National Comparative Audit of Blood Transfusion

NHS Blood and Transplant

2018 Audit of the Management of Major Haemorrhage

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Background

This is the first audit designed to assess whether major haemorrhage is managed appropriately in UK hospitals

It looked at organisational arrangements to support Major Haemorrhage Protocols (MHP) in hospitals. The clinical and laboratory management was audited by looking at 10 adult cases of major bleeding in October 2018 at each hospital

Major Haemorrhage Audit

166 hospitals/trusts enrolled in the organisational audit

826 cases were analysed where a major haemorrhage episode was reported

Key findings of 2018 audit

The main causes of major haemorrhage were :

28% (233) **Surgery**

21% (177) **Obstetrics**

20% (165) **Gastro-intestinal bleeding**

17% (136) **Trauma**

99% (165) of hospitals had a major haemorrhage protocol (MHP) in place

MHP was activated in 81% (667) of cases but stood down in only 49% (327)

91%(150) of MHP contain tranexamic acid

99% (164) of hospitals had transfusion laboratories open 24/7

Access to cell salvage was reported in 84% (139) of hospitals but used in only 12% (95/826) cases

G&S samples taken in 89%(737) cases, FBC 91% (753) and clotting test with fibrinogen in 55% (455)

41%(179) of non Group O received group specific red cells only, 28% (119) received only Group O

54%(36) males and 85% (22) females over the age of 50 were transfused with group O D negative

34% (33/98) received FFP:RBC in 1:1 ratio
29% (28/98) received FFP:RBC in 2:1 ratio

16% of FFP, 9% cryo, 5% platelets and 3% red cells issued were wasted

Standards and Results

Audit standard

Audit findings

Organisational Standard 1:

Hospitals should have specific MHPs for adults and children, to enable a clear process in the management of a major haemorrhage and to ensure the rapid delivery of all blood components

MHP were available in 99% (165/166) of hospitals, and of these 52% had more than one MHP (N=86). It was most common for hospitals that had an MHP to have a protocol for major bleeding (N=136) and obstetrics (N=71).

Organisational Standard 2:

Multidisciplinary audit and case reviews should be undertaken to allow for clear communications between all relevant team members and to reflect on the systems in place to assess the effectiveness of the management of major hemorrhages

Major haemorrhage cases were discussed in multidisciplinary meetings; 14% (23/166) all cases, 59% (98/166) some cases, 27% (44/166) don't discuss cases and 1% (1/166) not stated

Organisational Standard 3:

Access to 24-hour cell salvage support should be available particularly in cardiac, obstetric, trauma and vascular centres

Access to cell salvage support was reported in 139/166 (84%) hospitals. 147/166 (89%) had an obstetric unit and 63 (38%) hospitals were specialised centres (i.e. cardiac, trauma) of which 124 (84%) and 57 (90%) had access to 24-hour cell salvage support, respectively.

Organisational Standard 4:

Clinical staff involved in frontline care must be trained to recognize major blood loss early, know when to activate/trigger the local MHP and take prompt and appropriate action

MHP was activated in 667/826 (81%) cases, and of these 64% (429/667) activated MHP before the first unit of RBC transfusion. In 54% (362/667) of cases it was activated on a weekend or evening
MHP activation was stood down in only 49% of cases (327/667).

Clinical Standard 1:

Blood samples should be obtained for FBC, group and save (G&S) and clotting tests (prothrombin time [PT], activated partial thromboplastin time [APTT] including fibrinogen).

Group and screen samples, FBC and clotting tests with fibrinogen were taken in 89% (737/826), 91% (753/826) and 55% (455/826) of cases, respectively

Clinical Standard 2:

The use of tranexamic acid should be considered in non-traumatic major bleeding e.g. obstetrics or surgery where there is expected blood loss of more than 500 mls. It should be given as soon as possible, and within 3 hours in trauma patients with active or suspected active bleeding (1gram bolus followed by 1gram infusion).

Tranexamic acid was part of the MHP in 91% (150/166) of protocols, of which 57% indicated that the recommended dose was 1-gram bolus followed by 1-gram infusion over 8 hours (N=86).

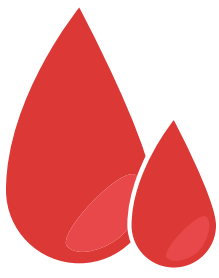
Clinical Standard 3:

Emergency Group O RBC should be administered for life-threatening bleeding and that patients are moved to group-specific RBCs as soon as possible. Group O D negative RBCs should be used for females of child-bearing age (<50 years old) and group O D positive RBCs should be considered for male patients

432 cases who were non group O, 179 (41%) received group specific RBCs only, 119 (28%) received only group O RBCs, and 83 (19%) received a combination of group O and group specific RBCs. **36/67 (54%) males and 22/26 (85%) females over the age of 50 were transfused with group O D negative RBCs where group O D positive could have been given**.

Clinical Standard 4:

In trauma settings, RBCs and FFP should be given in a 1:1 ratio; while for other non-trauma major haemorrhage a ratio of at least 2:1 of RBCs to FFP should be given *(assessed only for trauma)*



Of the 113 trauma cases reported in the audit, it was only possible to calculate the FFP:RBC ratio for 98 cases, of which 34% (33/113) received a 1:1 ratio ,29% (28/113) received a 1:2 ratio, and others received either less than 1:1 ratio or more than 1:2 ratio.

Recommendations

Organisational Recommendations

All hospitals should ensure that tranexamic acid is part of MHP

All hospitals should perform regular annual drills of their MHP systems to ensure that all mechanisms for contacting relevant members involved with delivering blood components to patients are co-ordinated well and that all clinical teams involved with MHP are trained to implement these protocols effectively

Clinical and laboratory teams should ensure that MHPs are audited regularly to monitor and minimise blood wastage

Pre-thawed FFP can be considered by major trauma centres and hospitals with high FFP usage in order to reduce wastage.

Clinical Recommendations

Clinical teams must be trained to recognize major blood loss early, and to know when to activate and stand down the major haemorrhage protocol

Tranexamic acid (unless contraindicated) should be given to patients with major bleeding

Intra-operative cell salvage should be used in relevant high blood loss procedures

Clinical staff should ensure that Group & Save samples are taken during major haemorrhage to allow for transfusion of group specific RBCs as soon as possible, so group O red cells are reserved for extreme emergency

Clotting screens including fibrinogen should be taken during major haemorrhage to allow for guided transfusion

For management of major bleeding where patient's blood group is unknown, Group O D negative red cells should be used for females of childbearing age (<50 years old) and group O D positive red cells for males and women >50yrs old

Trauma patients should receive a 1:1 ratio of RBC to FFP continuously for management of bleeding