

FACTS ABOUT SICKLE CELL ANEMIA.

WHAT IS SICKLE CELL ANEMIA.

Sickle cell anemia is an inherent disorder that affects the red blood cells hence causing them to adopt a sickle shape. The affected red blood cells, therefore, die early thus causing a shortage of healthy red blood cells in the body. The resultant condition is thus known as sickle cell anemia.

HISTORY OF SICKLE CELL ANEMIA.

- Research states that sickle cell anemia resulted from a mutation of the red blood cells that occurred in 4 different mutations.
- The four mutations occurred in different continents with 3 occurring in Africa and only one occurred in Saudi Arabia. these mutations took place approximately 3000 and 6000 generations ago.
- With further research, Linus Pauling and his colleague, therefore, went ahead to be the first people to demonstrate that Sickle cell anemia results from an abnormality in the red blood cells.


STATISTICAL DATA ON SICKLE CELL ANEMIA.

Research in the United States of America reveals the following data about sickle Cell Anemia.

- Around 100,000 Americans are affected by sickle cell anemia.
- About one out of every 365 African-American births has Sickle cell disease.
- 1 out of every 16,300 Hispanic-American births has sickle Cell anemia.
- The introduction of a vaccine against pneumococcal disease in 2002 led to a drop in sickle cell-related deaths of African-American children less than 4 years by 42%.
- Between 1999 and 2002;
 1. 68% of infected children between 0-9 years died of sickle cell.
 2. 39% at age 4 to 9 years died.
 3. And 24% at age 10 to 14 years died of sickle cell related deaths.

SIGNS AND SYMPTOMS OF SICKLE CELL ANEMIA.

- Vision problem
- Delayed growth
- Swelling of Hands and feet.
- Frequent infections
- Periodic episodes of pain.
- presence of very few red blood cells in the blood stream.



DIAGNOSIS OF SICKLE CELL ANEMIA.

sickle cell anemia is diagnosed in various hospitals by conducting a sickle cell test. The test helps to determine the presence and amounts of haemoglobin in the human blood. The test can also determine different mutations in the genes that produce haemoglobin hence help to diagnose sickle cell anemia.



TREATMENT OF SICKLE CELL ANEMIA.

- Blood transfusion can be done to people who are suffering from sickle cell anemia so that they are given blood that is rich in hemoglobin for the proper composition of their blood.
- A bone marrow transplant can also be done since red blood cells are formed in the bone marrow.
- Hydroxyurea (Droxia, Hydrea, Siklos). Daily hydroxyurea reduces the frequency of painful crises and might reduce the need for blood transfusions and hospitalizations for sickle cell patients..

HOW PHARMACOGENOMICS IS APPLIED IN THE TREATMENT OF SICKLE CELL ANEMIA

Pharmacogenomics can be defined as how genes affect people's response to different drugs.

Different people have different genes. similarly, sickle cell anemia has no precise form of treatment. However, SCA patients are given different pain reducing drugs to help them limit the pain that they feel due to the disorder. however, as it is well known, different drugs react differently with different genes hence doctors have to study the patients, genes in order for them to determine the appropriate medication for the sickle cell patient.

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