Immune Disorders

BIRTH DEFECT RESEARCH FOR CHILDREN

What is Immune Deficiency (ID)?

The immune system is the body's defense system against harmful invaders like bacteria, viruses, parasites and fungi. Some parts of the immune system attack and destroy these invaders. The immune system is also thought to play a role in protecting the body against cancer. Immune deficiency means that some part of this defense system is not working right.

Immune Deficiency (ID)

Primary Immune Deficiency

There are three types of primary immune deficiency:

1. T-lymphocyte disorders like Di George Syndrome
2. B-lymphocyte disorders like agamma-globulinemia
3. Combined T and B-lymphocyte disorders such as chronic granulomatous disease

Symptoms of ID

Children with ID have many infections! These may involve the ear, sinuses, upper respiratory tract, lung and/or urinary tract.

Chronic skin infections and thrush (candida) infections of the mouth or diaper area may also occur as well as chronic diarrhea, weight loss and unexplained fevers. Although not all children with frequent infections have ID, infections like meningitis, pneumonia, bone infections and blood stream infections that happen more than once call for an immune system evaluation.

What causes ID?

Primary ID may have multiple causes. Some kinds of ID are inherited from one or both parents. Other kinds of ID happen when something interferes with the development of the immune system before birth. Researchers are investigating the effects that exposure to drugs, chemicals, radiation and viruses may have on the developing immune system. There is evidence from animal studies that certain environmental exposures during pregnancy may result in offspring with immune systems that do not function properly.

Secondary immune defects are caused when a normal immune system is adversely affected by outside factors like the virus that causes AIDS or radiation and chemotherapy used for cancer treatment. Some physicians and scientists also believe that exposure to environmental chemicals like dioxins, PCBs and pesticides may result in immune dysfunction or environmental illness.

Environmental Illness

Symptoms of an immune system weakened by exposure to environmental toxins may include: allergies, multiple chemical sensitivity, skin rashes, extreme fatigue, nausea, depression, mood swings, neurological disorders, frequent infections, fevers, headaches and viral reactivation. Immune cell abnormalities have also been found in both T and B cells.

Helping a child with an ID

Medical Evaluation: Specialists called immunologists can diagnose and treat an ID. Your pediatrician or family doctor should be able to help you locate an immunologist in your area.

Diagnosing an ID

Special blood tests measure the function of different parts of the immune system. Other tests can show how the body responds to foreign invaders. Many complex new tests of immune function are being developed as a result of AIDS research.

Treating an ID

Different types of treatment for ID are used depending on the part of the immune system that is not functioning correctly.

B-lymphocyte deficiency is usually treated with injections of intravenous gamma globulin—a blood product made from the combined blood of many healthy donors. Gamma globulin helps to replace some of the missing infection fighting antibodies the child with this type of ID needs.

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T-cell deficiency and combined B and T lymphocyte deficiency are more difficult to treat. In some cases of T-cell deficiency, transfer factor has been helpful. Transfer factor is a blood product made from the combined blood of healthy donors that helps restore T-cell function. Constant medical monitoring and early treatment of infections with antibiotics is important. In some cases, bone marrow transplants have helped improve immune functions.

Recently, scientists have also discovered missing biochemical substances in certain patients with immune deficiency. Replacement of these biochemicals has resulted in immunological improvement.

Helping your child at home

A child with an ID should have a sparkling clean environment, a healthy diet and avoid contact with sick people to help reduce exposure to as many agents of infection as possible. Since stress can have an adverse affect on the immune system, parents should help their child with an ID find healthy outlets for frustration and anxiety such as sports or hobbies.

Can IDs be prevented?

Genetic counseling may be helpful for families of children with inherited forms of ID. Since environmental exposures to drugs, chemicals and radiation are also suspected of having an adverse effect on the developing immune system, it is important to avoid as many of these exposures as possible before and during pregnancy.

Fact Sheet by:

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