**Audit of the Use of Platelets in Three UK Transfusion Committee Regions**

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**Aims and Objectives**

These audits were agreed with the respective Regional Transfusion Committees (RTCs) covering the North West, Yorkshire and The Humber and East Midlands regions of the United Kingdom (UK) as part of a rolling programme of regional audits on blood transfusion practice.

The underlying reason for conducting the audits was to determine the current demand for platelets across these regions and also their use against British Committee for Standards in Haematology1 and the NICE Guideline (NG24) on blood transfusion2. In addition, the audits were conducted to demonstrate that the recommendations of The 2010 National Comparative Audit of Platelet Use were being fulfilled3.

This audit programme is also part of activity to support the concept of Patient Blood Management (PBM4). PBM is a multidisciplinary, evidence-based approach to optimising the care of patients who might need a blood transfusion. It represents an international initiative in best practice for transfusion medicine. It is a long-term approach requiring resource and investment. The aim of PBM in England is to build on the success of the Better Blood Transfusion (BBT) initiatives but with an emphasis on improving patient outcomes through blood avoidance and the use of alternatives to transfusion where possible.

**Context**

NHS Blood and Transplant supplies blood components to hospitals across the UK and Northern Ireland. Transfusion of blood components is not without significant risks if these components are used incorrectly. NHSBT carries out internal and external audits of blood component use on a regional and national basis to help ensure these components are used in accordance with recommended guidelines and standards. Platelets are one such component.

Platelet transfusions may be required in the event of haemorrhage, as prophylaxis or pre-procedure where blood loss is anticipated. As with all transfusions the risks and benefits should be carefully considered.

The 2010 National Comparative Audit (NCA) of platelet transfusions in Haematology audited 3,296 platelet transfusions over a three month period against the

Standards in the British Committee for Standards in Haematology (BCSH) Guidelines for the use of platelet transfusions (2003) and found that:

* 28% of the platelet transfusions were inappropriate
* 69% of the platelet transfusions were given as prophylaxis, 34% of these were inappropriate and 10% were double-dose transfusions
* 13% of the platelet transfusions were therapeutic 15% of platelet transfusions were given pre-procedure and 23% of these were inappropriate

There were two key recommendations of the audit with regard to the use of prophylactic platelet transfusions:

1. Platelet transfusion are not required routinely prior to bone marrow
 aspiration/biopsy or as prophylaxis in stable patients with long term bone marrow
 failure

2. Double dose platelet transfusions should not be used

These three re-audits were conducted to establish the extent to which these recommendations are being fulfilled and the degree of compliance to the recently issued NICE guidance relevant to platelet transfusions.

**Methods**

An audit sub group of the North West Regional Transfusion Committees established the initial questions for the audit tool. These questions remained consistent when the audit was repeated across the two other RTC regions, East Midlands and the Yorkshire and The Humber Regions. While there was some variation in the numbers of hospitals in the regions, all included a mix of very high and very low users of platelets. This approach allowed a large dataset to be accrued. Benchmarking across regions was also examined.

The transfusion practitioners elected to undertake the data collection using a hard copy data collection form or to submit data online.

Appropriate governance arrangements were implemented and approval to participate in the audit obtained. Caldicott Guardians in each participating site were also informed. Data anomalies were discussed and followed up at a subsequent RTC meeting before final analysis. No overt identifying patient details were taken. Where data anomalies could not be resolved, the data was discarded.

Participating hospitals were asked to audit all platelet transfusions up to a specific number of transfusions aligned to their platelet use from very high user (up to 40 cases) to very low user (up to 10 cases).

The principle clinical audit standards that were applied to this project were:

**STANDARD 1 - Pre transfusion platelet count obtained?**

A platelet count is required within a few hours prior to prophylactic platelet transfusion. As a minimum this should be within 24 hours in in-patients and within 48 hours in out-patients, documentation will denote success in this criterion.

**STANDARD 2 - Indication for transfusion documented on the request form?**

The reason for the platelet transfusion according to the National Blood Transfusion Committee (NBTC) 2011 Indication codes for transfusion documented on the request form denotes success in this criterion or if the indication is guided by thromboelastography.

**STANDARD 3 – Platelet count corresponds with the indication for transfusion?**

The platelet count corresponding to the documented reason for the transfusion according to the NBTC 2011 Indication codes denotes success in this criterion.

**STANDARD 4 – For prophylactic transfusions - single dose given?**

Double dose prophylactic transfusions should not be used routinely.

A single dose given for prophylactic transfusion to reach a specific platelet threshold pre-procedure denotes success in this criterion.

**STANADARD 5 - For pre-procedure transfusions - post platelet count obtained?**

If platelets are necessary pre-procedure they should:

* be transfused close to the procedure to obtain maximum benefit
* include a post transfusion platelet count taken pre procedure

Obtaining a post platelet count pre procedure denotes success in this criterion.

**STANDARD 6 – Were platelets wasted during the audit period?**

If platelets were wasted either avoidable or unavoidable during the period of auditing consecutive transfusions denotes the outcome in this criterion.

**Results and Evaluation**

In total 936 platelet transfusions were audited across the three regions. Over 95% of prophylactic platelet transfusions in this total had a pre transfusion platelet count performed. A single dose of platelets was given in over 80% (84% - 93%) of platelet transfusions given for prophylactic purposes across the three regions.

Up to 27% of platelet transfusions were given prior to an invasive procedure and between 80% and 90% of these transfusions were monitored by undertaking post transfusion platelet counts. For *all* platelet transfusions, over 70% received a post transfusion platelet count. For those patients undergoing invasive procedures, overall more than 86% had a post transfusion platelet count undertaken.

Where a request form was used, over 60% had the reason for the transfusion documented. However, there were no responses indicating the indication had been guided by thromboelastographic approaches.

In total, over 90% had a reason for the transfusion communicated either by form, telephone or other explanation (massive haemorrhage, GI bleed etc).

In up to 87% of cases, the platelet count justified the reason for the transfusion regardless as to how it was requested.

Levels of wastage were low across all three regions, averaging around 3%.

**Learning Points**

A limitation of this audit was the lack of a clear definition of prophylactic transfusion and transfusion episodes (e.g. more than one unit given but over time) It is recommended that clear definitions (of all categories) are provided for future audits. Improvements resulting from audit are iterative and require repeats over time.

It would appear that improvements in practice have been made since the NCA audit in 2010; the proportion of patients having a pre-transfusion platelet count increased from around 85% to 95% and there has been a big increase in the numbers having a pre–procedure platelet transfusion also having a post transfusion platelet count compared to a national average of 30% in 2010. However, double/multiple dose prophylactic transfusions continue and addressing this should be a priority for the transfusion community. In around 87% of cases, the reason for the platelet transfusion was justified.

Percentage compliance to the indicated standards was generally consistent across all three regions included in the audit.

In none of the cases included in these audits, was the decision to transfuse guided by thromboelastography. The NICE diagnostic guidance (DG13) has indicated that using this technology outside a research setting may not be necessary.

**Recommendations**

1. Investigate the reasons why over 10% of prophylactic transfusion recipients were given more than one dose
2. Continue to raise awareness that “double dose prophylactic transfusions should not be used routinely”
3. All three audits were completed before the publication of the NICE guideline on Blood Transfusion (NG24). Specific audit points are raised in this guideline. Although some of the findings here are consistent with the recommendations, more detailed and targeted audits could be undertaken using this new guidance.

**References**

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**Acknowledgments**

Transfusion practitioners and other staff who helped in the data collection the East Midlands, Yorkshire and The Humber and North West Regional Transfusion Committee regions