Blood Groups & Rh Factor

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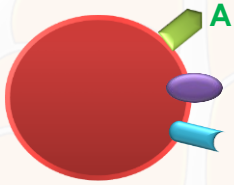
Blood Groups

- Blood group indicates the specific surface antigen present in the RBC



A-Antigen→ Blood Group A

B-Antigen→ Blood Group B

Rh-Antigen→ Blood group +ve

- Mismatch transfusion of the blood may cause dangerous harmful effects (Fatal transfusion reaction) due to **antigen-antibody reactions**
- Thus It always to transfuse same type of blood group having same type of antigen that can not be recognise by immune system as a foreign and will not reject them

Blood Groups

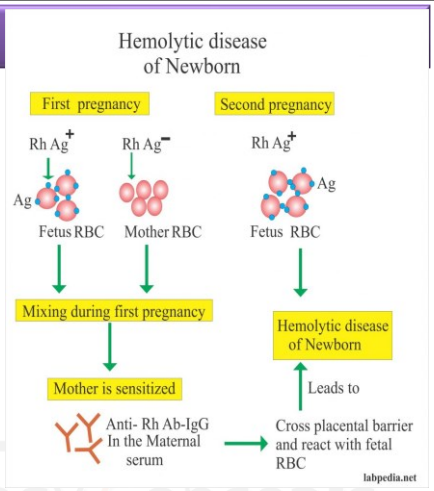
- 55% of the population has has either A-type antigens (blood group A), B-type antigens (blood group B) or both (blood group AB) on their red cell surface.
- The remaining 45% have neither A nor B type antigens (blood group O)
- **Types of Blood Groups (ABO system with Rh Factor)**
  - Blood group A (+ve or –Ve)
  - Blood group B (+ve or –Ve)
  - Blood group AB (+ve or –Ve)
  - Blood group O (+ve or –Ve)

ABO System with Rh Factors

Type	Antigen	Antibody	Feauture
A+ve 	▪ A-Antigen ▪ Rh-Antigen	▪ B-Antibody (Anti-B)	▪ **Doner:** A+ and AB+ ▪ **Recipient:** A+, A- and O+, O-
A-ve 	▪ A-Antigen	▪ B-Antibody (Anti-B)	▪ **Doner:** A+,A- and AB+, AB- ▪ **Recipient:** A- and O-
B+ 	▪ B-Antigen ▪ Rh-Antigen	▪ A-Antibody (Anti-A)	▪ **Doner:** B+ and AB+ ▪ **Recipient:** B+, B- and O+, O-
B- 	▪ B-Antigen	▪ A-Antibody (Anti-A)	▪ **Doner:** B+,B- and AB+, AB- ▪ **Recipient:** B- and O-
AB+ 	▪ A-Antigen ▪ B-Antigen ▪ Rh-Antigen	--	▪ **Doner:** AB+ ▪ **Recipient:** Everyone **(Universal Reciever)**
AB- 	▪ A-Antigen ▪ B-Antigen	--	▪ **Doner:** AB+ and AB- ▪ **Recipient:** A-, B-, AB-, and O-
O+ 	▪ --	A-Antibody (Anti-A) B-Antibody (Anti-B)	▪ **Doner:** A+, B+, AB+, and O+ ▪ **Recipient:** O+ and O-
O- 	▪ --	A-Antibody (Anti-A) B-Antibody (Anti-B)	▪ **Doner:** **Universal Doner** ▪ **Recipient:** O-

Rh-Factor significance

- Rh-factor or Rhesus factor, is a certain type of surface protein present in the blood and if present, blood group is positive and if absent, blood group is negative
- The **Rh** blood group system was **discovered** in 1940 by **Karl Landsteiner** and **A.S. Weiner**. Since that time a number of distinct **Rh** antigens have been identified, but the first and most common one, called **RhD**, causes the most severe immune reaction and is the primary determinant of the **Rh** trait
- **Significance**:
- -ve blood group person can donate to both +ve and –ve blood group, can but receive from –ve one only
- **In Pregnancy**: -ve mother with +ve foetus can make some serious complication for second pregnancy
- It can prevented by **Rh-immunoglobin** at specific times during pregnancy to neutralizing the Anti-Rh



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