

Fetal Anemia & Thrombocytopenia

What is fetal anemia?

watch video ^[1]

The fetus uses red blood cells to carry oxygen in its circulation, just the way children and adults do, and as a result, the fetus can also suffer from low blood counts or anemia. This problem may result because the red blood cells are not being produced or because they are being destroyed faster than they can be made.

When the anemia is extremely severe the fetus can experience heart failure and if untreated, could result in death. Although fetal anemia is rare the most common causes is the destruction of red blood cells because of Rh iso-immunization (incompatibility between the infant's blood type and that of the mother's) or some other incompatibility between the mother's and fetus' red blood cells. This means the mother's immune system sees the fetal blood as foreign when it ends up in her circulation (which is common), and therefore attacks and destroys it. If the level of the attack is great enough, the antibodies can pass across the placenta into the fetal circulation and continue to destroy the red blood cells there too.

Another cause of fetal anemia is a temporary slowing of red blood cell production. Rare cases of fetal parvovirus infection (a once common childhood disease caused by human parvovirus B19) can be the cause of this condition. Also bleeding from the fetal circulation into the maternal circulation will also lead to temporary anemia.

What is fetal thrombocytopenia?

watch video ^[2]

Fetal thrombocytopenia is a low platelet count in the fetus. Platelets are tiny cell fragments that help in blood clotting. If the number of platelets is very low, then spontaneous bleeding can occur, particularly into the fetal brain, leading to a stroke. Maternal-fetal immune incompatibility, similar to what occurs with red blood cells described previously, is the most common cause for a dangerously low fetal platelet count.

Outcome for a fetus with anemia or thrombocytopenia

If the anemia or thrombocytopenia is recognized early and treatment is started in a timely manner, then outcomes can be excellent. However, the procedures that are involved in managing these problems do carry some risk and, therefore, are best treated by experienced doctors at centers where they are regularly performed. The UCSF Fetal Treatment Center is one of those experienced centers, and we can also refer you to a qualified center that is in your local area.

- What is the pregnancy outcome for Fetal Anemia?
- What is the pregnancy outcome for Thrombocytopenia?

How severe is my fetus? anemia or thrombocytopenia?

The anemia is severe if there are signs of heart failure (hydrops). If there is a risk of anemia but no signs of hydrops, then ultrasound, amniocentesis and testing of amniotic fluid may help determine the likelihood of a problem. To determine the risk of anemia, we measure the speed of blood flow in one of the fetal brain blood vessels (MCA-PSV). This test poses no direct risk to the mother or fetus (as it is done by ultrasound).

Alternatively, we can draw fluid from the amniotic sac (amniocentesis) and analyze it for signs of breakdown products of blood, the presence of which correlates with anemia. This procedure carries a small risk of miscarriage (1% or less).

Finally, the definitive way to determine if and how anemic the fetus may be, is to perform fetal blood sampling. This procedure involves placing a thin needle into the umbilical vein, located in the umbilical cord of the fetus, using ultrasound guidance. If the fetus is anemic, then at the same time as the sampling, we would give the fetus blood a fetal transfusion. This procedure carries a 5% risk of complication and in rare cases can cause fetal death; however the percentage of fetal death is higher if there are already signs of heart failure.

What are my treatment choices during this pregnancy?

watch video ^[3] This complicated fetal condition is best managed by experts, who perform the difficult procedures described above routinely, at a center where such cases are commonly treated. Cases of fetal anemia will require close monitoring of the pregnancy to allow transfusions to be carried out in a timely fashion. Transfusions are usually not performed after 34 weeks, as the risks of the procedure outweigh the risk of a premature birth at that age in pregnancy. Vaginal delivery is the usual management, as long as the fetus is monitored and tolerates the labor.

watch video ^[4] If the fetal platelet count is thought to be low, then fetal blood sampling under ultrasound guidance using Fetal Image-Guided Surgery (FIGS-IT) can confirm the diagnosis. Platelets must always be available for transfusion, because if the count is low it could lead to bleeding from the puncture site on the umbilical cord.

What will happen after birth?

The fetal platelet count must be close to normal to allow a vaginal delivery safely. It is important that babies that have had these problems in their pregnancy are delivered at a

hospital that can provide expert neonatal care, as they may have short term complications from their anemia or low platelet counts and may require transfusions or other specialized treatments.

- Fetal anemia afterbirth care in the ICN [5]
- Thrombocytopenia afterbirth care in the ICN [6]

Support Groups & Other Resources

- March of Dimes [7] ? Researchers, volunteers, educators, outreach workers and advocates working together to give all babies a fighting chance
- Birth Defect Research for Children [8] ? a parent networking service that connects families who have children with the same birth defects
- Kids Health [9] ? doctor-approved health information about children from before birth through adolescence
- CDC - Birth Defects [10] ? Dept. of Health & Human Services, Centers for Disease Control and Prevention
- NIH - Office of Rare Diseases [11] ? National Inst. of Health - Office of Rare Diseases
- North American Fetal Therapy Network [12] ? NAFTNet (the North American Fetal Therapy Network) is a voluntary association of medical centers in the United States and Canada with established expertise in fetal surgery and other forms of multidisciplinary care for complex disorders of the fetus.

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Source URL: <https://fetus.ucsf.edu/fetal-anemia-thrombocytopenia>

Links

[1]

<http://www.youtube.com/watch?v=jCdZU5zOK2g&feature=Playlist&p=C055323004B8B518&index=2>

[2] https://www.youtube.com/watch?v=pnzY2hxV_EQ

[3]

<http://www.youtube.com/watch?v=4x4E2EN6rM0&feature=Playlist&p=C055323004B8B518&index=1>

[4]

<http://www.youtube.com/watch?v=TyU6AA06Deo&feature=Playlist&p=A0B2F59747DC284F&index=>

[5] <https://www.youtube.com/watch?v=eVfJur28ttw>

[6] <https://www.youtube.com/watch?v=4aLlx0N-SVs>

[7] <http://www.modimes.org/>

[8] <http://www.birthdefects.org/>

[9] <http://www.kidshealth.org/>

[10] <http://www.cdc.gov/ncbddd/birthdefects/index.html>

[11] <http://rarediseases.info.nih.gov/>

[12] <http://www.naftnet.org/>