Reduction of Platelet Thresholds to Adhere with British Society of Haematology (BSH) Guidance for Tunnelled Central Line Insertion does not Increase Bleeding Complication in Haematology Patients; a Single Centre Experience

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Introduction

- Demand for platelets increased year on year from 2007 to 2015.
- This is in part due to increased haematological malignancy diagnosis in an aging population, in addition to the use of more intensive treatment regimens.
- Platelet transfusion is indicated in disease and treatment induced thrombocytopenia, as well as increasing platelet count above a defined threshold to allow the safe undertaking of invasive procedures in thrombocytopenic patients.
- **British Society of Haematology (BSH) guideline 'Guidelines for the use of Platelet Transfusions' recommended a platelet threshold of > 20 x 10^9/L for the insertion of tunnelled central venous access.**
- Prior to this guidance a platelet threshold of > 50 x 10^9/L was widely used.
- Despite this guidance, national variation in practice continues, with hesitance to lower the platelet threshold in local guidelines.

Aims

- The aim of this project was to trial the implementation of the recommended BSH procedural platelet transfusion threshold of > 20 x 10^9/L for the insertion of ultrasound guided, tunnelled central catheters by experienced staff of the interventional radiology team at the Manchester Royal Infirmary.
- Previously the threshold of > 50 x 10^9/L was used by the Trust.

Methods

- This prospective, un-blinded observational study compared complication rates between the patient group with a pre-procedural platelet count between 20-50 x 10^9/L, to those with a pre-procedural count of > 50 x 10^9/L.
- Patients were included if they had a diagnosis of a haematological malignancy and were to undergo an insertion of a tunnelled central line insertion at the Manchester Royal Infirmary between April 2018 and October 2019.
- Exclusion criteria: age < 16 years, non-haematological malignancy diagnoses, deranged baseline clotting profile parameters prior to intervention.
- A pre-procedure haemoglobin concentration, platelet count and coagulation screen was recorded for each patient and bleeding complications during and following procedure were recorded.

Results

- Seventy three patients with a diagnosis of a haematological malignancy had a tunnelled central line inserted during the study period.
- Figure 1 demonstrates the number of patients with platelet counts within each range.

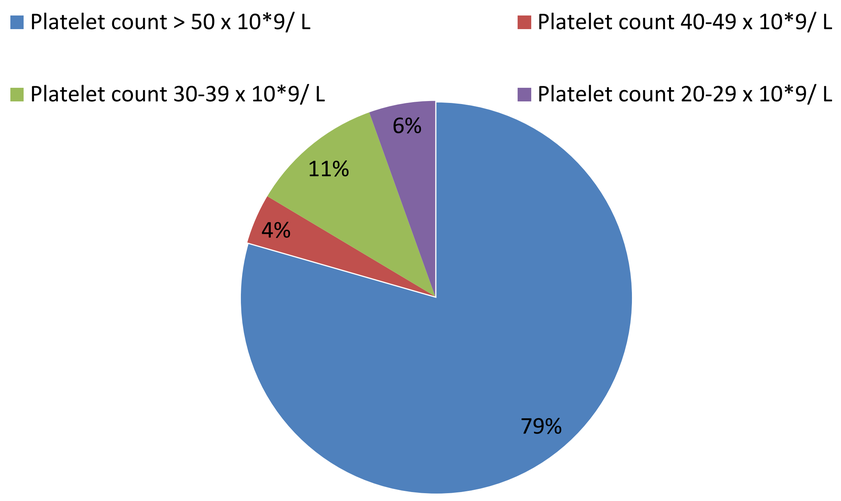

Figure 1: Platelet Count Prior to Tunnelled Line Insertion

- The overall complication rate was 2/73 (3%). The complication for both patients was described as a small haematoma requiring mechanical compression only.
- Of the 21% of patients with a platelet count < 50 x 10^9/L, only 1 out of the 15 had a minor complication. The complication was a mild haematoma, requiring mechanical pressure only.
- The other patient to have a minor complication had a platelet count of 357 x 10^9/L. The complication was a mild haematoma, requiring mechanical pressure only.

Conclusions

- Although a small number of patients, the experience of our centre is that national platelet threshold recommendations of > 20 x 10^9/L for tunnelled central line insertion is safe to implement with no observed increase in bleeding complications.
- Adherence to national guidelines also resulted in less delays and reduction in cancellations of line insertions for those patients with a pre procedural platelet count of 20-50 x 10^9/L.
- By reducing this threshold, 15/73 patients avoided unnecessary pre-procedure transfusion of platelets, the risk of which includes transfusion reactions, transfusion transmitted infections and alloimmunisation.

References

Guideline for the Use of Platelet Transfusions; L Escourt, J Birchall, S Allard et al; BJHaem Vol 176, Issue ; Feb 2017; Page 365-394.