

Blood Transfusion

15th May 2011

- ## Indications of blood transfusion
- Major trauma with massive blood loss
 - Major operative procedures like APR
 - Preoperatively in cases of chronic anemia requiring surgery
 - Postoperatively if patients becomes severely anemic
 - In severe burn where there is associated hemolysis
 - Severe hemorrhage from pathological lesion like cancer, GIT lesions
 - Patients with bleeding disorders.... Hemophilia, thrombocytopenia, liver disease.

- ## Blood fractions
- Whole blood
 - Packed red cells
 - Chornic anemia, elderly, children, where fluid overload contraindicated
 - Centrifugation of whole blood @ 2000-2300g x 15-20 min
 - Platelet rich plasma
 - Patients with thrombocytopenia
 - Centrifugation @ 150-200g x 15-20 min
 - Platelet concentrate
 - Centrifugation of PRP @ 1200-1500g x 15-20 min

- ## Blood fractions...
- Plasma
 - Centrifugation of whole blood @ 2000-2300g x 15-20 min
 - Fresh frozen plasma
 - Plasma from fresh blood is rapidly frozen by immersing in solid CO2 & ethyl alcohol mixture
 - Stored at -40° C
 - Used in bleeding disorder, abnormal coagulation like liver disease
 - Cryoprecipitate
 - When FFP is allowed to thaw at 4° C, a white glutinous precipitate remains
 - Very rich source of factor VIII, fibrinogen
 - Stored at -40° C
 - Factor VIII/ IX concentrate
 - Fibrinogen
 - Human albumin 4.5%
 - replacement of protein like in severe burn, liver failure

Blood groups

- RBCs have 2 major groups of antigen
- ABO & Rhesus (Rh) blood groups
- Rh (D) antigen--- 85% positive & 15% negative

ABO group	Red cell antigen	Serum contains
A	A	Anti-B antibody
B	B	Anti-A antibody
AB	A & B	No ABO antibody
O	No antigen	Anti-A & Anti-B antibody

- ## incompatibility
- If antibody in recipient's serum are incompatible with donor's cells..... Transfusion rxn
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 - Agglutination & hemolysis of donated cells
 - Compatibility test
 - Match ABO & Rh group of both donor & recipient
 - Direct matching of recipient's serum with the donor's cells

Giving blood

- Name of patient
- Check blood gp, cross match result, date
- Rate of transfusion
- Warm the blood
- Instructions during transfusion

Complications of transfusion

- Transfusion reactions
 - Incompatibility
 - Simple pyrexial reactions
 - Allergic reactions- due to plasma products in donor blood
 - Sensitisation to leucocytes & platelets
- Infections
 - Viral hepatitis
 - HIV
 - Bacterial infections
 - Malaria

Complications of transfusion...

- Thrombophlebitis
- Air embolism
- Congestive cardiac failure
 - Due to rapid transfusion, elderly patient, cardiac insufficiency
 - T/t: packed cell transfusion, slow rate, diuretics
- Coagulation failure
 - Dilution of clotting factors/ platelets
 - DIC
- Arrhythmias, hypothermia
- Hyperkalemia, acidemia