DETERMINATION OF RH INCOMPATIBILITY

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BLOOD TYPES

- A, B, O blood groups are specific types of proteins found on the surface of RBC's
- Also found in the cells and other body fluids (saliva, semen, etc)
- O represents neither protein being present on RBC
- Possible groups include: A, B, AB, or O
- A, B, O groups most important for transfusions

BLOOD TYPES

RH FACTOR

- Proteins (antigens) occurring only on surface of RBC's
- Rh + if proteins present
- Rh – if proteins absent
- A+, A-, B+, B-, AB+, AB-, O+, O-
- Most important for pregnancy
- Inheritance is Autosomal Dominant
- 15% Caucasian population is Rh-

Why Does Rh Status Matter?

Fetal RBC cross to maternal circulation

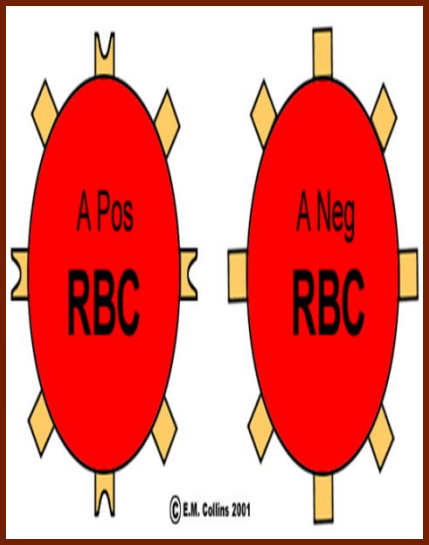
Maternal immune system recognizes foreign antigens if fetus Rh + and mother Rh –

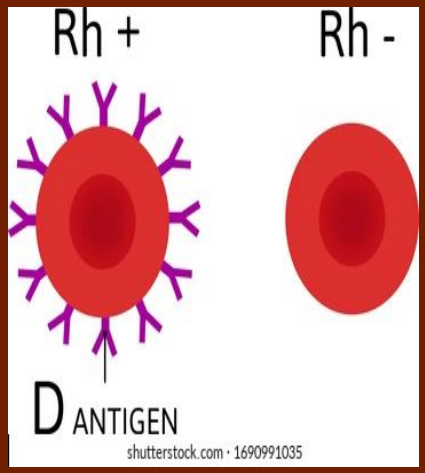
Antibodies are formed against fetal antigens

Subsequent pregnancy with Rh+ fetus, immune system activated and large amounts of Ab formed

IgG Ab cross placenta & attack fetal RBC

Fetal anemia, hydrops, etc





GENERAL SCREENING

- ABO & Rh Ab @ 1st prenatal visit
- @ 28 weeks
- Postpartum
- Antepartum bleeding and before giving any immune globulin
- Neonatal bloods ABO, Rh, DAT

GOLD STANDARD TEST

- Indirect Coombs:

-mix Rh(D)+ cells with maternal serum

-anti-Rh(D) Ab will adhere

-RBC's then washed & suspended in Coombs serum (antihuman globulin)

-RBC's coated with Ab will be agglutinated

- Direct Coombs:

-mix infant's RBC's with Coombs serum

-maternal Ab present if cells agglutinate

+ Rh(D) Antibody Screen

- Serial antibody titres q2-4 weeks
- If titre ≥1:16 - amniocentesis or MCA dopplers and more frequent titres (q1-2 wk)
- Critical titre – sig risk hydrops
- ** amnio can be devastating in this setting
- U/S for dating and monitoring
- Correct dates needed for determining appropriate bili levels (delta OD450)

U/S Parameters

- Non Reliable Parameters:
  - Placental thickness
  - Umbilical vein diameter
  - Hepatic size
  - Splenic size
  - Polyhydramnios
- Visualization of walls of fetal bowel from small amounts intraabdominal fluid may be 1st sign of impending hydrops
- U/S reliable for hydrops (ascites, pleural effusions, skin edema) – Hgb < 70