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HEREDITARY HEMOLYTIC ANEMIA β -THALASSEMIA

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Abstract
Hereditary hemolytic anemia and beta-thalassemia are blood disorders that affect the process of hemoglobin production in the human body. These diseases are mainly related to genetic factors, and their prevalence and appearance depend on many factors. In this article, we will review the biological basis, clinical manifestations, diagnosis and treatment methods of these diseases.

Keywords: Hereditary hemolytic anemia, blood, thalassemia, clinical environment, treatment, diagnosis, anemia.

Introduction

Hereditary hemolytic anemia is a condition characterized by a decrease in the level of hemoglobin in the blood and the rapid breakdown of red blood cells. The main cause of this disease is a lack of substances necessary for the production of hemoglobin in the body or problems with the production and breakdown of red blood cells. Hereditary hemolytic anemia is often associated with genetic factors, in particular, it is passed from parents to children. There are many types of hereditary hemolytic anemia, the most common of which are thalassemia and spherocytosis. Thalassemia is mainly caused by changes in the structure of hemoglobin molecules. Spherocytosis is associated with changes in the shape of red blood cells, which leads to the breakdown of these cells. Beta-thalassemia is a genetic disorder associated with the production of the hemoglobin beta chain.In this disease, the production of beta-chains decreases or stops altogether, which leads to a decrease in the level of hemoglobin. Beta-thalassemia is most common in regions such as the Mediterranean, South Asia, and Africa. Beta-thalassemia occurs in three forms: beta-thalassemia major, beta-thalassemia intermedia and beta-thalassemia major. Beta-thalassemia tower is the mildest form and often has no symptoms. Beta-thalassemia intermedia is accompanied by moderate anemia, and beta-thalassemia major (Kohl's disease) is the most severe form, which appears in children from 6 months of age and requires treatment. Clinical manifestations of hereditary hemolytic anemia and beta-thalassemia diseases are very diverse. Typically, patients complain of symptoms such as anemia, fatigue, skin discoloration, increased heart rate, and difficulty breathing. In children with beta-thalassemia major, the production of red blood cells is very low, which negatively affects their growth and development. In addition, patients with beta-thalassemia often have an enlarged liver and spleen, bone deformities, and other complications.

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They may also have increased iron levels in their blood, which can cause iron to build up in the body and damage other organs. Hereditary hemolytic anemia and beta-thalassemia are often diagnosed using blood tests and genetic testing. Hemoglobin levels, the shape and size of red blood cells, and the types of hemoglobin are determined through blood tests.

And for the diagnosis of beta-thalassemia, special genetic tests are carried out, through which genetic changes of the beta chain are determined. Treatment options for hereditary hemolytic anemia and beta-thalassemia depend on the type and severity of the disease. Patients with beta-thalassemia major often require blood transfusions and iron restriction. In other cases, patients must take medication to remove iron. In the treatment of hereditary hemolytic anemia, methods aimed at eliminating the cause of the disease are used. This may include medications, vitamins, and other supplements to improve red blood cell production.

Hereditary hemolytic anemia and beta-thalassemia disorders cause problems with the production or breakdown of red blood cells. Treatment of these diseases requires a complex and individual approach. The treatment plan for each patient is determined by their condition and the extent of the disease. In hereditary hemolytic anemia, first of all, it is important to control the patient's immune system. In some cases, corticosteroids may be used. These drugs suppress the immune system and help reduce the breakdown of red blood cells. If the patient has severe symptoms of anemia, a blood transfusion can be performed. It helps to increase the level of red blood cells. Beta-thalassemia, on the other hand, is mainly associated with problems in the production of hemoglobin in red blood cells. Patients with beta-thalassemia major often require blood transfusions. This increases their hemoglobin levels and reduces the symptoms of anemia. Also, in beta-thalassemia patients, iron chelating drugs such as deferoxamine or deferasirox should be used.As a result of blood transfusion, iron can accumulate in the body, so it is important to control this process. A healthy diet is also important in the treatment of hereditary hemolytic anemia and beta-thalassemia. It is recommended that patients take folic acid and vitamin B12. These vitamins improve blood production and support overall health. If the disease has progressed to a severe stage, a transplant of red blood cells from the spleen may be considered. Through this process, the patient's ability to produce hemoglobin can be restored. Gene therapy research for beta-thalassemia is being conducted in modern medicine. This method aims to correct genetic problems of patients. In general, hereditary hemolytic anemia and beta-thalassemia diseases are complex and require an individual approach.

The treatment plan for each patient is determined by their condition and the extent of the disease. Therefore, it is important that patients suffering from these diseases always consult a doctor and receive the necessary treatment.

Conclusion:

Hereditary hemolytic anemia and beta-thalassemia are complex blood disorders that can have serious effects on the human body. Understanding these diseases, their diagnosis and treatment methods are very important for patients and their families. It is also possible to reduce the prevalence of these diseases through genetic counseling and preventive measures. Learning more about hereditary hemolytic anemia and beta-thalassemia can help patients get the right treatment and improve their quality of life.

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