Why the Hospital Transfusion laboratory may challenge the use of O D negative blood in an emergency.

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Why the laboratory may challenge the use of O D neg blood in an emergency

National PBM Recommendations June 2014:

•Everyone involved in blood transfusion needs to take responsibility for ensuring that blood components are used appropriately for the benefit of patients.

•TLMs should empower laboratory staff to challenge clinicians about apparently inappropriate requests for blood components



Patients requiring Irradiated

products

- Used to prevent transfusion associated Graft verses host disease.
- Patients with inherited or acquired immune disorders Hodgkin's
- Patients treated with purine analogues
- SCT patients
- Irradiation of blood prevents residual donor lymphocytes dividing and causing harm in the patient.
- Not all HTL stock Irradiated products
- Ordered on a named patient basis from NHSBT

bjh guideline

Guidelines on the use of irradiated blood components prepared by the British Committee for Standards in Haematology blood transfusion task force I am at risk of Blood and Transplant transfusion-associated graft-versus-host disease If I need to have a blood transfusion, cellular blood components (Red Cells, Platelets and Granulocytes) MUST BE IRRADIATED Please inform the blood transfusion laboratory

Patients requiring specialist products

- IgA deficient products IgA deficient patient, possible anaphylactic reaction.
- Washed red cells Suitable alternative, also used for persistent febrile/non-specific reactions to transfusion.
- HLA/HPA Matched red cells for nonrefractory patients.

Patients with red cell allo antibodies

- Many different red cell antibodies.
 - Patients may have multiple antibodies
- > Difference in clinical significance.
- Transfuse antigen negative to prevent intra or extracellular haemolysis.

Example - Anti-c.

99% O D neg units will express the c antigen.



Patients with red cell allo antibodies

Intracellular Haemolysis

- Hypotension, Shock.
- DIC.
- Free haemoglobin binds nitric oxide.
- Causes excessive vasoconstriction.

Extravascular Haemolysis

- Fever.
- Fall in haemoglobin over time (several days).
- Jaundice.
- Haemoglobinuria.
- Renal failure (very rarely).



Patients with red cell allo antibodies Supply of antigen negative

- HTL may be able to supply antigen negative
 - around 30 mins if the patient is known to the lab.
- May have to be investigated and crossmatched by NHSBT RCI laboratory.
 - Transport / investigation / Transport = 4-6hours.
- Blood may have to come from outside the region or National Frozen Blood Bank – Liverpool.
 - 12 24 hours.



Patients with red cell auto antibodies

- Antibodies directed at patients own red cells.
 - AIHA
 - Generally under a Haematologist and known to the lab.
- Reacts with all HTL tests
- Unable to determine if there are underlying allo antibodies.

Most cases are investigated and crossmatched by NHSBT RCI lab.



Other considerations

Patients may have antibodies and special requirements.

- Haemoglobinopathy patents.
 - 'rare' antibodies.
 - Multi transfused.
- Patients with autoantibodies may have underlying allo antibodies.
 - Associated problems with supply of red cells.

- 85 yo female.
- History of Lupus and GI bleeds.
- On warfarin.
- Recent admission to EMU with infection.
- Known AIHA Allo and Auto antibodies.
- Unable to XM in HTL.
- Planned sampling and transfusion regime.
- Investigation and XM carried out by NHSBT RCI laboratory.



- Admission to ED @ 09:05 ?sepsis / GI bleed.
- ➤ Activation of MHP @10:30 by ED.

Problem

- Auto antibody in plasma masks potential allo antibodies.
- Patient had known allo antibodies a responder.
- Potential to cause HTR.



- Informed ED consultant the flyers were available but the patient had antibodies.
- ➢ Blood Bank received G&S sample.
- ➢ FBC confirmed ED blood gas results (Hb60g/l).
- Contacted consultant haematologist.
- Patient reviewed, agreed not to Tx the flyers at present as patient was relatively stable.



- Samples sent to NHSBT RCI lab.
- Pre-warned RCI by phone.
- ED discussed with Haematologist and agreed to not transfuse at present, wait for NHSBT results/blood.
- 2nd sample sent to HTL.
- Invest/XM in Blood Bank positive with all tests.
- DAT performed same as previous results.



- Serologically least incompatable' units available.
- NHSBT turned around investigation and XM in 90mins.
- No further underlying alloantibodies.
- Serologically least incompatable units released @13:30.
- 2 units transfused.
- No other products required.



Outcomes

- Patient stayed in hospital for 16 days, had 2 further units of Red cells.
- Review of the MHP activation found no alert present in ED processes for patients requiring blood crossmatched off site.
- Process implemented to place alerts in the ED computer and paper system.



Conclusions

- Consultant Haematologist specialist advise.
- Lab can challenge but not refuse potentially 'inappropriate' requests.
- Lab staff are a source of knowledge and expertise.
- Good communication required between the clinical area and HTL.

