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**MAT NO.:** 17/MHS02/033

**COURSE:** NSC 306

1. **PRIMARY IMMUNODEFICIENCY DISORDERS**

* Agammaglobulinemia
* Hypogammaglobulinemia
* Thymic hypoplasia
* Ataxia-telangiectasia
* Severe combined immunodeficiency disease

1. **AGAMMAGLOBULINEMIA**

This syndrome is called X-linked agammaglobulinemia (Bruton’s disease), because all antibodies disappear from the patient’s plasma. B cells in the peripheral blood and IgG, IgM, IgA, IgD and IgE are low or absent. Infants born with this disorder suffer from severe infections starting soon after birth. Males are at a high risk for having X-linked agammaglobulinemia if they have an affected male relative. More than 10% of patients with X-linked agammaglobulinemia are hospitalized for infection when they are younger than 6 months of age; the prognosis depends on prompt recognition and treatment.

1. **HYPOGAMMAGLOBULINEMIA**

It is a frequently occurring immunodeficiency. It is also referred to as common variable immunodeficiency (CVID); this disorder encompasses a variety of defects ranging from IgA deficiency, in which only the plasma cells that produce IgA are absent, to the other extreme, in which there is severe panhypoglobulinemia (general lack of immunoglobulins in the blood).

CVID is the most common primary immunodeficiency seen in adults; it can occur in either gender. Although it usually presents within the first two decades of life, most patients are diagnosed as adults because CVID often goes unrecognized prior to adulthood.

1. **THYMIC HYPOPLASIA**

It is also called DiGeorge syndrome, is an example of a primary T-cell immunodeficiency. This rare, complex, multisystem genetic abnormality, which affects multiple organ systems, has been mapped to chromosomes 10 or 22. The symptom variation is a result of differences in the amount of genetic material affected. T-cell deficiency occurs when the thymus gland fails to develop normally during embryogenesis. The syndrome often manifests in the neonatal period as a cardiac anomaly, although hypocalcemic tetany and facial abnormalities may also occur. It is one of the few immunodeficiency disorders with symptoms that manifest almost immediately after birth.

1. **ATAXIA-TELANGIECTASIA**

This is an autosomal recessive neurodegenerative disorder characterized by cerebellar ataxia (loss of muscle coordination), telangiectasia (vascular lesions caused by dilated blood vessels), and immune deficiency. The immunologic defects reflect abnormalities of the thymus. The disorder is characterized by some degree of T-cell deficiency, which becomes more severe with advancing age. In 40% of patients, a selective IgA deficiency exists. In addition, IgG and IgE deficiencies have been identified. Immunodeficiency is manifested by recurrent and chronic sinus and pulmonary infections, leading to bronchiectasis. Frequent causes of death are chronic pulmonary disease and malignancy. Although lymphomas are most common, other carcinomas occur. The disease is also associated with neurologic, vascular, endocrine, hepatic, and cutaneous abnormalities.

1. **SEVERE COMBINED IMMUNODEFICIENCY DISEASE**

This is a disorder in which both B cells and T cells are missing. Consequently, both cell-mediated and humoral functions are affected. In addition, SCID is marked by susceptibility to serious fungal, bacterial, and viral infections. It refers to a wide variety of congenital and hereditary immunologic defects characterized by early onset of infections, defects in both B-cell and T-cell systems, lymphoid aplasia, and thymic dysplasia. It is one of the most common causes of primary immunodefficiencies. Inheritance of this disorder can be X-linked, autosomal recessive, or sporadic.

1. **SECONDARY IMMUNODEFICIENCY DISORDERS**

* Acquired immunodeficiency syndrome (AIDs)
* Leukemia

1. **ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDs)**

AIDs is a disease that can develop in people with HIV. It’s the most advanced stage of HIV, but just because a person has HIV doesn’t mean they’ll develop AIDs.

HIV kills CD4 cells. Healthy adults generally have a CD4 count of 500 to 1500 per cubic millimeter. A person with HIV whose CD4 count falls below 200 per cubic millimeter will be diagnosed with AIDs.

A person can be diagnosed with AIDs if they have HIV and develop an opportunistic infection or cancer that is rare in people who don’t have HIV. An opportunistic infection, such as pneumonia, is one that takes advantage of a unique situation, such as HIV.

Untreated, HIV can progress to AIDs within a decade. There’s no cure for AIDs and without treatment, life expectancy after diagnosis is about three years. This may be shorter if the person develops severe opportunistic illness. However, treatment with antiretroviral drugs can prevent AIDs from developing.

If AIDs does develop, it means that the immune system is severely compromised. Its weakened to the point where it can no longer fight off most disease and infections. That makes the person vulnerable to a wide range of illnesses, including:

* Pneumonia
* Tuberculosis

1. **LEUKEMIA**

Leukemia is cancer of the body’s blood-forming tissues, including the bone marrow and the lymphatic system.

Many types of leukemia exist. Some forms of leukemia are more common in children. Other forms of leukemia occur mostly in adults.

Leukemia usually involves the white blood cells. Your white blood cells are potent infection fighters – they normally grow and divide in orderly way, as your body needs them. But in people with leukemia, the bone marrow produces abnormal white blood cells, which don’t function properly.