Major Haemorrhage and Antibodies

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Major Haemorrhage

- BSH Guidelines for pre-transfusion compatibility procedures in blood transfusion laboratories 2012
  - Massive blood loss can be defined as the loss of one blood volume within a 24 hour period, or in acute situations a 50% blood volume loss within 3 hours or a rate of loss of 150ml/minute.
  - Once the volume of blood transfused in any 24 hour period is equivalent to the patient’s own blood volume (8-10 units for adults), ABO and D compatible blood can be issued without the need for serological crossmatch.
Major Haemorrhage Protocol

- MHP exists to ensure that all staff involved are aware of the products required and when to request them.

- BSH guideline: A practical guideline for the haematological management of major haemorrhage 2015
MHP

• Following trigger of the MHP there must be a clear mechanism for contacting all relevant team members and a designated Team Leader should then co-ordinate further management

• A Team Leader should be appointed and nominate a specific clinical team member to co-ordinate communication with the transfusion laboratory staff and support services for the duration of the incident
• Porter
• Senior clinician
• Anaesthetist
• Senior nurse/midwife
• Transfusion laboratory
• Haematology & Coagulation laboratory
• Clinical Haematologist on call
• Radiology including interventional radiology
MHP

- Accurate documentation of blood components given and the reason for transfusion is necessary in order to satisfy the legal requirement for full traceability and to enable audit of outcomes.
MHP

• Pack 1
  – 2 uncrossmatched emergency O negative RBC
  – 5 RBC
  – Thaw 4 FFP for use in pack 2

• Pack 2
  – 5 RBC
  – 4 FFP

• Pack 3
  – 5 RBC
  – 4 FFP
  – 1 platelet
  – 2 pools cryoprecipitate
MHP variations

- **Obstetric**
  - Similar to non-pregnant patients, except that meticulous attention should be paid to fibrinogen levels and consideration given to the early use of fibrinogen supplementation when fibrinogen <2.0 g/l
  - Consider tranexamic acid

- **GI Bleed**
  - In GIB non-massive haemorrhage a restrictive strategy of red cell transfusion is recommended for many patients

- **Trauma**
  - Transfuse with 1:1 RBC:FFP
  - Give tranexamic acid
Antibodies

• BSH Guidelines for pre-transfusion compatibility procedures in blood transfusion laboratories 2012

• Key Recommendation: An IAT crossmatch MUST be used if the patient’s plasma contains, or has been known to contain, red cell alloantibodies of likely clinical significance
Case study - Mrs P

- 10/2/17 – antibody screen negative
- 11/2/17 – 4 units rbc transfused
- 17/2/17 – Anti Jka detected
- 17/3/17 – 2.30pm G&S and 4 units for ‘radical cystectomy’ 0800 Saturday 18/3/17
- G&S, panel and order blood from NHSBT
- XM issued at 0200 18/3/17
- 0900 – blood collected and stored in theatre blood bank
Mrs P

- Saturday 18/3/17
- 1300 - patient bleeding, requested 2 more units RBC
- New G&S required, received and processed including antibody panel, IAT XM performed
- 1422 blood issued
- 1417 - Laboratory staff ordered 10 RBC units from NHSBT
- 1510 - 10 phenotyped units arrived
- Entered into WinPath via EDN
Mrs P

- 1530 – ‘code red’ initiated by theatre staff
- 1549 – BMS requested 10 RBC
- Followed MHP issuing blood products (not XM)
- 1729 – BMS requested 10 RBC/2 plt/12 FFP/6 cryo
- 1745 – Consultant haematologist contacted me and requested I attend to assist
- 1820 – TLM and haem consultant arrived on site
Mrs P

- 1300-2300
- 5 blue light deliveries
- RBC = 55
- Platelets = 5
- FFP = 36
- Cryo = 10
- Octaplex = 3000iu (2x 1500iu)
Massive blood transfusion

- For patients with clinically significant red cell antibodies, antigen negative blood can be given using a full serological crossmatch. Where demand outstrips supply, untyped units may be required, but decisions will need to be made on a case-by-case basis and should be subject to the concessionary release process. Specialist advice may be required in these circumstances.
Concessionary release

- Initial 4 units and then the following 2 units were fully IAT crossmatched
- Concessionary release authorised by haematology consultant to issue blood without IAT XM
  - If time could cut the blood lines and XM retrospectively
- Blood arrived
- Booked in via EDN
- Issued and labelled
- Taken to theatre
Mrs P

- All traceability tags were returned
- 37 days ITU followed by 25 days ward - discharged
- Alive and well a year later
- Had several more surgeries without significant bleeding
- anti E (March 17)
- anti c (Sept 17)
- Never had less than a 3+ reaction in antibody screen despite the quantity of blood transfused!
Conclusion

• Major haemorrhage is treatable
  – Even for patients with alloantibodies
• Follow SOP and guidelines
• You can think ‘outside the box’ as long as it is supported by senior advice and concessionary release process on a case by case basis, and remains within the patient best interest.
• Trainee BMS - DO NOT make these decisions yourself!
Thank you

Any questions

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