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Released: 01/31/2025
Valid until: 01/31/2026
Time needed to complete: 1h 01m

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The Alloimmune Disorders of Pregnancy

Announcer:
Welcome to CME on ReachMD. This episode is part of our MinuteCE curriculum.

Prior to beginning the activity, please be sure to review the faculty and commercial support disclosure statements as well as the learning objectives.

Dr. Blakemore:
This is CME on ReachMD, and I'm Dr. Karin Blakemore. And here with me today is Dr. Emilie Vander Haar. Good morning.

Emilie, let's just dive right into a discussion about, hemolytic disease of the fetus and newborn, or HDFN, and fetal neonatal alloimmune thrombocytopenia.

Dr. Vander Haar:
Great. Let's get into it. So there are several important entities to consider when discussing these sort of alloimmune disorders of pregnancy. And as you mentioned, the two most important disorders that we are discussing today are hemolytic disease of the fetus and newborn, or HDFN, and neonatal alloimmune thrombocytopenia, or FNAIT. HDFN is an alloimmune disorder that occurs when specific maternal and fetal red blood cell antigens are mismatched, leading the mother to form antibodies against the foreign fetal red blood cell antigen. The most well-known version of this disorder is Rhesus, or RhD disease, which can occur when an RhD-negative mother carries an RhD-positive fetus. However, there are many other red blood cell antigens associated with HDFN, including K or Kell, Duffy, Rh little c, Rh big E, and Kidd, among many others.

When maternal alloimmunization occurs, these antibodies then travel across the placenta into the fetal circulation, destroying fetal red blood cells, which ultimately leads to fetal anemia. This in turn, can lead to fetal heart failure, hydrops, and even demise if it remains untreated. Rh disease used to be a significant problem during pregnancy as the Rh-negative blood type occurs in about 15% of the population worldwide. However, today, Rh disease is actually quite rare due to the routine use of RhIG during pregnancy in all RhD-negative mothers to prevent maternal alloimmunization.

FNAIT is sort of the platelet analog of HDFM. So again, a mismatch in maternal and fetal platelet antigens leads to formation of maternal antibodies. These antibodies travel across the placenta. They destroy fetal platelets, leading to thrombocytopenia, which in its severe form can lead to fetal bleeding, including intracranial hemorrhage, which has significant fetal neurologic morbidity and mortality. Similar to HDFN, there are a number of different platelet antigens associated with FNAIT, which we are going to discuss in a future episode. However, unlike HDFN, currently, there are no preventive Ig, immunoglobulins, similar to RhIG. Thus, although rare, FNAIT does remain a significant clinical entity.

In the following episodes, we'll be discussing FNAIT and focusing on how it differs from HDFN in its presentation, as well as discussing unique challenges regarding its management.

Dr. Blakemore:
Well, there's certainly some differences and similarities between the pathophysiology of HDFN and FNAIT. And we'll get into that in

subsequent segments, but this has been a great bite-sized discussion, and I think our time is up. So thank you.

Announcer:
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