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ISSN: 2155-9864
Journal of Blood Disorders & Transfusion

Commentary

Prognosis, Characteristics, Causation, and Medications of Sickle Cell Anaemia

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DESCRIPTION

Sickle cell disease, an inherited blood condition, manifests itself as sickle cell anaemia. The red blood cells, which were once flexible discs, become hard and sticky as a result of sickle cell anaemia. Sickled cells prevent red blood cells from carrying out their job of distributing oxygen throughout the body. Sickled cells live less time than healthy red blood cells do. Anemia, the illness that gives sickle cell anaemia its name, results from the body's inability to produce enough healthy red blood cells.

When sickle cell anaemia was present at birth, newborns had a very low adult survival rate. Nearly half of those with sickle cell anemia now reach their 50s thanks to early detection and modern treatments. The medical consequences associated with sickle cell anaemia can still be fatal. But there are therapies that medical professionals can use to lessen the likelihood of complications and soothe symptoms when they do occur.

Sickle cell anaemia causes

Those who have sickle cell anaemia get it from their biological parents. The gene that contributes to the production of healthy red blood cells is altered in sickle cell anaemia. Sickle cell anaemia is conditions that affect people who have both biological parents carry the defective hemoglobin protein gene. The sickle cell characteristic is inherited from one biological parent in those who carry the defective gene.

Mutations impact healthy red blood cells

Hemoglobin can be found in healthy red blood cells. The primary component of red blood cells is a protein called hemoglobin. A mutation in the hemoglobin gene results in sickled cells that cannot travel through the system of blood vessels that transports oxygen, nutrition, and hormones throughout the body. Normal hemoglobin is soluble, or it disintegrates in liquid.

Red blood cells must be flexible in order to squeeze and slide through constrictive blood vessels since abnormal hemoglobin is less soluble and results in the formation of solid clumps in the red blood cells. That cannot be accomplished by red blood cells with defective solid hemoglobin. Instead, hemoglobin-abnormal blood cells obstruct blood arteries and blood flow.

The lifespan of regular red blood cells is 120 days. Within ten to twenty days, sickle cells self-destruct. Our bone marrow normally produces enough red blood cells to replace cells that are perishing. The bone marrow behaves like a factory that is having trouble keeping up with demand when cells die earlier than usual. Red blood cells are insufficient when the bone marrow factory cannot keep up.

Symptoms and signs of medical conditions

Symptoms of sickle cell anaemia commonly appear in newborns between the ages of 5 and 6 months. Most persons with sickle cell anaemia have a higher risk of developing additional medical issues as they age. These conditions can be fatal in some cases. But by becoming aware of their diseases and symptoms, persons with sickle cell anaemia can seek medical attention at the earliest sign of trouble, allowing doctors to treat the condition.

Sickle cell disease and stigma

Healthcare professionals sometimes refer to Vaso-Occlusive Disease (VOC) as the invisible sickness since people who are experiencing a pain crisis frequently don't have any symptoms other than sudden, severe pain that can only be relieved with opioid pills.

Studies have revealed that the stigma associated with sickle cell anaemia is linked to the demand for narcotic painkillers to treat VOC. Other research demonstrates that compared to white people, persons who belong to racial minorities are less likely to acquire painkillers and must wait longer to get them. Sickle cell anaemia frequently affects Black or Hispanic people, thus when these stigmas are combined, they pack a one-two punch.

Cure and consolation

Transplanting bone marrow or stem cells is the only Food and Drug Administration (FDA) approved treatment that has the

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Received: 01-Nov-2022, Manuscript No. JBDT-22-18746; **Editor assigned:** 03-Nov-2022, Pre QC No. JBDT-22-18746 (PQ); **Reviewed:** 21-Nov-2022, QC No. JBDT-22-18746; **Revised:** 29-Nov -2022, Manuscript No. JBDT-22-18746 (R); **Published:** 07-Dec-2022, DOI: 10.4172/2155-9864.22.13.536

Citation: Gul A (2022) Prognosis, Characteristics, Causation, and Medications of Sickle Cell Anaemia. J Blood Disord Transfus. 13:536.

potential to cure Sickle cell Disease (SCD).

Blood cells are created in bone marrow, a soft, fatty substance found inside the heart of bones. During a bone marrow or stem cell transplant, healthy blood-forming cells from one person—the donor—are taken out of that person and given to someone else whose bone marrow isn't functioning properly.

Stem cell or bone marrow transplants carry a high risk of significant side effects, including death. A close match between the bone marrow is necessary for the transplant to be successful. A brother or sister is typically the ideal donor. For children with severe SCD and little organ damage, bone marrow or stem cell transplants are most frequently performed.