Rh Sensitization

The blood type of 85% of the world population is Rh positive. If you are part of the remaining 15% who are Rh negative, please read this handout.

How might my Rh factor affect my pregnancy?

Rh refers to your blood type. You are either Rh-positive or Rh-negative. For example, your blood type might be A-negative.

The Rh factor can cause problems if an Rh-negative mother and an Rh-positive father conceive a baby that is Rh-positive. It is not possible to know if the baby is Rh-positive until birth.

There are two steps involved in "sensitization" (also known as isoimmunization) when the mother's blood sees her baby's blood as foreign:

1. **Transplacental hemorrhage**: During pregnancy, although mother and baby have separate blood systems, blood from the baby can sometimes cross the placenta into the mother's system.
2. **Antibody formation**: Once the baby's blood has mixed into the mother's system, the mother can become sensitized. This means she produces antibodies to fight the baby's blood as if it were a harmful foreign substance. (Antibodies, for example, help us fight infections and viruses and are our body's way of getting rid of whatever seems harmful to us)If these antibodies then cross the placenta to the baby, they will attack the fetal blood cells.

Once formed, antibodies are permanent. During the pregnancy when sensitization occurs, the baby is usually born before the mother develops enough antibodies to harm the baby. The concentration of antibodies becomes higher in later pregnancies, therefore the danger is greater for babies born after you have become sensitized.

What factors can cause Rh sensitization?

Sensitization can also occur after any physical violence, accident (such as a car accident) or procedure that might involve or cause bleeding from the placenta. These include, amniocentesis, chorionic villus sampling, abdominal injury, abruption of the placenta, miscarriage, placenta previa or external version of a breech baby.

Sensitization can occur even if a pregnancy ended in miscarriage, abortion, cesarean, or was an ectopic pregnancy.

How do I know if I have become Rh sensitized?

Your blood can be tested anytime to determine if you have any antibodies. This is usually done in the initial bloodwork, again at approximately 28 weeks, and then again shortly after the birth.

What happens if I become Rh sensitized?

Rh sensitization can result in *Hemorrhagic Disease of the Newborn*. This can cause babies to develop jaundice, heart failure, anemia, brain damage or even death.

In some babies it becomes apparent during pregnancy, other times, the first sign is jaundice in the first 24 hours, which usually requires a transfusion and intensive care.

An Rh sensitized mother can be checked during her pregnancy to see if the baby is developing blood disease, through the use of amniocentesis and ultrasound. There are no immediate consequences to the mother if Rh sensitization occurs.

How can I try to prevent sensitization?

The most commonly accepted treatment is injection with Rh(D) immunoglobulin, Rhogam.

Although 90% of sensitizations occur during birth, 1-2% occur before the baby is born. Because of this, Rh(D)IG is offered at 28 weeks of pregnancy. It is protective till the birth, when there is the greatest risk of sensitization.

After the birth, the baby's blood is tested for blood type. If baby is Rh+, you will be offered another dose of Rh(D)IG within 72 hours.

Rh(D)IG should also be administered within 72 hours of any other incident or indication (such as amniocentesis, abdominal trauma or bleeding from your uterus).

How effective is the treatment?

Rh(D)IG *reduces*, but does *not eliminate* the possibility of Rh sensitization. The risk of sensitization after birth of an Rh+ baby is:

7-17% without treatment

1-2% with postpartum treatment only

0.1 - 0.2% with antenatal (at 28weeks) **and** postpartum treatment

What are the risks of treatment?

Rh(D)IG is developed by injecting human volunteer donors (Rh-negative) with the positive Rh factor, then drawing their blood once antibodies have been formed. This blood is treated and screened for viruses (such as HIV and Hepatitis) and concentrated into a serum for injection. Rh(D)IG is a human-blood product and therefore is at risk of containing unknown viruses.

Injection of Rh(D)IG carries the risk of anaphylaxis, an extreme and very rare allergic reaction.

Some brands of Rh(D)IG, such as RhoGam which is used in the United States, contain the preservative thimerosol, which is a mercury derivative. Mercury crosses the placental barrier.

Are there any alternative treatments?

There are no known alternative treatments to Rh(D)Ig injections.