Causes of an isolated prolonged activated partial thromboplastin time in Belfast HSC trust in NI over a 3 month period (February 21- April 21)

C Rice[1], G Benson[1]

[1] Northern Ireland Haemophilia Comprehensive Care Centre and Haemostasis & Thrombosis Unit, Belfast City Hospital, Belfast

Belfast Health and Social Care Trust

Background:

Coagulation screening in BHSCT includes prothrombin time (PT), activated partial thromboplastin time (APTT) and fibrinogen (fib). Coagulation screening tests are sent from a wide range of multidisciplinary inpatient, outpatient and primary care settings. The results may predict an individual's bleeding risk.

Bleeding disorders such as haemophilia, von Willebrands disease, other factor deficiencies or laboratory interference of other phospholipids such as antiphospholipid may be initially investigated due to an abnormality of the coagulation screen. The APTT is of particular importance as this may be used to identify hereditary or acquired haemophilia.

Accurate interpretation of the coagulation screen results are variable and appropriate follow up of abnormal results may not always be arranged.

Aims:

Identification of cases with persistently isolated prolonged APTT and appropriate investigation of aetiology.

Method:

Review of all coagulation screen testing sent during a 3 month period (Feb-April 21) in BHSCT with identification of all cases with isolated prolonged APTT. All cases had a 50:50 mix performed. A repeat coagulation screen was requested to ensure persistently prolonged APTT was identified. Causes of the prolongation of the APTT were recorded and further investigation or follow up was arranged as required.

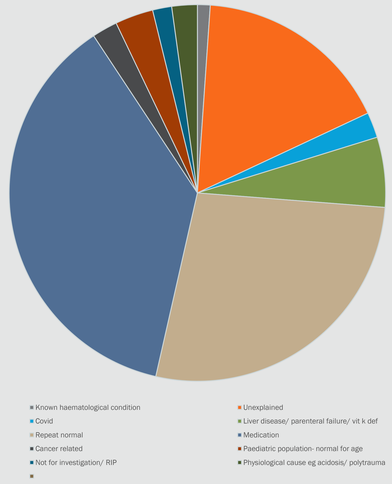
Results:

A total of 595 patients had a coagulation screen sent in BHSCT over the three month period Feb 2021- May 2021. Of these, isolated prolonged APTT was identified in 183 cases. If a clear cause was identified such as oral anticoagulation therapy, no further investigation was required. In the cases where no clear causative factor was identified, a repeat coagulation screen was requested, to ensure persistent abnormality prior to further investigation. A clear cause was identified in 152 cases and unexplained isolated prolonged APTT identified in 31 cases.

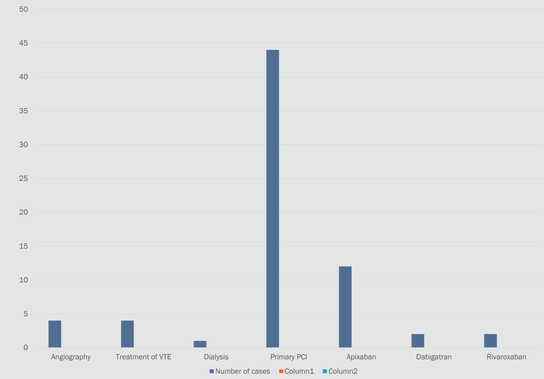
Table of causes identified of isolated prolonged APTT:

Causes of isolated prolonged APTT	Number of cases identified
Known haematological condition	2 (1 vonWillebrands disease, 1 Haemophilia A)
Unexplained	31
Covid	4
Liver disease	11
Repeat normal	50
Medication	68
Cancer related	4
Paediatric population- normal for age adjustment	6
Not suitable for investigation/ RIP	3
Physiological cause eg acidosis/ polytrauma	4

Identified causes of isolated prolonged APTT



Medication related causes identified
(Unfractionated heparin- 53 cases,
DOAC- 15 cases)



Results:

Of the cases due to medication- 53 were due to the use of unfractionated heparin (UFH). UFH was used the following indications: for angiography 4 , treatment of venous thromboembolism 4, dialysis 1 or primary percutaneous intervention 44. Direct oral anticoagulation (DOAC) therapy accounted for the remaining 15 cases- (apixaban 12, dabigatran 2, rivaroxaban 1).

Of the 31 cases with isolated prolonged APTT a repeat test was requested in all cases. A three month period was given to facilitate repeat testing. Unfortunately, 18/31 did not have the coagulation screen repeated within this time frame.

The remaining 13 cases all had a persistently prolonged APTT and as such required further investigation. Of these, we were unable to follow up 3 patients as they were either unknown patients or did not have a GP within NI. The remaining 10 patients were advised haematology outpatient referral for follow up. Six of these patients subsequently had normal APTT results on testing with STAGO coagulation screening in the outpatient setting. None of the remaining 4 cases had a new diagnosis made of a bleeding disorder.

Discussion:

Of the 595 coagulation screens sent, 183 of which had an isolated prolonged APTT identified, no new bleeding disorders were identified or diagnosed on investigation. This raises the question about the appropriate use of coagulation testing in BHSCT. Additionally, there is perhaps a need for a follow up pathway for persistently isolated prolonged APTT results. As although no new haematological diagnosis were made, the potential remains for an undiagnosed hereditary or acquired haemophilia, or other bleeding disorder, to be identified.

References- British Society of Haematology guidelines:

- Diagnosis and management of rare coagulation disorders
- Diagnosis and management of acquired coagulation factor inhibitor
- Measurement of non-coumarin anticoagulants and their effects on tests of haemostasis