevention in AF is 5mg BD. **Reduce to 2.5mg BD if either:**
2 of following 3 risk factors present [ age >=80 years, weight <=60kg, creatinine >=133umol/L ]
OR CrCl <30 ml/min

If CrCl <30 ml/min – consider switching to warfarin (if initiating Rx when CrCl <30 ml/min, warfarin is preferred)
If CrCl <15 ml/min – stop and consider switching to warfarin
Auditor 2 – Warfarin vs. DOACs

Length of Stay

New patients for anticoagulation on stroke ward in 2014

<table>
<thead>
<tr>
<th>Medication</th>
<th>Warfarin</th>
<th>DOACs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Patients</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Average length of stay</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

Patients on DOACs spend 33% less time as an inpatient
Safe prescribing on medicine charts

- Co-prescribing with LMWH / anti-platelets
- ↓ omitted doses

Ensuring standards are continually met

- Written & verbal education delivered and by whom
- Bed pressures / poor discharge planning

Patient Issues

- Treatment failure – poor compliance or drug failure?
- Weight extremes – reduced efficacy with ↑ obesity?
  anti-Xa monitoring?
Current DOAC Issues – May 2015

- **Primary care issues**
  - Indication & duration
  - OTC / other agent use
  - Cessation/non-cessation for e.g. dental procedures
  - Monitoring of renal function – eGFR /CG GFR in extremes of weight
  - 3 monthly / 6 monthly / annual reviews
  - Possible dose changes e.g. apixaban
### What next?

- **DOAC safety driver program by NI Medicine Governance team**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Education &amp; awareness</td>
<td>Develop a DOAC audit tool for GP practices&lt;br&gt;Undertake DOAC training awareness road-shows for primary care providers</td>
</tr>
<tr>
<td>Communication</td>
<td>Develop a national generic patient information leaflet and alert card with engagement with royal colleges</td>
</tr>
<tr>
<td>Product packaging &amp; labelling</td>
<td>Request introduction of DOAC starter packs to UK market.</td>
</tr>
<tr>
<td>e-Health solutions</td>
<td>Examine potential to add warning flags to electronic prescribing &amp; dispensing systems in both primary and secondary care (with decision aids)</td>
</tr>
<tr>
<td>Supply</td>
<td>Request regional /national consistency with regard to labelling of directions</td>
</tr>
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</table>
What Next?

Patients view – ‘Wish list’ when starting anticoagulation

www.thrombus.co.uk

- A one-to-one scheduled discussion between the patient/carer and managing clinician, pharmacist if possible, summarising the patient's condition and follow-on treatment and care.

- A short video or podcast on the condition and treatment options would be very useful.

- The discharge summary/instructions must be clearly written, and available via a portal/link on the hospital website. Electronic version of the discharge summary to patient + GP with greater use of email.

- Informed about symptoms and signs of conditions they may be at risk of, and be reassured that if they have any concerns, they can contact either named staff member or team

- Greater use of IT e.g. apps for personal use with warfarin dosing + possible drug interactions
In Summary

- Welcome alternative to warfarin in the most suitable patients
- Patient education
- Continued awareness (both professional and public)
- Measures to ensure effective communication b/w clinicians, patients, primary care
- Measures to prevent potential adverse incidents
- Ongoing primary care surveillance required
References


- Manufacturer's SPC, Eliquis® 2.5mg, 5mg, 150 mg film-coated tablets; Manufacturer's SPC, Eliquis® film-coated tablets, Pfizer, The electronic Medicines Compendium. www.medicines.org.uk accessed on 24th March 2014

- Manufacturer's SPC, Pradaxa® 75mg, 110mg, 150 mg hard capsules; Manufacturer's SPC, Pradaxa® hard capsules, Boehringer Ingelheim, The electronic Medicines Compendium. www.medicines.org.uk accessed on 24th March 2014

- Manufacturer's SPC, Xarelto® 10 mg, 15mg, 20mg film-coated tablets; Manufacturer’s SPC, Xarelto® film-coated tablets, Bayer plc, The electronic Medicines Compendium. www.medicines.org.uk accessed on 24th March 2014

Useful Sources of Information

- http://www.escardio.org/
- http://www.spafacademy.org.uk/
- http://www.thrombosisadviser.com/
- http://www.kingsthrombosiscentre.org.uk/
- http://www.thrombosis-charity.org.uk/
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