

Newborn Screening FACT Sheet

T-Cell Related Lymphocyte Deficiencies

What is T-Cell Related Lymphocyte Deficiencies?

T-cell related lymphocyte deficiencies are conditions in which the body's immune system is not working properly. A person's immune system is made up of different parts that work together to protect the body from infection. Babies with T-cell deficiencies are born without enough working T-cells. T-cells are a specific type of white blood cell of the immune system that helps to protect the body from certain kinds of illnesses. Individuals with these T-cell related lymphocyte deficiencies may get repeated infections. Early detection through newborn screening and immediate treatment can help prevent these infections.

What Causes T-Cell Related Lymphocyte Deficiencies?

Our immune system is made up of special cells and proteins that protect us from illnesses and infections. Specifically, T-cell lymphocytes are one type of white blood cell that plays a key role in the functioning and strength of our immune system.

If your baby has a T-cell related lymphocyte deficiency, then his or her body either does not make enough or makes non-working T-cell lymphocytes. Without these working cells, the immune system cannot function correctly. This leaves the body unprotected from serious infections and illnesses.

T-cell related lymphocyte deficiencies usually have a genetic cause. They may be inherited from parents or can be the result of a new genetic change in the child. Most of the T-cell related lymphocyte deficiencies follow either an autosomal recessive or X-linked recessive pattern of inheritance.

When T-cell related lymphocyte deficiencies are autosomal recessive genetic conditions, a child must inherit two copies of the non-working gene for the deficiency, one from each parent, in order to have the condition. The parents of a child with an autosomal recessive condition each carry one copy of the non-working gene, but they typically do not show signs and symptoms of the condition. While having a child with a T-cell related lymphocyte deficiency is rare, when both parents are carriers, they can have more than one child with the condition.

When T-cell related lymphocyte deficiencies are X-linked recessive genetic conditions, a male must inherit one copy of the non-working gene from his mother to have the condition. A female must inherit two copies of the non-working gene, one from each parent, in order to have the condition. In X-linked conditions, the gene is carried on the X sex chromosome, and the condition affects males more than females. While having a child with a T-cell related lymphocyte deficiency is rare, when one or both parents carry the non-working gene for the deficiency, they can have more than one child with the condition.

What Symptoms or Problems Occur with T-Cell Related Lymphocyte Deficiencies?

From birth, babies with T-cell related lymphocyte deficiencies may not be protected from life-threatening infections. This is why early screening and identification is so important.

Signs of T-cell related lymphocyte deficiencies include:

- infections that do not get better with antibiotic treatment for two or more months
- diarrhea
- poor weight gain or growth (failure to thrive)
- thrush (a fungal infection) in the mouth or throat that does not go away

If your baby shows any of these signs, be sure to contact your doctor immediately.

What is the Treatment for T-Cell Related Lymphocyte Deficiencies?

Isolation – Your baby may need to be kept away from people other than family members, especially from young children. Isolation reduces the risk of exposure to life-threatening illness.

Immunoglobulin Replacement Therapy - Babies with more severe T-cell related lymphocyte deficiencies may need immunoglobulin replacement therapy. This therapy can replace the missing antibodies that help your baby fight illnesses and infections.

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Transplant Surgeries – For severe, life-threatening T-cell related lymphocyte deficiencies, your child may need a bone marrow or thymus transplant. These are parts of the body that help make illness-fighting cells for the immune system, but they may not be working correctly in children with T-cell related lymphocyte deficiencies. In these transplant surgeries, bone marrow cells or a thymus from a person with a working immune system are given to a person with a T-cell related lymphocyte deficiency. These transplants can strengthen the immune system of the person with the T-cell related lymphocyte deficiency.

Things To Remember

Each person with T-cell related lymphocyte deficiency has a different experience. Some people may have mild cases, while others experience very severe T-cell related lymphocyte deficiencies. Some cases can be life threatening. With early identification and proper treatment, children with T-cell related lymphocyte deficiencies can avoid many life threatening illnesses and infections. These children can lead healthy lives.

Babies who do not receive treatment for T-cell related lymphocyte deficiency are at risk of catching a life-threatening illness.