

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





- 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





 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.





- 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





- 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





- 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





- 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 <u>concessionary release process</u>. 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







- 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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