

Anti-Wr^a - A Case study

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Past medical & transfusion History

- * 44 year old female with alcohol related cirrhosis of the liver
- * Menorrhagia
- * Received multiple Electronically Issued red cell transfusions over the preceding 8 years
- * Sept 2017 admitted – heavy PV bleeding
- * 4 RBC units transfused uneventfully (Hb 64-95g/L)
- * Further transfusion required 1 week later, Hb 76g/L ...

Patient symptoms

- * Unit started at 07:00
- * Approx 75mls transfused.
- * Patient observations:
 - * Slight temperature rise of 1.6 degrees,
 - * Patient felt cold and shaky,
 - * Raised pulse to 138bpm,
 - * Slight drop in blood pressure to 105/60
- * Patient treated with paracetamol and piriton

Laboratory results

- * Pre transfusion

- * Hb 76 g/L.
- * LDH level 208 IU/L,
- * Total Bilirubin 19 μ mol/L.

- * 2hrs Post transfusion

- * Hb 76 g/L
- * Blood film showed decreased platelets and polychromasia.
- * Reticulocyte 345 x 10⁹/L.
- * LDH level 288IU/L,
- * Total Bilirubin 56 μ mol/L.

Transfusion laboratory results

- * Pre transfusion sample
 - * Antibody screen negative
 - * Mono DAT negative.
- * Post transfusion sample
 - * Antibody screen negative
 - * Mono DAT negative.
- * Pre transfusion and post transfusion samples crossmatched against the offending unit...
 - * **Both pre & post transfusion samples incompatible with the unit.**
- * Could the unit be DAT positive?
 - * A monospecific DAT on the unit...
 - * **Negative!**

Transfusion laboratory results

- * Could the patient have an antibody to a low frequency antigen?
- * The patient was typed as negative for both Kp(a) and Lu(a).....
 - * But the unit was both KP(a) and Lu(a) negative
- * Four additional units were fully crossmatched for the patient– all were compatible.
- * The Pre and Post transfusion samples plus the unit's pilot line were sent to NHSBT RCI for further investigation...

NHSBT report

- * Anti-Wr(a) detected in patient plasma
- * Unit transfused was typed as Wr(a) positive
- * Unit transfused was incompatible by IAT crossmatch

Question...

- * What Blood Group System does $Wr(a)$ belong to?
 - * 1. Duffy
 - * 2. ABO
 - * 3. Colton
 - * 4. Knops
 - * 5. Diego

Answer!

- * What Blood Group System does $Wr(a)$ belong to?
 - * 1. Duffy
 - * 2. ABO
 - * 3. Colton
 - * 4. Knops
 - * **5. Diego**
 - * **The Diego system consists of 21 antigens: two pairs of antithetical antigens, $Di(a)$ and $Di(b)$, $Wr(a)$ and $Wr(b)$, plus 17 antigens of very low frequency**

Anti-Wright(a)

- * The occurrence of the Wr(a) antigen is less than 0.1% of the population.
 - * 1 in 1000 donated units of RBC's will carry the Wr(a) antigen
- * Anti-Wr(a) is a relatively common naturally occurring antibody
- * Incidence increases dramatically in patients, post partum women people with other alloantibodies and those with AIHA

Anti-Wright(a)

- * Anti-Wr(a) can cause:
 - * mild to severe/ immediate or delayed haemolytic transfusion reactions
 - * mild to severe haemolytic disease of the newborn.
- * Labs don't routinely screen for anti-Wr(a)
- * Not on many antibody ID panels
- * EI means no pre transfusion compatibility testing
- * Education in hospitals about the management of transfusion reactions is important.

Post reaction follow up

- * 24 hours post reaction:
 - * Hb dropped to 69 g/L
 - * Blood film showed haemolytic features, polychromasia and occasional nucleated red blood cells.
 - * Haptoglobin = 0.10g/L,
 - * LDH = 448 IU/L,
 - * Total Bilirubin = 33 μ mol/L.
- * The patient was transfused further using serologically crossmatched red cells
 - * 48 hours post reaction Hb 86 g/L.
- * One month post reaction all results were back in normal ranges.

Questions

