Anticoagulation frequently causes harm to patients and unnecessary admissions to hospital\(^1\).

Managing the risk associated with anticoagulants was the subject of the National Patient Safety Agency (NPSA) alert, 2007\(^2\).

It is possible that this risk may have increased with the advent of direct oral anticoagulants.

Our aim was to provide an overview of complications associated with anticoagulation in a district general hospital/community setting.

To achieve this, four key domains were explored:

- **Domain 1:** Retrospective data was collected over a 30-day period, using the Royal United Hospital (RUH) computerised Acute Referral Management System, “ARaMiS”. All patients with venous thromboembolism (deep vein thrombosis and pulmonary emboli) and bleeding related admissions were included.
- **Domain 2:** Over a 48-hour period, information on the prescribing and management of anticoagulation was collected from 7 medical and surgical inpatient wards. Data was collected prospectively, and all patients on any form of anticoagulation were included.
- **Domain 3:** Data on Prothrombin Complex Concentrate (PCC) use over a 30-day period was collected retrospectively. The indication for its use and subsequent outcomes were reviewed using patient’s notes and discharge summaries.
- **Domain 4:** All major haemorrhages declared over a 6-month period were reviewed retrospectively, using patient’s notes and discharge summaries.

**Methods**

- **Domain 1:** There were 89 thrombosis (n=36) and bleeding (n=53) related admissions, accounting for 4% of all admissions to hospital.
- **Domain 2:** Prescribing of inpatient anticoagulation was suboptimal. Our findings demonstrated a lack of documentation, incorrect omissions and dosing errors (Table 1). Notable errors include failure to convert from LMWH to a DOAC correctly, inability to supply Dabigatran out of hours and poor recognition of drug interactions when prescribing Warfarin.
- **Domain 3:** 8 patients received PCC. 5 patients had intracranial bleeds, 2 patients had an upper gastrointestinal bleed and one patient had an INR greater than 8 following major trauma, although no bleed was detected on CT scanning. Of these, only 2 patients were fully independent on discharge, returning to their baseline functional level. 4 patients were left dependant or with a significant disability on discharge and there were 2 mortalities. An 8-hour delay in administration of PCC was highlighted in one of the mortalities; the cause of the delay was thought to be multi-factorial.
- **Domain 4:** Anticoagulation and anti-platelet agents contributed to 9% of all major haemorrhages (n=6). 2 patients were on Warfarin, 2 patients were on Rivaroxaban and 2 patients were on anti-platelet agents. The patients on Warfarin had an INR of 2.9 and 4 respectively.

**Conclusion**

- This project demonstrates the high burden of hospital admissions related to thrombosis and bleeding.
- It also highlights the complications of anticoagulation and the importance of education and training for medical staff, both in the community and hospital settings.
- The NPSA recommends establishing a thrombosis team in every hospital. A thrombosis team in our hospital is one potential solution in aiming to improve patient safety and the management of anticoagulation within the RUH.

**References:**