SHOT 2018: What to do if Patient has Antibodies & Needs Urgent Transfusion.

Dr Fiona Regan
Consultant Haematologist (Transfusion)
NHSBT & Imperial Healthcare NHS Trust
Case Example:

• Transfusion Lab phone: identified anti-Jka in a patient’s G & S sample yesterday. Patient is group A+ (tested 3 times before).
  • Phoned ward to say blood would need to be ordered in from NHSBT, if required.

• Lab just phoned by Theatre to say that the 50-year-old male patient is mid-way through his laparotomy and is bleeding and they require 2 units of blood. No suitable Jka- units are found in the fridge, by chance.

• What would you do?
Select:

A. Tell theatre they will have to wait for Jka negative blood to come from nearest Blood Services Centre, which will be 1.5 hours, on a blue light

B. Give emergency O negative blood

C. Give group A, full Rh & K matched blood – with steroids & IVIg cover, until Jka neg blood can be obtained from Blood Services

D. Give emergency O positive blood
Rationale & Questions:

1. Clinically
   1. How urgent? How long (in mins) till need blood at bedside?
   2. ? Other measures immediately usable eg: TXA, cell salvage, if appropriate etc.

2. Blood Options:
   1. Ag neg (Jka-)–
      • timing (any typed in fridge by chance / 1-2 hrs matched from NHSBT on “blue-light”/ hospital lab to phenotype units)
   2. Plan B: ABO, full Rh & K matched (80% Abs) – with steroids & IVIg cover, to ↓DHTR
      1. 1g IV Methylpred at Tx
      2. IVIg 0.4g/kg within hours of Tx
      3. Monitor for renal failure – (as free Hb toxic to renal tubules)
      4. After units issued, phenotype – how many Jka+ ?

• In end, issued ‘plan B’ blood, but held off ok till Jka- units from NHSBT
Clinical Priorities:

1. As per Formula 1: “to finish 1st, first you have to finish!”
   “to get a DHTR (or AHTR), first you have to live long enough!”

2. It is no good giving ‘perfect’ blood after death.

3. Patients should not die from lack of blood.

4. It is a balance of clinical risks: if clinicians need blood in 10 mins (as life-threatening) – then for the Lab, they are going to give it: it is only a question of “what blood” they are going to give.
SHOT: this year’s data -

• 6 out of 14 **deaths** were due to **DELAYS** in Transfusion:
  
  • 1 death directly due to delay -
    • when “urgent” transfusion needed;
  
  • 3 were probably due to delay -
    • 2 in emergency Tx; 1 routine Tx;
  
  • 2 were possibly due to delay -
    • 1 in emergency Tx; 1 when urgent Tx needed;
SHOT Case 1

• Male in 60s with known AIHA, unwell - with Hb 38g/L;

• Pan-reacting auto-Ab, so referred to Ref Lab 2 hours away;

• Patient died before results complete; no blood had been given.

• Had presented 1 day before – should have taken G&S then, not waited 1 day;

• No Consultant Haematologist on site, for care out of hours, due to centralisation of specialist services.

• Be that as it may ……..
What would you have done, if clinicians needed blood?

A. Tell clinicians they will have to wait for results of antibody tests at Blood Service - maybe 4-5 hours, including cross-match & transport of blood.

B. Tell clinicians they will have to wait for results of antibody tests at Blood Service - maybe 2-3 hours, if hospital do cross-match (if no alloantibodies, or only Rh or K antibodies).

C. Give emergency O negative blood

D. If his ABO group tested on 2 occasions, give his ABO & D group blood

E. If his ABO group tested on 2 occasions, give ABO, full Rh & K matched blood – with steroids &/or IVIg cover
What could have been done?

• After looking patient up on SP-ICE, for previous Abs......
• Plan B:
  • ABO, full Rh & K matched blood (covers 80% Abs) – with steroids and/or IVIg cover, to ↓DHTR:

  1. 1g IV Methylprednisolone at Tx
  2. IVIg 0.4g/kg within a few hours of Tx
  3. Monitor for renal failure – (as free Hb toxic to renal tubules)
  4. After units issued, phenotype – how many antigen + ?
SHOT Case 2

• Female in 50s, with chronic gynae bleeding, admitted from clinic 4pm with Hb 56g/L; stable.

• G&S sent 9am next day – pan-reacting Ab; sent to Ref Lab;

• 2pm – acutely ill, central crushing chest pain and RR=40/min;

• Diagnosis: cardiac ischaemia. Hb 46g/L.

• No blood given till 5pm! (3 hours of cardiac compromise!)
What could have been done?

• G&S should have been sent in evening.

• Sample to Ref Lab was “routine” not urgent; blood from Ref Lab was “when available” not urgent....... 

• Be that as it may....... 

• What would you have done?
What could have been done?

A. Tell clinicians they will have to wait for results of antibody tests at Blood Service - maybe 2-3 hours, if hospital do cross-match (if no alloantibodies, or only Rh or K antibodies).
B. Give emergency O negative blood
C. If her ABO group tested on 2 occasions, give her ABO & D group blood
D. If her ABO group tested on 2 occasions, give ABO, full Rh & K matched blood (covers 80% Abs) – with steroids &/or IVIg cover
What could have been done?

• After looking patient up on SP-ICE, for previous Abs......
• Plan B:
  • **ABO, full Rh & K matched** blood (covers 80% Abs) – with steroids and/or IVIg cover, to ↓DHTR:
  1. 1g IV Methylprednisolone at Tx
  2. IVIg 0.4g/kg within a few hours of Tx
  3. Monitor for renal failure – (as free Hb toxic to renal tubules)
  4. After units issued, phenotype – how many antigen + ?
SHOT Case 3

• Male in 50s in A&E, with bleeding varices due to alcoholic liver disease;

• Major Haemorrhage call 01:40 hrs.

• Patient has anti-K + Cw : BMS not want to issue ‘shock pack’ or allow use of O neg emergency blood in A&E fridge.

• Consultant Haematologist contacted 25 mins into MH, to authorise blood – given 5 mins later (30 mins after MH call!)

• Patient needed ITU but recovered fully.
What could have been done?

• Lack of knowledge of BMS alone at night;

• Failure to follow emergency procedure for patients with known red cell antibodies –
  • issue O- K- and immediately contact Consultant Haematologist on call.

What would you have done?
What could have been done?

A. Give emergency O negative (K-) blood
B. If his ABO group tested on 2 occasions, give his ABO & D group blood
C. If his ABO group tested on 2 occasions, give ABO, full Rh & K matched blood (covers 80% Abs) – with steroids &/or IVIg cover
D. Give emergency O positive (K-) blood
What could have been done?

• In this case – effectively give blood as below, as would not have found Cw neg blood, but O- very unlikely to be Cw+;

• Only 1-2% of all blood is Cw+ – balance of risks in major haemorrhage / other emergency;
  • likely if any unit is positive, it would be only one

• **Plan B: ABO, full Rh & K matched** blood – with steroids and/or IVIg cover, to ↓DHTR:
  1. 1g IV Methylprednisolone at Tx
  2. IVIg 0.4g/kg within a few hours of Tx
  3. Monitor for renal failure – (as free Hb toxic to renal tubules)
  4. After units issued, phenotype – how many antigen +?