

Causes

Acute haemolytic transfusion reaction

- Incompatible transfused RBC react with patient's own ABO antibodies or other RBC antigen alloantibodies (e.g. anti Rh D, Rh E, Rh c and Kell). C' can be activated and → DIC.
- Usually patient sample mislabelled. 1:3 risk of ABO incompatibility if random RBCs given.
- Non-ABO red cell antibody haemolytic reactions tend to be less severe but the Kidd and Duffy antigens also activate complement and can cause severe intravascular haemolysis.

Infective shock

- Risk~1:2,000,000
- HIV 1, HTLV (10% Aborigine's carry), Parvovirus B19, CMV, Hep A/B/C/NANB, syphilis, malaria, S.epidermidis, CJD, Yersinia. Blood screened for HIV, Hep C, CMV.

Fluid overload

- Diuretics may be used if this is a concern.

Severe allergic reaction or anaphylaxis

- To proteins in transfused blood components.
- Reduced by pre-washing RBCs (but decreases shelf life to 24hrs).

Non-haemolytic febrile reactions to transfusion of platelets and red cells

- Fevers due to patient antibodies to transfused white cells.
- Multiparous women and those who have received previous transfusions are most at risk.

Transfusion Related Acute Lung injury (TRALI)

- Donor Ab to patient leucocytes
- Severe reaction with fever, non-productive cough and breathlessness.
- CXR shows multiple perihilar nodules with infiltration of the lower lung fields.

Allo-immunisation

- E.g. dev of anti-RhD in RhD- pat receiving RhD+ → haemolytic disease of the newborn

Graft-vs-Host Disease (GVHD)

- Transfusion of immunocompetent lymphocytes into immunodepressed patient
- Prevented by irradiating the blood first.

Immunomodulation

- Possible ↑tumour recurrence and ↑post-operative infection rates. No clear evidence.

Other complications

- Citrate toxicity if rapid transfusion - ↓pH, metallic taste, ?↓Ca²⁺
- Hyperkalaemia
- Hyponatraemia - from sodium citrate
- Jaundice (30% RBCs don't survive transfusion)
- Iron overload

Management

Assessment: ?shock, fever, pain (infusion site, back, chest). Is there haemolysis, ARF, DIC (haematuria, puncture site oozing, etc).

Mx: Stop transfusion and recheck patient & blood product. Assess severity:

- Mild (T↑<1.5°C, no rash/shock) - recommence at slower rate,
- Mod (T↑<1.5°C, rash, no shock) - give antihistamine + antipyretic & restart after 30min,
- Severe (shock, haemolysis) - cease transfusion, resuscitate, and send blood samples (Coombs, FBC, rpt XM, coags) & blood product to lab for retesting.