Autoimmune Hemolytic Anemia

Autoimmune hemolytic anemia (or autoimmune haemolytic anaemia; AIHA) occurs when antibodies directed against the person's own red blood cells (RBCs) cause them to burst (lyse), leading to an insufficient number of oxygen-carrying red blood cells in the circulation. The lifetime of the RBCs is reduced from the normal 100–120 days to just a few days in serious cases. The intracellular components of the RBCs are released into the circulating blood and into tissues, leading to some of the characteristic symptoms of this condition. The antibodies are usually directed against high-incidence antigens, therefore they also commonly act on allogenic RBCs (RBCs originating from outside the person themselves, e.g. in the case of a blood transfusion). AIHA is a relatively rare condition, affecting one to three people per 100,000 per year.

Autoimmune hemolytic anemia is a group of disorders characterized by a malfunction of the immune system that produces autoantibodies, which attack red blood cells as if they were substances foreign to the body.

Types :-There are two classifications for AIHA:

1- **warm and cold** (The classification depends on the type of antibodies involved.)

2- **a. Primary AIHA** is when there is no sign of any underlying condition.

b. Secondary AIHA is when there is a link with another condition.

Warm AIHA

Also called warm hemolysis, this involves IgG antibodies. These bind red blood cells at 98.6°F (37°C), or normal body temperature. This accounts for 80–90 percent of cases.

Cold AIHA

This is also called cold hemolysis. In this type, IgM autoantibodies, or cold agglutinins, bind red blood cells when the blood is exposed to cold temperatures, specifically 32° to 39.2°F (0° to 4°C). This accounts for 10–20 percent of cases.

Symptoms :- Common symptoms of AIHA include:

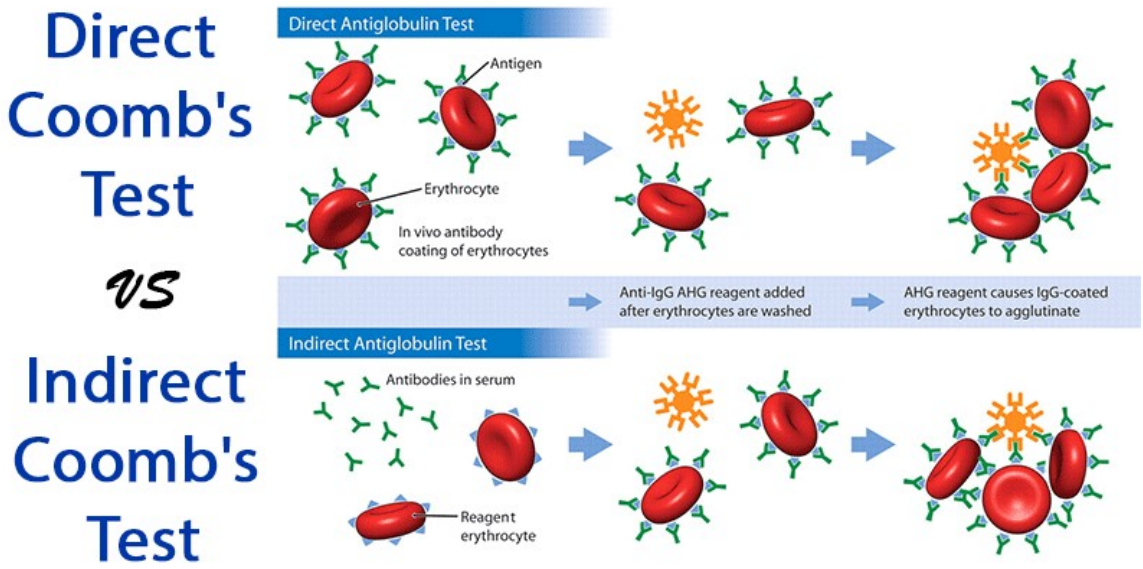
- a low-grade fever
- weakness and tiredness
- difficulty thinking and concentrating
- paleness
- rapid heartbeat
- shortness of breath
- yellowing skin, or jaundice
- dark urine
- muscle pains
- headaches
- nausea, vomiting, and diarrhea
- lightheadedness when standing up

- difficulty breathing
- a sore tongue
- heart palpitations or a rapid heartbeat

Diagnosis

1- Complete blood count

2-Coombs tests :- These blood tests look for antibodies that may affect the red blood cells.



Positive: A clumping of the red blood cells (agglutination) during the test. Agglutination of blood cells during a **direct Coomb's** test suggests that antibodies may be present on red blood cells of the patient and that the condition of hemolysis may persist.
Agglutination of blood cells during an **indirect Coomb's** test suggest the presence of antibodies circulating in bloodstream that could cause the immune system to react to any red blood cells that are considered foreign to the body — particularly those that may be present during a blood transfusion.

3- Reticulocyte test

This blood test measures the levels of reticulocytes, which are slightly immature red blood cells. It can determine whether the bone marrow is creating red blood cells at a suitable rate.

The range will be higher if the body has low hemoglobin levels due to bleeding or red cell destruction. High red blood cells production can be a sign of anemia.

4- **Bilirubin test**

The liver produces bilirubin, a yellow-colored substance that is present in bile. A blood test can measure the amount of bilirubin in the blood.When blood cells die, hemoglobin enters the bloodstream. Hemoglobin, in turn, breaks down into bilirubin. This leads to jaundice, when the eyes and skin take on a yellowish color.High bilirubin levels in the blood can be a sign of anemia, liver damage, or another disease.

5- Haptoglobin test

Haptoglobin is a protein that the liver produces. Within the body, it connects a specific type of hemoglobin within the blood.The amount of haptoglobin in the blood shows how fast red blood cells are being destroyed.

Treatment

Treatment options for AIHA depend on a number of factors. If the anemia is mild, it often passes without treatment. Between 70 and 80 percent of people need no treatment or minimal intervention.

1-corticosteroids is the first type of treatment for people with primary AIHA, and it can help to improve symptoms in many common types of AIHA.

2-immunosuppressive therapy In severe cases .

3- Surgery : The spleen is responsible for removing abnormal red blood cells from the bloodstream, including those with antibodies attached. Removing the spleen can enable the body to preserve those red blood cells. This can help to prevent anemia.
4- Blood transfusion