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REVIEW ARTICLE

Hereditary Anemia Diseases in Children

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Abstract

The research aims to define hereditary anemia and its types in children.

This study was conducted during the period from October 2022 to January 2023. This is a review paper. All the information were taken from the several books, article paper, Review and guidelines published by CDC, WHO, NIH, etc.

In comparison with the results of previous studies, we find that sickle cell anemia is the most common, and most cases of thalassemia are people with blood group O+ its willingness to contract the disease, and attention and blood examination are required for children born in families infected with the disease and early detection of the disease, where the incidence of males was more than females, This may not mean that there is an association Hereditary by sex "Zawawi 2021 Eitab 2007".

We recommend conducting other studies in different regions to find out the infection rate, factors affecting the high incidence of the disease and assisting researchers and facilitating their obtaining the necessary information for scientific research.

Keywords

Hereditary, Anemia, Thalassemia, Children

Introduction

Anemia is a condition of red blood cell count below the normal threshold that serves as carrying oxygen to the body and remains a major public health problem worldwide, especially in developing countries. In 2016 33% of women of childbearing age suffered from anemia, with the highest prevalence in Asia and Africa [1].

Causes of anemia include nutritional deficiencies, especially iron, vitamin A, B vitamins, folic acid, chronic inflammation, parasitic infections, and congenital conditions. But iron deficiency is considered the leading cause worldwide [2,3].

Anemia is a disease that occurs when the body does not have an adequate amount of healthy red blood cells or hemoglobin, which leads to a decrease in the process of transporting oxygen from the lungs to the tissues, and leads to complications that may be severe [4].

The hereditary anaemias are among the commonest of the genetically-determined diseases and comprise a group of conditions of considerable complexity. However, because of the easy accessibility of the red blood cell more has been learnt about the genetic and molecular basis of anaemias than about any other inherited human disease. Many hereditary anemias are rare and are not important as regards public health. However, two groups, the inherited disorders of haemoglobin (haemoglobinopathies) and a deficiency of the red-cell enzyme glucose-6-phosphate dehydrogenase (G6PD), because their heterozygous carrier states appear to provide resistance against Plasmodium falciparum malaria, have achieved an extraordinarily high frequency in the world population [5,6]. In countries where they occur commonly, the haemoglobinopathies are now producing an increasing public health problem.Among the types of anemia that can be inherited are:

- **Sickle-cell anemia:** People with sickle-cell anemia have a gene that causes the blood protein hemoglobin to form abnormally.
- **Thalassemia:** Thalassemia occurs when your body is unable to produce enough hemoglobin,

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which functions to carry oxygen throughout the body.

- **Congenital pernicious anemia:** This rare type of anemia results when a person is born with an inability to produce intrinsic factor, a protein in the stomach that helps the body absorbs vitamin B12. Without vitamin B12, the body cannot make enough healthy red blood cells, causing you to become anemic [1].
- **Fanconi anemia:** This type of anemia stems from an inherited blood disorder that prevents the bone marrow from producing an adequate supply of new blood cells for the body [7,8].
- **Hereditary spherocytosis:** This disease, which is usually passed from parent to child through the genes, is characterized by abnormal red blood cells called spherocytes that are thin and fragile. These cells cannot change shape to pass through certain organs as normal red blood cells [8].
- **Thrombotic thrombocytopenic purpura:** Known as TTP for short, this anemia causing condition results from a certain faulty blood-clotting enzyme, leading to the clumping of platelets, which are blood cells that help heal wounds [8].

Materials and Method

This study was conducted during the period from October 2022 to January 2023. This is a review paper. All the information were taken from the several books, article paper, Review and guidelines published by CDC, WHO, NIH, etc.

Discussion

Inherited hemolytic anemia is one of the most common types of anemia in children, especially in Arab countries, where consanguineous marriage is common. Inherited hemolytic anemia mainly includes hemoglobinopathies, erythrocyte membrane defects, and enzyme defects. Hemolytic anemia has a wide etiology and clinical spectrum with acquired and hereditary causes in childhood. Always careful review of the self and family history and synthesis of physical examination and laboratory findings is vital for the differential diagnosis. Therefore, clinicians must be competent about prevention methods and early diagnostic signs [9,10].

In comparison with the results of previous studies, we find that sickle cell anemia is the most common, and most cases of thalassemia are people with blood group O+ its willingness to contract the disease, and attention and blood examination are required for children born in families infected with the disease and early detection of the disease, where the incidence of males was more than females, This may not mean that there is an association Hereditary by sex "Zawawi 2021 Eitab 2007".

Recommendations

1. Intensify awareness campaigns through various media such as newspapers, magazines and television, Lectures and publication of pamphlets on genetic blood diseases.
2. Stay away from consanguineous marriage as much as possible in families that have a sick history.
3. Specialized centers to work on finding a formula to record the number of injured people, their addresses, and the sick history of the family, from the grandfathers to the parents.
4. Emphasizing the diagnosis before birth, especially in families in which the disease appears in a way frequent.
5. We recommend conducting other studies in different regions to find out the infection rate factors affecting the high incidence of the disease.
6. We recommend assisting researchers and facilitating their obtaining the necessary information for scientific research.

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