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Rh Incompatibility

If you just found out you're pregnant, one of the first — and most important — tests you should expect is a blood-type test. This basic test determines your blood type and Rh factor. Your Rh factor may play a role in your baby's health, so it's important to know this information early in your pregnancy.

About the Rh Factor

People with different blood types have proteins specific to that blood type on the surfaces of their red blood cells (RBCs). There are four blood types — A, B, AB, and O.

Each of the four blood types is additionally classified according to the presence of another protein on the surface of RBCs that indicates the Rh factor. If you carry this protein, you are Rh positive. If you don't carry the protein, you are Rh negative.

Most people — about 85% — are Rh positive. But if a woman who is Rh negative and a man who is Rh positive conceive a baby, there is the potential for a baby to have a health problem. The baby growing inside the Rh-negative mother may have Rh-positive blood, inherited from the father. Approximately half of the children born to an Rh-negative mother and Rh-positive father will be Rh positive.

Rh incompatibility usually isn't a problem if it's the mother's first pregnancy because, unless there's some sort of abnormality, the fetus's blood does not normally enter the mother's circulatory system during the course of the pregnancy.

However, during delivery, the mother's and baby's blood can intermingle. If this happens, the mother's body recognizes the Rh protein as a foreign substance and can begin producing antibodies (protein molecules in the immune system that recognize, and later work to destroy, foreign substances) against the Rh proteins introduced into her blood.

Other ways Rh-negative pregnant women can be exposed to the Rh protein that might cause antibody production include blood transfusions with Rh-positive blood, miscarriage, and ectopic pregnancy.

Rh antibodies are harmless until the mother's second or later pregnancies. If she is ever carrying another Rh-positive child, her Rh antibodies will recognize the Rh proteins on the surface of the baby's blood cells as foreign, and pass into the baby's bloodstream and attack those cells. This can lead to swelling and rupture of the baby's RBCs. A baby's blood count can get dangerously low when this condition, known as **hemolytic** or **Rh disease of the newborn**, occurs.

Preventing and Treating Rh Disease of the Newborn

In generations past, Rh incompatibility was a very serious problem. Fortunately, significant medical advances have been made to help prevent complications from Rh incompatibility and to treat any newborn affected by Rh disease.

Today, when a woman with the potential to develop Rh incompatibility is pregnant, doctors administer a series of two **Rh immune-globulin** shots during her first pregnancy. The first shot is given around the 28th week of pregnancy and the second within 72 hours after giving birth. Rh immune-globulin acts like a vaccine, preventing the mother's body from producing any potentially dangerous Rh antibodies that can cause serious complications in the newborn or complicate any future pregnancies.

A dose of Rh immune-globulin may also be given if a woman has a miscarriage, an amniocentesis, or any bleeding during pregnancy.

If a doctor determines that a woman has already developed Rh antibodies, then the pregnancy will be closely monitored to make sure that those levels are not too high. In rare cases, if the incompatibility is severe and the baby is in danger, a series of special blood transfusions (called exchange transfusions) can be performed either while the baby is still in the uterus or after delivery.

Exchange transfusions replace the baby's blood with RBCs that are Rh-negative. This procedure stabilizes the baby's level of red blood cells and minimizes further damage caused by circulating Rh antibodies already present in the baby's bloodstream.

Because of the success rate of the Rh immune-globulin shots, exchange transfusions are needed in fewer than 1% of Rh-incompatible pregnancies in the United States today.

If Rh Disease Is Not Prevented

Rh incompatibility rarely causes complications in a first pregnancy and does not affect the health of the mother. But Rh antibodies that develop during subsequent pregnancies can be potentially dangerous to mother and child. Rh disease can result in severe anemia, jaundice, brain damage, and heart failure in a newborn. In extreme cases, it can cause the death of the fetus because too many RBCs have been destroyed.

If you're not sure what your Rh factor is and think you're pregnant, it's important to start regular prenatal care as soon as possible — including blood-type testing. With early detection and treatment of Rh incompatibility, you can focus on more important things — like welcoming a new, healthy baby into your household.

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