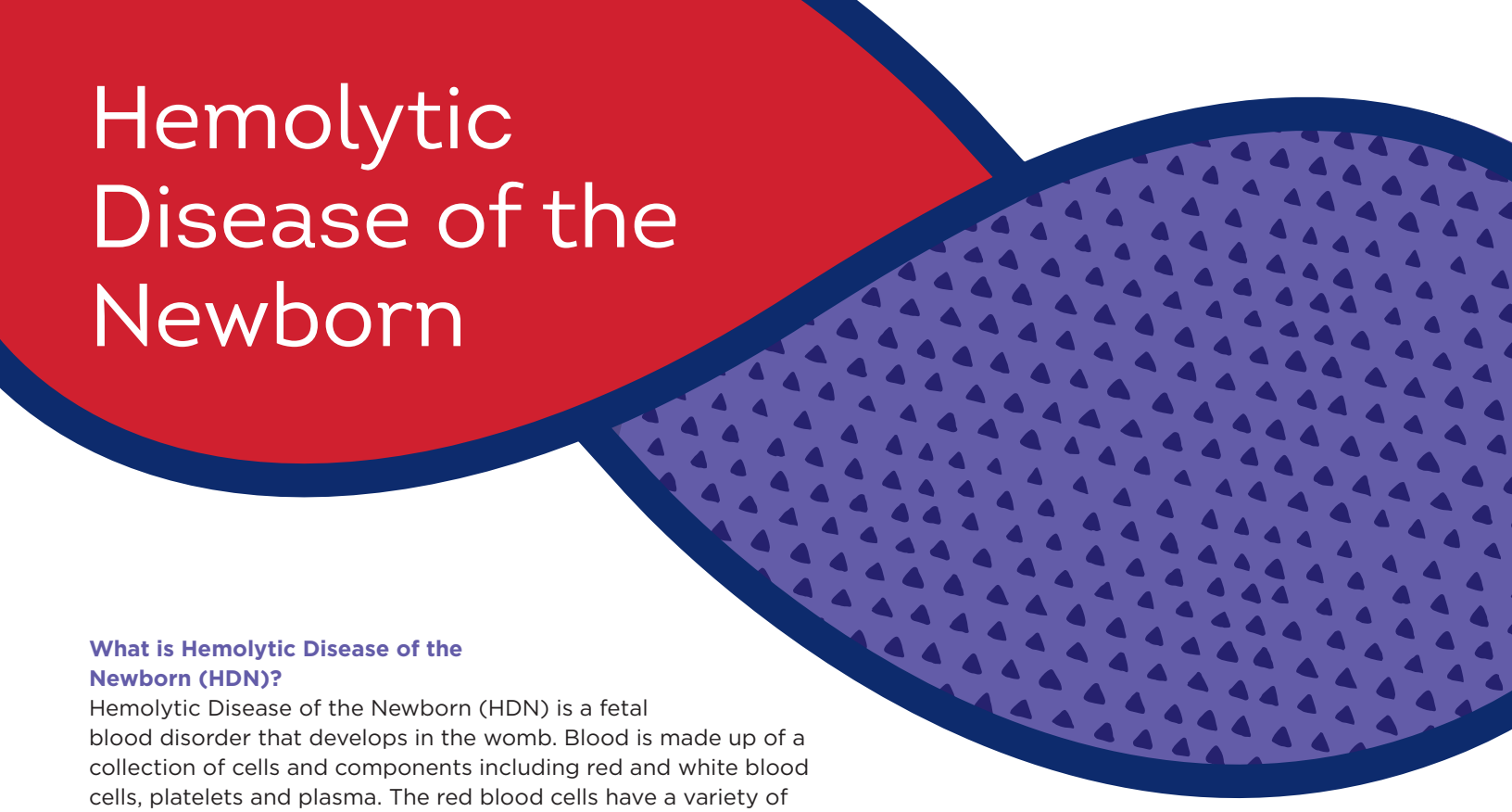
Hemolytic Disease of the Newborn



What is Hemolytic Disease of the Newborn (HDN)?

Hemolytic Disease of the Newborn (HDN) is a fetal blood disorder that develops in the womb. Blood is made up of a collection of cells and components including red and white blood cells, platelets and plasma. The red blood cells have a variety of organic compounds named proteins or antigens that result in different groups including blood type (A, B, AB or O), Kell (K or k) and Rh factor (positive or negative). There are many others as well.

HDN occurs when the antigens in a mother's and baby's bloods do not mix. If the baby's incompatible red blood cells cross over to the mother (either through the placenta during pregnancy or at delivery), the mother's immune system develops antibodies that will attack the "foreign" cells in the baby.

This can lead to complications that range from mild to very severe, including anemia (low red cell counts), hyperbilirubinemia (buildup of bilirubin) and jaundice due to the rapid destruction of red blood cells. Depending on the severity of the anemia, it can have dramatic effects on various organs, including the liver and spleen.

Severe anemia can also result in fetal hydrops in which the heart begins to fail, and large amounts of fluid build up in the fetus' tissues and organs; the risk of a stillborn fetus is high in these cases.

HDN is typically categorized by:

» Blood type (ABO), which includes anti-A and anti-B antibodies.
» Rhesus (Rh), which includes rhesus E, c, e, C, D and combinations of these. Rhesus D HDN is often called Rh disease and is the most common form of severe HDN.
» Kell, which includes anti-Kell antibodies, is the second most common form of severe HDN.

There are also blood group antigens including Kidd, MNS and others, which are less common than Rh and Kell.

These blood conditions are more common in the mother's second or subsequent pregnancies.

A Cardinal Glennon St. Louis Fetal Care Institute nurse is available 24 hours a day, seven days a week to discuss referrals with physicians and potential families by calling 314-268-4037, option 2.

Phone	**314-268-4037, option 2**
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Facebook	**facebook.com/fetaldocs**

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How is Hemolytic Disease of the Newborn Diagnosed During Pregnancy?

Babies born with HDN are relatively uncommon in the U.S. due to advances in early detection and treatment (approximately 4,000 cases per year). The team at the SSM Health Cardinal Glennon St. Louis Fetal Care Institute uses blood tests, ultrasounds, and occasionally amniocentesis to diagnose HDN during pregnancy.

How is Hemolytic Disease of the Newborn Monitored and Treated During Pregnancy?

Proper prenatal diagnosis and care are critically important for babies with HDN because it can be treated during pregnancy. Depending on the diagnosis, doctors will monitor the baby's blood flow with an ultrasound and may perform intrauterine blood transfusions to help replace the baby's red blood cells. This procedure may need to be performed multiple times throughout pregnancy.

In cases of Rh incompatibility (when the mother is Rh negative, and the baby is Rh-positive) the mother is given an injection of Rh-immune globulin around the twenty-eighth week of pregnancy, and within 72 hours after a delivery, miscarriage or invasive procedure, such as amniocentesis or fetal surgery. These shots will eliminate the baby's red blood cells from the mother's body and prevent the mother from developing antibodies that could be harmful to future pregnancies. These shots are not harmful to the developing fetus.

Unfortunately, we only have this prevention medicine for those with Rh incompatibility and not for any of the other antigens on the blood cells.

How Does Hemolytic Disease of the Newborn Affect Delivery, and How is it Treated After Birth?

In some cases, early delivery of the baby may be performed if complications from HDN are severe. After delivery, the neonatal team will perform blood transfusions or an exchange transfusion (which replaces the baby's damaged blood with fresh blood) and use IV fluids and oxygen/mechanical breathing machines to combat the effects of anemia.

In general, all babies with HDN will also need to be treated with "bili-lights." These are blue lights that painlessly help remove the bilirubin from building up in the baby's blood by converting it to another chemical that their body can handle. If not done, the buildup of bilirubin can cause harm to the baby's brain.

What is the Long-Term Prognosis for Babies with HDN?

Most babies born with HDN will not have long-term health conditions related to the condition. However, it is important that babies with HDN are monitored closely for hyperbilirubinemia and jaundice, which affects the baby's liver. In extreme cases, kernicterus may occur — this is the most severe form of hyperbilirubinemia, which causes a buildup of bilirubin in the brain. This can cause seizures, brain damage, deafness and rarely, death.

For more information or to schedule an appointment, call us at 314-268-4037, opt. 2 or toll free at 877-SSM-FETL (877-776-3385).