Dr. Prabhat Ranjan
Jagdish College
Lehnia

B.Sc. (Hons.) Zoology
Part II
Paper (IV)
dt. 30/5/20

Rh. factor

It was first discovered by Landesteiner & Wiener (1940) in Rhesus Monkey or Macaque (Macaca Rhesus) hence named Rh. factor, after the name of Monkey. In human population 85% Rh+ve.

- Rh-factor is a type of Antigen.
- It is also present in Man.
- Human beings having this factor are said to be Rh+ve, while those lacking this are Rh-ve.
- It has no natural Antibody like ABO-System.
- It plays most vital role during Pregnancy/ Gestation period.
- Some kind of Antibody is present in A-B-O Blood groups but such is not the case with Rh-Antigen.
- But if the Blood of Rh+ve is transfused in Rh-ve, then Rh-Antigen start forming Antibodies. & if after such first Blood transfusion another transfusion of Rh+ve Blood is done to this Rh-ve man then the Rh Antigen will react with Antibodies & the man dies.
- If time doesn't permit the grouping & cross matching of recipient blood group, then O-ve (ORh-ve) blood should be given. Thus O-ve is universal donar. In extreme urgency only O+ve blood may be given to O-ve Recipient.
- The Rh-System consists of about 6 Antigens of which Antigen D or Rh factor is of serious clinical significance. for example:-
- If the Blood of Rh+ve donar is transfused into Rh-ve recipient, the Rh Antigen causes formation of Anti-D Antibody or Anti-Rh Antibody.
- But no ill effect can seen.
- However, if a second transfusion of Rh+ve Blood

is given to this Rh-ve recipient, even after several years later, then clumping of RBC takes place.
- It results in to death of the recipient.
- If a Rh-ve woman marriage a Rh+ve man how the foetus (Embryo), will be Rh+ve (Heterozygous). It has a dangerous fate.
- The Rh+ve foetus / child start forming Rh+ve Erythrocytes, which in the Blood of Mother start forming Antibodies.
- These Antibodies of the Mother enter the Blood Circulation of the child through Placenta & start forming Antibodies (Antibodies).
- These Antibodies of the Mother & child, thus start the breaking of child.
- This harms the foetus to different degree and many even result to the death of the foetus.
- This disease is called Erythroblastosis foetalis (Erythroblastosis neonatorum) / Haemolytic.
- If the foetus does not die, then the child will have Structural abnormalities, Anaemia & Mental retardation.
- If Antibodies are not formed in required amount, then the child is born with these abnormalities, but in the case of second child, who is also Rh+ve, then the Antibodies of the Mother will destroy the RBC of the foetus & death will be definitely occur.
- But in case of third pregnancy, abortion of foetus or death of new born baby takes place. Thus Marriage between Rh-ve woman & Rh+ve man must be avoided.

TO prevent- Sensitization of Rh-ve Mother a single dose of Anti-Rh Antibodies in the form of Rh- immune globulin (RhoGAM) is administered within 72 hrs after first- Delivery (Parturition). It destroys the Antibody formed during first- pregnancy (Gestation period)

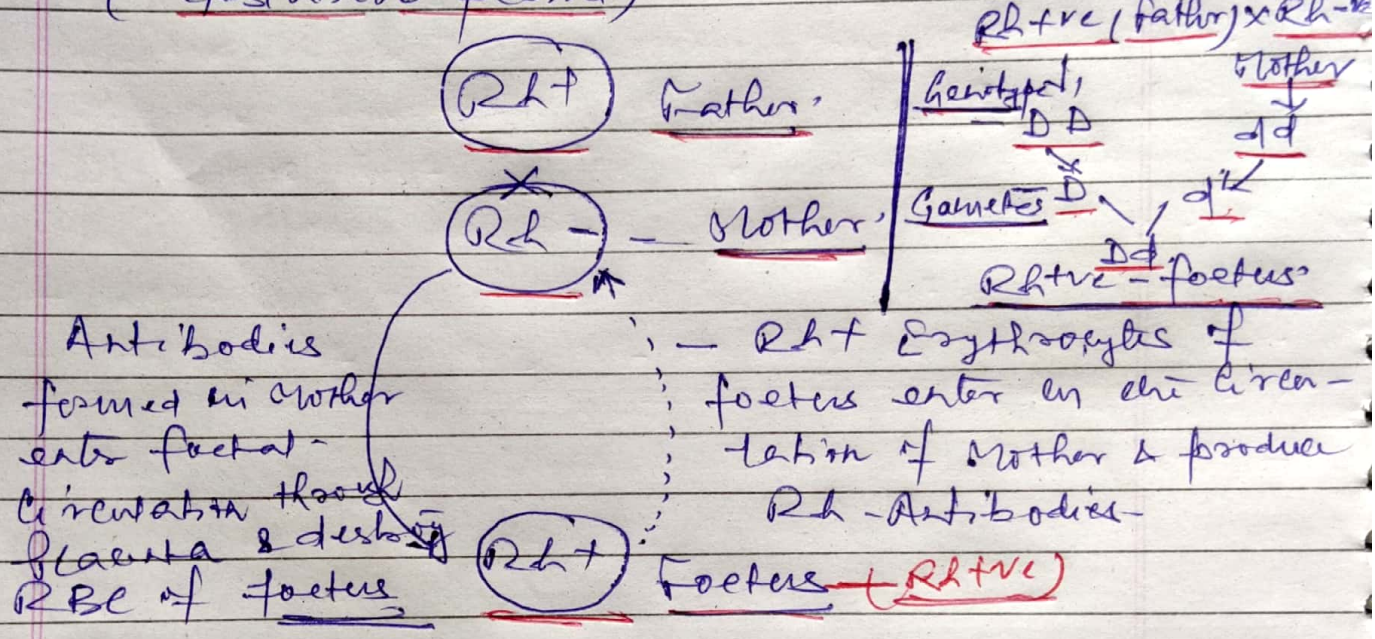
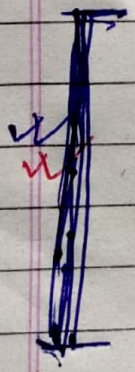


Fig - shows formation of Erythroblastosis foetalis in foetus.



Father	Mother	Child
Rh+	Rh+	Rh+ : Normal
Rh-	Rh-	Rh- : Normal
Rh-	Rh+	Rh- : Normal
Rh+	Rh-	Rh+ : Abnormal

4% risk of abnormalities in first child & Erythroblastosis foetalis in subsequent children