homebirth & women's health

WomanWise

Informed Choice: Rh negative

What does it mean to be Rh negative?
Everyone has different types of proteins on their blood cells. If you have A proteins on your red blood cells, your blood type is A. If you have B proteins, your blood type is B. If you have both, your blood type is AB. If you have neither type A nor B proteins on your red blood cells, your blood type is O.

The Rh protein, also called the Rhesus protein, is a protein that may or may not be on your red blood cells. If you have the Rh protein on your blood cells, you are said to be Rh positive (Rh+). If you do not have Rh proteins on your blood cells, you are said to be Rh negative (Rh-). In the United States, about 15% of the white population, 5-8% of the African-American and Hispanic populations, and 1-2% of the Asian and Native American populations are Rh negative.

Together, the A, B, and Rh proteins determine your blood type. A mother with an Rh negative blood type and an Rh positive father may conceive either an Rh positive or Rh negative baby.

An Rh negative woman does not need treatment with RhIg if blood tests show that the baby's father is Rh negative. If the father is Rh negative, the baby will also have Rh negative blood. An Rh negative baby is not at risk of Rh disease.

Why are we talking about this?
When a woman is pregnant her baby and she each have their own blood supply. The mother's blood runs alongside of the placenta and the nutrients are absorbed and transferred to the baby through a membrane. There is potential for the blood supplies of the baby and mother to mix during pregnancy, labor, or birth. If this happens some of the fetus's Rh positive red blood cells may get into the mother's bloodstream.

Because the baby's red blood cells containing the Rh factor are foreign to the mother's Rh negative system, the mother's body tries to fight them off by producing antibodies against them. Only a small amount of Rh+ fetal red blood cells are needed to produce an immune response in the mother. We call this immune response sensitization. An initial sensitization is rarely large enough to have an impact on the current pregnancy. Sensitization can occur if an Rh negative woman has had:

- A miscarriage
- An abortion and/or D&C
- An ectopic pregnancy
- Chorionic villus sampling (CVS) or Amniocentesis
- Abdominal trauma
- A blood transfusion
- External cephalic version (attempt to turn a breech-position baby into head-down position)

In a first pregnancy with an Rh positive baby, there are usually are no serious problems because the baby is often born before the mother is sensitized, or at least before the mother's body produces many Rh antibodies.

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An Rh sensitized woman continues to produce Rh antibodies throughout her lifetime and it is subsequent pregnancies with Rh positive babies that can be at risk. If the blood supplies of mother and baby mix at all in a subsequent pregnancy of a sensitized mother the antibodies are transported across the placenta and break down the fetus's red blood cells, causing hemolytic disease of the newborn (HDN).

This means that in a second or later pregnancy, an Rh positive baby is at risk for more severe Rh disease. It can become severe enough to cause jaundice, serious illness, or even death in the fetus or newborn.

According to the March of Dimes, a mother with a Rh negative blood type has approximately 0.7 percent chance of giving birth to a baby that suffers from the disease without treatment.

How can I prevent Rh sensitization?
If you are Rh negative your midwife will recommend a blood test early in your pregnancy to determine if you have become Rh sensitized in the past.

An unsensitized Rh negative pregnant woman can be treated with injections (shots) of a purified blood product called Rh immune globulin (RhIg) to prevent possible sensitization should cross-contamination happen over the course of the pregnancy or birth. RhIg is offered at 28 weeks of pregnancy and again within 72 hours of giving birth if a blood test shows that the baby is Rh positive (ACOG, 1999). An Rh negative mother would not need an injection after birth if her baby is Rh negative. Some healthcare providers recommend an additional RhIg injection if a woman's pregnancy goes past her due date, as RhIg is proven effective for twelve weeks (ACOG, 1999; Moise, 2008).

According to the March of Dimes, receiving the RhIg injection reduces the risk of giving birth to a baby that suffers from hemolytic disease of the newborn (HDN) from 0.7% to 0.02%.

Why is a preventative dose of RhIg recommended at 28 weeks?
While most sensitizations occur as the result of placental separation at birth, it is possible to have "silent bleeds" earlier in pregnancy which are not detectable by the mother or her provider, but through which sensitization can occur. These symptom-free sensitizations are thought to occur in about 2% of pregnancies of Rh negative women. The standard solution to this problem is to give Rh- mothers a single injection of RhIg at 28 weeks.

Giving women RhIg prophylactically at 28 weeks is not well researched and remains difficult to study. Transmission of up to 10% of the preventative RhIg will cross the placenta to the baby, and as yet there have been no long-term studies which address the possible effects of this. Experts debate the required dosage of RhIg to give a mother prenatally as well as whether it is most effective if given in two smaller

doses at 28 and 34 weeks rather than a
singular injection. Another concern that remains is that without knowledge of the fetal blood type, preventative dosing of RhIg may be unnecessary.

How does RhIg work?
It is not known exactly how RhIg works. It contains antibodies to the Rh factor that may prompt certain immune cells to clear Rh-positive cells from the mother's circulation. As a result, she may not produce her own antibodies against fetal Rh-positive cells (Moise, 2008).

Protection by RhIg lasts only about 12 weeks (ACOG, 1999). Current recommended protocol in the USA is that all Rh negative women be treated during each pregnancy.

Does RhIg treatment always work?
Proper treatment with RhIg can prevent sensitization in almost all unsensitized Rh negative women (ACOG, 1999). However, RhIg does not work for an Rh negative woman who already is sensitized from a former pregnancy or event. The main cause for Rh sensitization is not receiving treatment when needed, such as after an unrecognized miscarriage.

Is there any way to reverse sensitization?
No. Even if a woman has no symptoms and stays healthy, she can continue to produce antibodies. If she carries any subsequent Rh positive babies, they could develop Rh disease.

What are possible negative effects of RhIg treatment (RhoGAM)?
RhoGAM contains actual Rh antibodies produced by people who have become sensitized. It is, therefore, a blood product. Current procedures and manufacturing processes are in place to prevent blood-borne pathogens being included in any active form in the RhoGAM you receive, and as such the risk is extremely small.

RhoGAM is considered a drug, and is regulated by the FDA. The FDA categorizes all drugs in terms of their relative safety for use in pregnancy and RhoGAM is in category C. For drugs in this category, risk cannot be ruled out. Human studies are lacking, or animal studies have either demonstrated fetal risk or are lacking as well. However, potential benefits of medications in this category may justify the risk.

It is also possible for allergic reactions to RhoGAM to occur. These reactions may be mild to severe, and can include hives, generalized itching, tightness of the chest, wheezing, low blood pressure, and anaphylactic shock. These systemic reactions are extremely rare, and no deaths have ever been reported.

At one time, RhoGAM was preserved with thimerosal, a mercury-based preservative that many considered to be harmful to both mother and baby. This preservative is no longer used in RhoGAM.

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I have read all of the information on Rh sensitization and the available prevention and treatment options. I have had the opportunity to ask questions and do my own research concerning this treatment.

I understand the benefits and risks of RhoGAM treatment for myself, my baby, and any subsequent pregnancies. I understand the implications of declining RhoGAM injections if I choose to. I am aware that I can change my decision prior to the procedure.

My choice for treatment is indicated below.

____ I choose to receive prenatal RhoGAM given at 28 weeks pregnancy

____ I choose to receive RhoGAM within 72 hours of my baby's birth if my baby is born with a positive blood type

____ I choose not to receive any of the above procedures

Signature of Client_____Date_____

Name of Client_____

Signature of Midwife_____Date_____