



Audit of Multiple Dose Platelet Transfusion Requests across the London Regional Transfusion Committee region during a one week period in December 2014.

- Rachel Moss, Transfusion Practitioner, Imperial College Healthcare NHS Trust, Chair – London Platelet Action Group (LoPAG)
- Clare Denison, Patient Blood Management Practitioner, NHSBT
- Megan Rowley, Consultant Haematologist, NHSBT and Imperial College Healthcare NHS Trust
- Brian Hockley, Data Analyst and Audit Manager, NHSBT

Background

This audit has been conducted against a background of a rising demand for platelets seen nationally by NHSBT.

Generally, a single unit or 1 adult therapeutic dose (ATD) typically gives an immediate rise in platelet count of 20-40 x10⁹/l in thrombocytopenic patients without platelet antibodies. ⁽¹⁾

Against this background, the use of multiple doses, principally double, continues. The purpose of this audit was to:-

- Determine how common requests for multiple dose platelets are received in blood transfusion laboratories across the London Regional Transfusion Committee (RTC) region;
- Determine the reason for multiple dose platelet requests;
- Determine the clinical speciality requesting multiple dose platelet transfusions and
- Determine how often the request is modified following consultation with a haematologist.
- Determine how often the pre-transfusion platelet count is below the trigger level set by the National Blood Transfusion Committee (NBTC) for a particular indication code.

The standard of measure was: The dose of platelets in adults should not exceed one unit (1 ATD).

Methods

All hospital laboratories within the London RTC region were invited to participate in this audit via their named London Platelet Action Group (LoPAG) "Platelet Champion" and to record all multiple dose platelet requests for a period of one week. The date and time of the request was also recorded. In addition, if such requests were referred to a haematologist for review (as per hospital policy) this and any amendment to the request was recorded. The reason for the transfusion was also recorded using the appropriate NBTC indication (P) code.

Data was recorded on paper proformas (see Appendix 1) and returned to the NHSBT Data Analyst and RTC Audit Manager for collation and analysis using SNAP software.

Analysis

Results have been analysed as follows:

- The number of multiple dose requests received during the audit period.
- The number of multiple dose requests where following the advice of a haematologist the request was amended.
- The same data by recorded clinical speciality.
- The number of requests recorded for each individual indication code along with the proportion of these requests that were outside of the transfusion trigger for that code.

Results

Data was received from 29/50 (58%) hospitals in the LoPAG group.

205 (3 nil return) separate multiple dose transfusion requests were received over the data collection period accounting for a total of 431 units.

Table 1 indicates the hospital laboratories that returned data, the number of multiple dose platelet requests they received during the audit period, the number of units that these requests accounted for along with the total number of units fated as both transfused and wasted during the audit period. Graph 1 shows number of multiple-dose platelet requests per hospital incrementally.

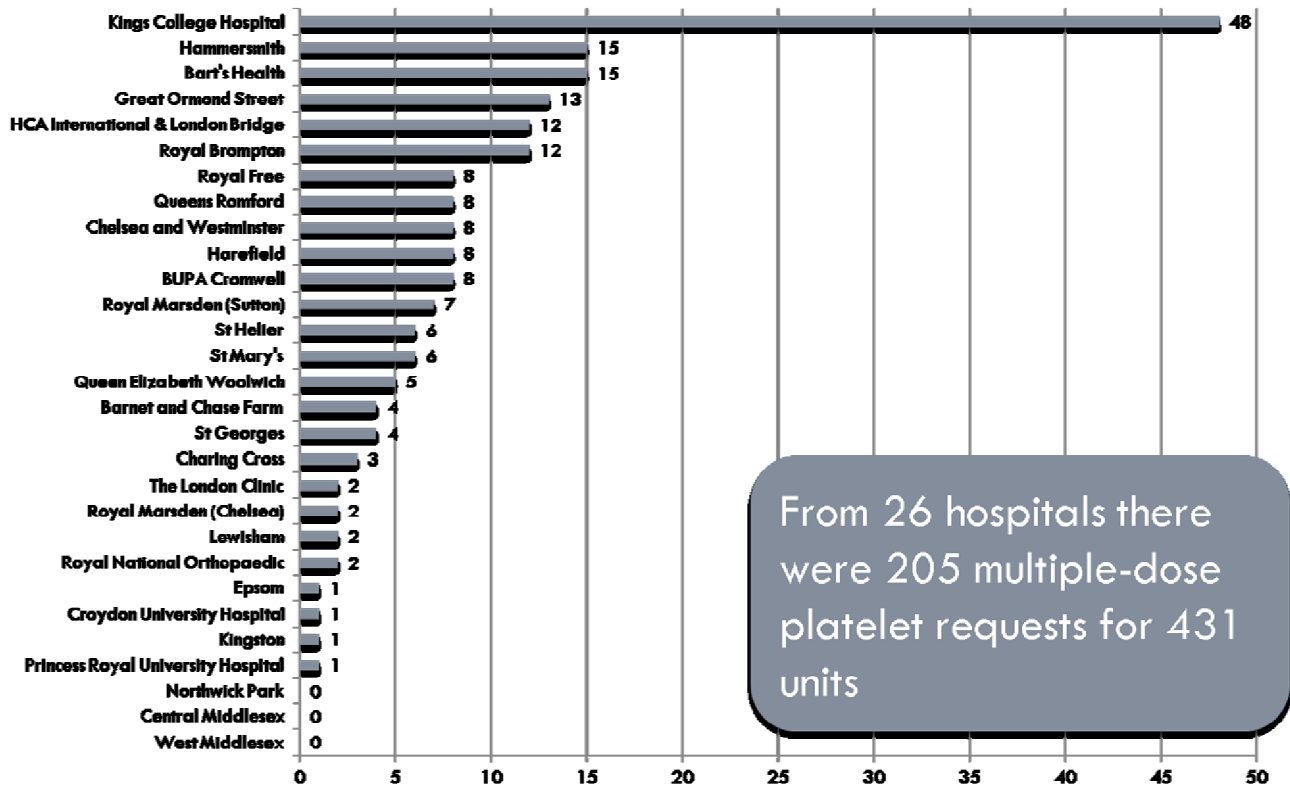
At least 1 multiple dose platelet request was received by 26/29 (90%) of hospitals who submitted data.

4/29 (14%) hospitals did not supply data for the total number of platelets fated as transfused during the audit period and 6/29 (21%) did not supply data for the number of units fated as wasted during the audit period.

Table 1

Name of hospital	No of multi-dose requests	Total number of units requested for multi-dose requests	Total number of transfused platelet units during audit week (including all requests)	Total number of platelet units wasted during audit week
Royal National Orthopaedic	2	4	4	0
St Marys	6	12	41	3
Lewisham	2	4	3	0
Queen Elizabeth Woolwich	5	10	23	1
BUPA Cromwell	8	20	No Information	No Information
Bart's Health	15	30	No Information	No Information
Royal Marsden (Sutton)	7	17	17	0
Royal Marsden (Chelsea)	2	6	6	0
St Georges Hospital	4	8	52	0
Princess Royal University Hospital	1	2	2	1
Charing Cross	3	6	6	4
Hammersmith	15	31	86	2
Harefield	8	16	16	0
West Middlesex	0	n/a	No Information	No Information
Royal Brompton	12	23	No Information	No Information
HCA International & London Bridge Hospital	12	26	50	1
Great Ormond Street	13	26	22	No Information
St Helier	6	12	39	3
Kingston	1	2	1	0
Croydon University Hospital	1	2	12	2
Epsom	1	2	17	0
Chelsea and Westminster Hospital	8	16	8	No Information
Queens Romford	8	16	50	1
Royal Free	11	28	81	2
Kings College Hospital	48	100	68	29
Barnet & Chase Farm	4	8	14	1
Central Middlesex	0	n/a	1	1
The London Clinic	2	4	30	0
Northwick Park	0	n/a	24	2

Graph 1



Advice of Haematologist

Haematological advice was sought in 111/205 (54%) of cases.

Of these 111 cases, 96 (86%) retained the originally requested multiple dose;

- it was reduced in 7 (6%) of cases
- cancelled in 3 (3%) of cases

In 5 (5%) of the cases the outcome of haematological advice was not documented.

Specialities

Table 2 indicates the principle clinical specialities involved in requesting multiple dose platelets. These account for 83% (170/205) of the requests received during the audit period.

Table 2

Clinical Speciality	No of Cases
Haematology	62
Cardiac	30
Liver	23
Oncology	19
ITU	10
Surgical	12
Theatres	8
A&E	6
Total	170

The clinical speciality of Haematology includes Haematology/Oncology and also Immunohaematological patients.

Those cases involving cardiac and cardiac surgery requested haematological advice in 2/30 (7%) of cases.

Table 3 indicates the NBTC Indication (P) codes and the number of cases receiving multiple doses that cited this as the indication. The table also indicates the percentage of these requests where the patients pre-transfusion platelet count was recorded as being above the trigger for that indication code and would therefore be considered as an inappropriate transfusion.

73 (36%) of the cases recorded during the audit did not have any indication code documented for the request.

Table 3

P code	Number of requests	Platelet Count Trigger	% Outside indication trigger
P1	17	<10x10 ⁹ /l	53% (9/17)
P2	15	<20x10 ⁹ /l	73% (11/15)
P3	57	>50x10 ⁹ /l >80x10 ⁹ /l (epidural) >100x10 ⁹ /l (CNS/eye surgery)	35% (20/57)*
P4	8	>75x10 ⁹ /l >100x10 ⁹ /l(multiple, CNS/eye trauma)	50% (4/8)**
P5	3	n/a	n/a
P6	5	n/a	n/a
P7	0	n/a	n/a
P8	0	>80x10 ⁹ /l (Pre major surgery) >70x10 ⁹ /l (obstetric regional axia anaesthesia)	n/a
P9	0	n/a	n/a
P10	15***	>30x10 ⁹ /l	73% (11/15)
Other	12	n/a	n/a
Not recorded	73	n/a	n/a
Total	205		

*10 cases where pre-transfusion platelet count not recorded

** 1 case where pre-transfusion platelet count not recorded

*** 15 cases provided by 1 Trust – it is not clear if this indication code has been recorded in error.

Summary

- The audit has identified a large variation in the proportion of patients receiving multiple dose platelets between hospitals. However, some have probably not provided accurate information on the total number of platelets transfused over the period due to misinterpretation of what was required.
- Haematological advice was not sought in 46% of multiple dose platelet requests. Cardiac cases only sought advice in 2/30 (7%) of double dose requests.
- Many patients receive multiple dose platelet transfusions when their pre-transfusion platelet counts were measured at or above the trigger thresholds for the indication codes recorded.
- The clinical specialities of haematology, cardiac, liver and oncology account for the majority (65%) of multiple dose requests recorded during the audit.

Discussion

The 2010 National Comparative Audit (NCA) of platelet transfusions in Haematology audited 3,296 platelet transfusions over a 3 month period and found that 10% were double dose requests.

One of the key recommendations of this audit with regard to prophylactic platelet transfusions was that “Double dose platelet transfusions should not be used routinely”.

When platelets are given prophylactically to adults, it is recommended that one adult therapeutic dose is given. This should increase the platelet count by at least $20 \times 10^9/l$ providing the patient is not refractory (i.e. has platelet antibodies). However, when platelets are given therapeutically to treat active bleeding, a larger dose of platelets may be indicated; the dose and frequency of administration depends on the individual circumstances, and it is not possible to give general advice. ⁽²⁾

This audit has identified the fact that despite previous national audits, guidelines and peer reviewed evidence the practice of giving multiple dose platelet transfusions to patients still occurs on a regular basis, often endorsed by haematologists.

It may be a further audit covering a longer period would provide a more accurate picture of multiple dose platelet requests in the LoPAG region.

Limitations

The question asked in the ‘summary of cases audited’ asking about the total number of platelets units issued and fated as transfused was poorly worded. As a result the denominator data could not be collected and used in the analysis.

Recommendations

1. The RTC should run an audit on ‘where do platelets go’ to evaluate where more focus of education and resources are required to support the reduction of double dose, inappropriate and wastage of platelets.
2. LoPAG to present this audit at the April 2015 RTC Meeting.
3. LoPAG to further discuss this audit at the next LoPAG champions day and consider other resources that can be developed to support a reduction in multi-dose requesting and challenging by haematologists.

References

1. Norfolk D (Ed) (2013) *Handbook of Transfusion Medicine* 5th Edition, The Stationary Office.
2. Guidelines for the Use of Platelet Transfusions, *British Journal of Haematology* (2003); 122:10-23
3. Slichter SJ et al Dose of prophylactic platelet transfusions and prevention of haemorrhage, *NEJM* (2010); 362:600-13

APPENDIX 1

London RTC Double-Dose Platelet Audit – Data Collection Log					Name of Hospital		Log Sheet No. (circle)	
<i>Do not put unique patient identifiable information on this Audit Data Log The Audit Data Log should be returned to NHSBT for data entry and analysis</i>								
Patient Number	Date & Time of request	Speciality	Pre transfusion platelet count	(multiple) platelet units requested	transfusion (indication code)	referred to a haematologist? Y/N	outcome?	Comment (optional)
1							SAME/REDUCE/CANCEL	
2							SAME/REDUCE/CANCEL	
3							SAME/REDUCE/CANCEL	
4							SAME/REDUCE/CANCEL	
5							SAME/REDUCE/CANCEL	
6							SAME/REDUCE/CANCEL	
7							SAME/REDUCE/CANCEL	
8							SAME/REDUCE/CANCEL	