PATIENT EDUCATION

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

The Rh Factor: How It Can Affect Your Pregnancy

The ***Rh factor*** is a protein that can be found on the surface of red blood ***cells***. If your blood cells have this protein, you are Rh positive. If your blood cells do not have this protein, you are Rh negative. During pregnancy, problems can occur if you are Rh negative and your ***fetus*** is Rh positive. Treatment can be given to prevent these problems.

You Need to Know

- what the Rh factor means for pregnancy
- how Rh ***antibodies*** can cause problems
- how to prevent Rh problems during pregnancy
- how treatment may help if Rh antibodies develop

What the Rh Factor Means for Pregnancy

The Rh factor is inherited, meaning it is passed from parent to child through ***genes***. The fetus can inherit the Rh factor from the father or the mother. Most people are Rh positive, meaning they have inherited the Rh factor from either their mother or father. If a fetus does not inherit the Rh factor from either the mother or father, then he or she is Rh negative. When a woman is Rh negative and her fetus is Rh positive, it is called Rh incompatibility.

Why is Rh incompatibility a problem?

When the blood of an Rh-positive fetus gets into the bloodstream of an Rh-negative woman, her body will recognize that the Rh-positive blood is not hers. Her body will try to destroy it by making anti-Rh antibodies. These antibodies can cross the ***placenta*** and attack the fetus's blood cells. This can lead to serious health problems, even death, for a fetus or a newborn.

How do Rh antibodies develop?

During pregnancy, a woman and her fetus usually do not share blood. But sometimes a small amount of blood from the fetus can mix with the woman's blood. This can happen during labor and birth. It also can occur with

- ***amniocentesis or chorionic villus sampling (CVS)***
- bleeding during pregnancy

- attempts to manually turn a fetus so he or she is head-down for birth (move the fetus out of a ***breech presentation***)
- trauma to the abdomen during pregnancy

When do Rh antibodies cause problems?

Health problems usually do not occur during an Rh-negative woman's first pregnancy with an Rh-positive fetus. This is because her body does not have a chance to develop a lot of antibodies. But if treatment is not given during the first pregnancy and the woman later gets pregnant again with an Rh-positive fetus, she can make more antibodies. More antibodies put a future fetus at risk.

Can Rh antibodies develop when a pregnancy is not carried to term?

Yes. An Rh-negative woman also can make antibodies after

- ***miscarriage***
- ***ectopic pregnancy***
- ***induced abortion***

If an Rh-negative woman gets pregnant after one of these events and has not received treatment, a future fetus may be at risk of problems if it is Rh positive.

How Rh Antibodies Can Cause Problems

During a pregnancy, Rh antibodies made in a woman's body can cross the placenta and attack the Rh factor on fetal blood cells. This can cause a serious type of ***anemia*** in the fetus in which red blood cells are destroyed faster than the body can replace them.

How does anemia affect a fetus?

Red blood cells carry ***oxygen*** to all parts of the body. Without enough red blood cells, the fetus will not get enough oxygen. In some cases, a fetus or a newborn can die from anemia. Rh incompatibility also can cause ***jaundice*** in a newborn.

Preventing Rh Problems During Pregnancy

Problems during pregnancy caused by Rh incompatibility can be prevented. The goal of treatment is to stop an Rh-negative woman from making Rh antibodies in the first place. This is done by finding out if you are Rh negative early in pregnancy (or before pregnancy) and, if needed, giving you a medication to prevent antibodies from forming.

How can I find out if I am Rh negative?

A simple blood test can determine your blood type and Rh status. A blood sample can be taken in the office of your ***obstetrician–gynecologist (ob-gyn)*** or other ***obstetric care provider***. This sample usually is taken during the first ***prenatal care*** visit.

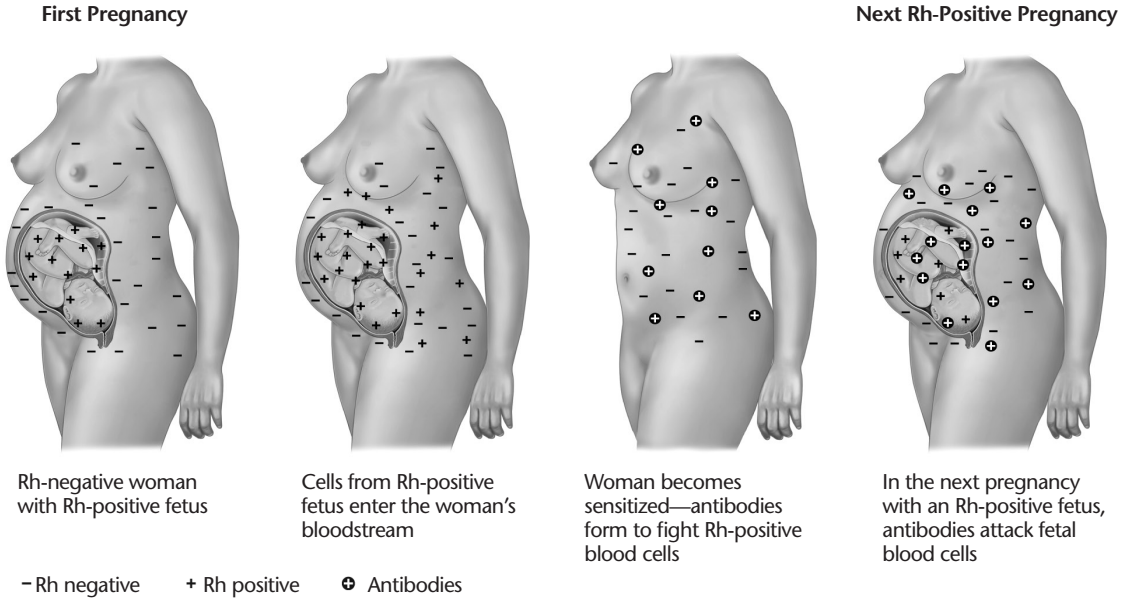
What is an antibody screen?

An antibody screen is another blood test that can show if an Rh-negative woman has made antibodies to Rh-positive blood. This test also can show how many antibodies have been made.

When would I need to have an antibody screen?

If you are Rh negative and there is a possibility that your fetus is Rh positive, your ob-gyn or other obstetric care provider may request this test during your first

The Rh Factor in Pregnancy



trimester. You may have this test again at 28 weeks of pregnancy. In some cases, you may be tested more often.

What is Rh immunoglobulin?

Rh immunoglobulin (RhIg) is a medication that stops the body from making antibodies if it has not already made them. This can prevent severe fetal anemia in a future pregnancy. RhIg is given as an injection (shot). If you are in this situation, talk with your ob-gyn or other obstetric care provider about whether you need RhIg and when you might be given this medication. It is not helpful if your body has already made Rh antibodies.

When would I need to take RhIg?

RhIg is given in the following situations:

- At 28 weeks of pregnancy—A small number of Rh-negative women may be exposed to Rh-positive blood cells from the fetus in the last few months of pregnancy and may make antibodies against these cells. RhIg given at 28 weeks of pregnancy destroys these Rh-positive cells in the woman's body. This prevents Rh-positive antibodies from being made.
- Within 72 hours after the delivery of an Rh-positive baby—The greatest chance that the blood of an Rh-positive fetus will enter the bloodstream of an Rh-negative woman occurs during delivery. RhIg prevents an Rh-negative woman from making antibodies that could affect a future pregnancy. The treatment is good only for the pregnancy for which it is given. Each pregnancy and delivery of an Rh-positive baby requires a repeat dose of RhIg.

Are there other times when I might need RhIg?

Yes, a dose of RhIg also may be needed

- after an ectopic pregnancy, miscarriage, or abortion
- after amniocentesis, CVS, fetal blood sampling, or fetal surgery
- if you had bleeding during pregnancy
- if you had trauma to the abdomen during pregnancy
- if attempts were made to manually turn a fetus from a breech presentation

Treatment if Antibodies Develop

RhIg treatment does not help if an Rh-negative woman has already made antibodies. In this case, the well-being of the fetus will be checked during the pregnancy, usually with ***ultrasound exams***.

What if exams show the fetus has severe anemia?

If ultrasound exams show that the fetus has severe anemia, early delivery (before 37 weeks of pregnancy) may be needed. Another option may be to give a blood transfusion through the ***umbilical cord*** while the fetus is still in the woman's ***uterus***.

What if the fetus's anemia is mild?

If the anemia is mild, delivery may happen at the normal time. After delivery, the baby may need a blood transfusion to replace blood cells.

Your Takeaways

1. If a pregnant woman is Rh negative and blood from an Rh-positive fetus enters her bloodstream, her immune system can start making Rh antibodies.
2. Rh antibodies can cross the placenta and try to destroy the fetus's blood.
3. If a woman is Rh negative, she may be given a shot of RhIg during the pregnancy and after delivery to prevent the development of Rh antibodies.
4. If an Rh-negative woman has already made Rh antibodies, early delivery or a blood transfusion for the fetus may be needed.

Terms You Should Know

Amniocentesis: A procedure in which a needle is used to withdraw and test a small amount of amniotic fluid and cells from the sac surrounding the fetus.

Anemia: Abnormally low levels of blood or red blood cells in the bloodstream.

Antibodies: Proteins in the blood produced in reaction to foreign substances, such as bacteria and viruses that cause infection.

Breech Presentation: A position in which the feet or buttocks of the fetus would be born first.

Cells: The smallest units of a structure in the body. Cells are the building blocks for all parts of the body.

Chorionic Villus Sampling (CVS): A procedure in which a small sample of cells is taken from the placenta and tested.

Ectopic Pregnancy: A pregnancy in which the fertilized egg begins to grow in a place other than inside the uterus, usually in one of the fallopian tubes.

Fetus: The stage of prenatal development that starts 8 weeks after fertilization and lasts until the end of pregnancy.

Genes: Segments of DNA that contain instructions for the development of a person's physical traits and control of the processes in the body. They are the basic units of heredity and can be passed from parent to child.

Induced Abortion: The planned termination of a pregnancy before the fetus can survive outside the uterus.

Jaundice: A buildup of bilirubin that causes a yellowish appearance.

Miscarriage: Loss of a pregnancy that occurs in the first 13 weeks of pregnancy.

Obstetric Care Provider: A health care professional who cares for a woman during pregnancy, labor, and delivery. These professionals include obstetrician–gynecologists (ob-gyns), certified nurse–midwives (CNMs), maternal–fetal medicine specialists (MFMs), and family practice doctors with experience in maternal care.

Obstetrician–Gynecologist (Ob-Gyn): A physician with special skills, training, and education in women's health.

Oxygen: A gas that is necessary to sustain life.

Placenta: Tissue that provides nourishment to and takes waste away from the fetus.

Prenatal Care: A program of care for a pregnant woman before the birth of her baby.

Rh Factor: A protein that can be present on the surface of red blood cells.

Rh Immunoglobulin (RhIg): A substance given to prevent an Rh-negative person's antibody response to Rh-positive blood cells.

Trimester: A 3-month time in pregnancy. It can be first, second, or third.

Ultrasound Exams: Tests in which sound waves are used to examine inner parts of the body. During pregnancy, ultrasound can be used to check the fetus.

Umbilical Cord: A cord-like structure containing blood vessels that connects the fetus to the placenta.

Uterus: A muscular organ located in the female pelvis that contains and nourishes the developing fetus during pregnancy.

This is EP027 in ACOG's Patient Education Pamphlet Series.

ISSN 1074-8601

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