



# Fetal and Neonatal Alloimmune Thrombocytopenia

## Patient Information

### What is FNAIT?

Fetal and Neonatal Alloimmune Thrombocytopenia or FNAIT occurs when the mother's immune system attacks her fetus' and/or newborn's platelets. This can cause a low platelet count and risk of bleeding in the fetus and newborn. If the bleeding occurs in the brain, there may be long term effects.

#### What is thrombocytopenia?

A "thrombocyte" is another word for a platelet, which is a blood cell that helps to stop bleeding. "Penia" refers to a shortage or low number. Thrombocytopenia means a low number of platelets.

#### What does alloimmune mean?

Alloimmune refers to a disease in which your immune system attacks proteins that appear foreign to you (such as the proteins in the fetus that are inherited from the baby's father).

#### Other names for FNAIT

FNAIT is also known as NAIT, AIT, FMAIT (fetal maternal alloimmune thrombocytopenia), NAT or NATP (neonatal alloimmune thrombocytopenic purpura).

### Why does FNAIT happen?

Our platelets have many proteins on their surface. Each person has a different set of proteins, which are inherited from their parents.

These different platelet proteins make different platelet groups, just like different proteins on red blood cells make different blood groups. These differences do not affect platelet function. However, if a baby inherits a protein that is found on the father's platelets but is absent from the mother's platelets, the mother may respond to this foreign protein by developing an antibody that fights against it.

This antibody may pass from the mother's blood into the baby's blood and attach to the baby's platelets. This antibody destroys the baby's platelets, resulting in an increased risk of bleeding for the baby. The mother's antibodies can remain in the baby's blood stream for weeks, and bleeding can occur in the baby before birth (fetal), during birth or after birth (neonatal).

There are a number of proteins that can cause FNAIT but the most common one is called Human Platelet Antigen (HPA)-1a.

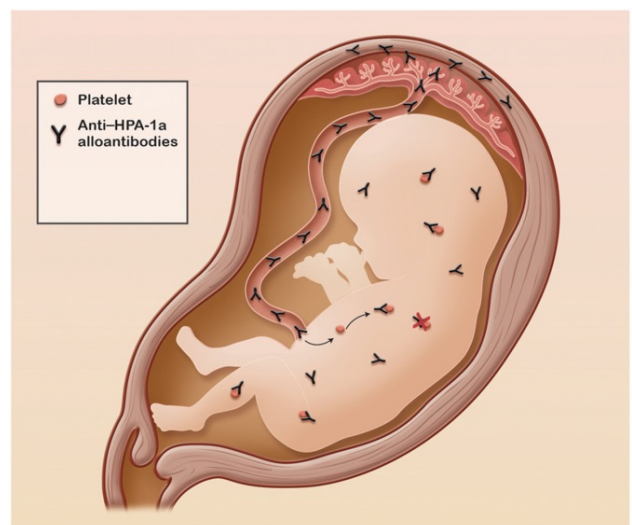


Diagram adapted from *A Platelet Cover-up* by Donald M. Arnold, Blood 2013 122:307-309, reproduced with permission

## How is FNAIT diagnosed?

Doctors may become concerned about FNAIT if they notice bleeding or bruising in a baby, or low platelet counts on a blood test after birth, or neurologic symptoms. Some babies may have a specific pinpoint rash called “petechiae”.

The diagnosis of FNAIT can be confirmed by taking blood samples from the mother, the father, and sometimes the baby. If the baby’s platelet count is very low, the doctors may look for potential bleeding in the brain with a head ultrasound.

## How are babies with FNAIT treated?

The baby may need to be admitted to the neonatal intensive care unit for close monitoring.

Doctors will provide treatments as needed to help prevent or treat the bleeding. Currently, platelet transfusions are the main treatment. In some cases intravenous immunoglobulins (IVIG) may be administered.

## What can be done to prevent FNAIT in future pregnancies?

It is possible that FNAIT will occur in your next pregnancy. This is dependent on which platelet proteins your baby inherits from you, and the father.

If you become pregnant again in the future, your doctor should refer you to a hospital that specializes in fetal-maternal medicine. Doctors will closely monitor your pregnancy and may start you on treatment as early as 12-16 weeks of gestation. This treatment includes intravenous immunoglobulin (IVIG) and, possibly, steroids.

## Other Frequently Asked Questions

### **Q: How common is FNAIT?**

A: FNAIT is rare. Its incidence is 1:1,000 to 1:3,000.

### **Q: Is FNAIT the same as ITP?**

A: No, FNAIT is different from ITP (immune thrombocytopenia). ITP is an autoimmune disease in which the mother’s antibodies attack all platelets including her own.

### **Q: Why didn't my blood tests in pregnancy show my baby was in danger?**

A: Because FNAIT is rare, doctors do not routinely screen for it. Doctors usually first suspect FNAIT when the baby is born with bruises or a rash.

### **Q: Was it something I did, ate or drank?**

A: No, FNAIT has not been linked to any environmental or dietary exposures. There is nothing you did to cause it to happen.

### **Q: Does FNAIT affect the mother during pregnancy?**

A: FNAIT does not directly affect the mother’s health, but once FNAIT is diagnosed in a baby, the mother’s subsequent pregnancy should be followed by a specialist who may recommend preventative treatments for the mother.

### **Q: Will my baby always be at risk of low platelets as they become older?**

A: No, the low platelet count should only last a few weeks after birth.

### **Q: Will FNAIT mean my baby has a weak immune system when they become older?**

A: No. FNAIT is not known to be associated with a weak immune system.

### **Q: Can I breastfeed my baby?**

A: Yes, if the pediatrician deems that the baby is well enough to feed, breastfeeding a baby with FNAIT is safe. It is rare for the antibody to be transmitted via breast milk.

**Q: Should my brother or sister have testing for FNAIT?**

A: Your sisters may have the same rare platelet protein combination as you and therefore should be tested. Other relatives do not need to be tested.

**Q: Who should be involved in the care of a mother who is at risk of FNAIT?**

A: If a mother is known to be at risk of FNAIT, the pregnancy should be followed by a multidisciplinary team of specialists including an obstetrician and a hematologist.

**Q: Do I really need treatment?**

A: Treatment is based on several factors that you should discuss with your doctor. Treatment will likely be needed to prevent a low platelet count in the fetus and newborn.

Where can I get more information?

Visit [www.naitbabies.org](http://www.naitbabies.org)



The information in this pamphlet should be discussed with your health care provider. It is not intended to substitute for the advice of a physician and should not be used in isolation to make medical decisions.

This document was created by the International Collaboration for Transfusion Medicine Guidelines (ICTMG), a group of international transfusion experts brought together to create and promote evidence-based guidelines to optimize transfusion care. For more information, visit our website at [www.ictmg.org](http://www.ictmg.org).