Sickle Cell Anemia 3 Essay, Research Paper

Sickle Cell

Sickle cell is the most common inherited blood disease, which causes waves of pain, damage to vital organs, and some die in childhood or early adulthood. The disease is most commonly found in blacks and Hispanics of Caribbean descent. Around one out of every 400 blacks inherits the sickle cell disease. Sickle cell occurs when two sickle cell genes or a combination of one sickle cell gene plus any one of several other hemoglobin genes. This report will go in depth with many major issues of sickle cell such as complications, treatment, types of the disease, and a major sickle cell research supporter.

Sickle cell is an inherited illness of the red blood cells. This is important because red blood cells are responsible for carrying oxygen throughout the body by using a protein called hemoglobin. A normal blood cell has the shape of a doughnut and they are very flexible which lets them move easily through small blood vessels. A person with sickle cell has red blood cells that contain sickle hemoglobin, which makes them have a curved shape like that of a sickle after oxygen is released. Sickle cells become stuck and form plugs in small blood vessels. By blocking these vessels tissues can be damaged, and since blood vessels travel throughout the body then anywhere in the body can be affected. Sickle cells have a tendency to become trapped and destroyed in the liver and in the spleen. This results in storage of red blood cells called anemia (a low number of red blood cells) and when severe it can cause the person to become pale, shortness of breath, and are easily tired.

Three well-known types of this abnormality are sickle cell anemia (SS), sickle C disease, and sickle beta-zero thalassemia. SS means that two sickle cell genes inherited the sickle cell disease and it affects more than 50,000 Americans. C is understood that the child inherited a gene with abnormal type hemoglobin called C and has a 1:835 ratio to live birth with this disease. Sickle beta-zero thalassemia has an estimated ratio of 1:1667 to live through birth.

Sickle cell is not a contagious disease, it is strictly an inherited. The illness affects African-American, Hispanics, Arabians, Greek, Maltese, Indian ancestry, Sardinian, and Italians. The sickle cell trait is not the same as the disease. The trait means one gene is the sickle cell gene and the other is a normal cell gene. Out of every twelve African-Americans, one has the sickle cell trait. There are many complications that come with the abnormality such as pain episodes, leg ulcers, strokes, increased infections, bone damage, lung blockage, delayed growth, anemia, painful erections in men, strokes, and many others. Women can have a normal pregnancy, although the risk factors increase which can effect their health and their babies.

Few people have been fully cured from this disease by a bone marrow transplant using donated bone marrow from a sibling. This operation can carry a high risk in which 7% of the children die from the transplant. Though it is only used for severe hemoglobin disorders. Gene therapy is being studied for a treatment also which, if successful, will provide a lower risk. The March of Dimes Birth Defects Foundation has been a major supporter of the sickle cell disease research. They are currently studying fetal blood cells, which do not sickle when introduced into a diseased environment. Researchers are guessing that if they could find a way to insert a normal gene into the blood-forming cells of an individual with sickle cell disease. This therapy could offer a cure for the disease. Recently in October of 1999 a news article was released on how nitric acid may help researchers in the treatment of sickle cell anemia. Increasing the level of nitric oxide in the blood may be a new method on the treatment of sickle cell anemia. Nitric oxide is the oxygen-carrying molecule in red blood cells. Nitric acid is a gas that is produced in many parts of the body. It is used to relax the smooth muscle cells in blood vessels. When muscles relax the vessels expand to allow more blood to flow through, which is an important factor. When nitric oxide is inhaled it attaches to hemoglobin. After it binds the gas rides through the blood stream and may enlarge vessels as it passes through. Researchers have also found that sickle cell effects the brain at a younger than they thought. They figured at first that the brain damage was a result from strokes, but now found in young children under the ages of 8 years old.

Sickle cell is a very common disease they cause many complications to ones life. Although no promising operation or cure for the disease has been found one is soon to come. With the way technology, and research is evolving, a cure or at least a stabilizer is soon to be discovered.