#  Sickle cell anemia and thalassemia

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**ABSTRACT-**Disease of sickle cells A significant portion of the American population suffers from sickle cell disease (SCD), a group of hereditary blood diseases. Hb S, an aberrant form of hemoglobin, polymerizes when deoxygenated in people with sickle cell disease (SCD), giving their red blood cells a sickle-like shape. Anemia, vascular occlusive discomfort, infections, acute chest syndrome, and other consequences increase the morbidity and mortality risk for those with sickle cell disease. Public health must take into account SCD and its consequences while preserving the health of impacted patients

**Keyword :** Introduction, causes, ,sign and symptoms, Risk factor , treatment and prevention!

**Introduction:**

 Sickle cell disease is a genetic blood illness that affects a large number of people and is inherited. According to WHO estimates, 274,000 people are affected by SCD annually.Main part :

Sickle cell disease is the presence of sickle hemoglobin (Hb S) in RBC. It is an autosomal recessive genetic disorder.

Small blood arteries and capillaries may be present in sickled red blood cells with sickle cell disease (SCD), which would deprive the organ and tissue of oxygen. This results in the pain episodes that many SCD patients experience, which get worse over time. Additionally, it may cause both acute and long-term organ damage. Children with sickle cell disease are susceptible to potentially fatal infections. Acute chest syndrome, pulmonary hypertension, leg ulcers, heart attacks, and other consequences are more common in people with sickle cell disease (SCD). While splenic infarction and red blood cell sickling can happen at low oxygen levels, such as at high elevations, sickle cell disease (SCD) is typically a benign and asymptomatic condition. Treatment and complication avoidance: The immune system is impacted by sickle cell disease. Episodes of Severe Pain (Sickle Cell Crises)

caused by sickled cells obstructing blood flow in tiny blood arteries. Anywhere in the body might experience pain, which can vary in intensity. SCD is characterized by these crises, which may necessitate hospitalization. 2. Prolonged Anaemia Because sickled cells only last 10–20 days, there is a persistent scarcity of red blood cells. causes pallor, weakness, and exhaustion. 3. Infections Spleen function may be compromised by SCD, which lowers the body's resistance to infections. Severe infections such as sepsis, meningitis, and pneumonia are more common in people with sickle cell disease (SCD). 4. Stroke Ischemic or hemorrhagic strokes can result from blockages in the brain's blood arteries. more prevalent in SCD-afflicted children and young adults. 5. Acute Chest Syndrome (ACS), a potentially fatal illness caused by blockages in lung blood vessels or infections.
Symptoms include chest pain, difficulty breathing, and fever.
6. Pulmonary Hypertension
High blood pressure in the lungs caused by chronic damage to blood vessels.
Leads to breathlessness, fatigue, and potential heart failure.
7. Splenic Sequestration
Sudden trapping of sickled cells in the spleen, causing a rapid drop in hemoglobin levels.
Can lead to life-threatening anemia, especially in children.
8. Organ Damage
Chronic blood vessel blockages and anemia can cause long-term damage to organs such as the liver, kidneys, lungs, and heart.
9. Delayed Growth and Puberty
Chronic anemia and nutrient deficiencies can delay physical and sexual development in children.

Thalassemia: This hereditary blood condition impairs the body's capacity to make healthy red blood cells and hemoglobin.Alpha and beta thalassemia are two types of thalassemia. Mild to severe anemia-like symptoms can be caused by thalassemia. We employed iron chelation therapy and blood transfusions as treatment. Causes and Symptoms: The two alpha and two beta globin chains make up hemoglobin. Alpha and beta both include genes, or genetic information, inherited from parents. These genes serve as the programming or "code" that governs each chain and, consequently, hemoglobin. Thalassemia is observed if any of these genes are absent or faulty. Two forms of thalassemia exist: Alpha The symptoms will probably be modest if there are two faulty or absent alpha genes (alpha thalassemia minor). Moderate to severe symptoms of hemoglobin H illness are being experienced by three alpha genes that are either absent or faulty. Death typically occurs when four alpha genes are faulty or absent. Rarely, a newborn who survives will probably require blood transfusions for the rest of their life (hydrops fetalis with Hemoglobin Barts). Beta thalassemia: modest symptoms are caused by a single faulty or absent beta gene (beta thalassemia minor). Those with two faulty or absent beta genes have moderate to severe symptoms (thalassemia intermedia).Beta thalassemia major, often known as Cooley's anemia, is a more severe form of beta thalassemia that involves two gene abnormalities. characteristics of thalassemia: Symptomless (asymptomatic) if one alpha gene is absent. If one beta gene or two alpha genes are absent, you mightthalassemia, which is characterized by an asymptomatic alpha gene that is faulty or absent.It's also known as alpha thalassemia minima !

You could also have moderate signs of anemia, such as weariness. mild to moderate symptoms Mild anemic symptoms or the following symptoms could be caused by beta thalassemia intermedia: It has an impact on your growth. interfere with the delayed onset of puberty Bone abnormalities such osteoporosis are observed. an enlarged spleen, the abdominal organ involved in infection prevention. Testing and Diagnosis: Hemoglobin levels and the number (and size) of red blood cells are measured by a complete blood count (CBC).Healthy red blood cells and hemoglobin levels are lower in those with thalassemia. Additionally, their red blood cells can be smaller than usual. An indicator of youthful red blood cells, the reticulocyte count: It can be a sign of insufficient red blood cell production in the bone marrow.

Iron studies can help determine whether thalassemia or an iron shortage is the cause of your anemia. Beta thalassemia is diagnosed by hemoglobin electrophoresis. Alpha thalassemia is diagnosed through genetic testing. Management and Treatment: .transfusion of blood.Iron chelation is the process of eliminating too much iron from your body. Iron overload is a potential risk associated with blood transfusions. An excess of iron can harm organs. You will be given iron chelation therapy (a tablet) if you receive transfusions frequently.Your body can produce healthy blood cells with the aid of folic acid supplements. The only cure for thalassemia is a bone marrow and stem cell transplant from a compatible related donor.

**CONCLUSION**- The National Sickle Cell Anemia Control Act of 1972, in conclusion. It involves identifying people with sickle cell disease (SCD) early and providing them with continuous treatment. The primary goal of this page is to address health-related concerns for those with sickle cell disease.

DECLARATION OF INTREST NONE

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