Minnesota Department of Education

Sickle Cell Disease

Sickle cell disease (SCD) is a genetic condition that causes red blood cells to change shape, harden and function less well than regular red blood cells. The sickled cells can stick to each other and to blood vessel walls, restricting blood flow. Blood clots can form, causing pain and tissue damage in the brain, lungs and other body parts.

There is great variation in how this disease manifests itself. Some people may have no obvious health or learning issues at all. Others have severely disabling conditions. Some struggle with serious health and learning problems throughout life. Among children with SCD, those who also have asthma, strokes, spleen or liver disease, lead poisoning or other neurologic or medical conditions are more likely to have significant school difficulties.

Symptoms

- Increased infections
- Leg ulcers
- Bone damage
- Early gallstones
- Kidney damage and loss of body water in the urine
- Eye damage
- Multiple organ failure

Treatment

The objectives of treatment are to prevent organ damage including strokes, prevent infection and treat symptoms. Treatment may include pain medications, eight to 10 glasses of water per day, blood transfusions, vaccinations and antibiotics, folic acid, hydroxyurea and bone marrow transplant.

Educational Implications

About one-third of students have small strokes (blocked brain vessels). Silent strokes cause problems with processing speed and tempo, attention and working memory. Overt strokes can cause more severe problems with language, visual processing, attention, memory or processing speed and tempo.

About one half of students have lung issues, including asthma, sleep apnea and lung disease, which further limit oxygen and worsen anemia, pain and stroke risk.

Pain can distract, decrease alertness and concentration and affect memory. Some students need pain medication that can interfere with alertness during the school day.

Anemia can decrease stamina and strength, slow growth and affect executive function and learning.

The sickled cells lower a student's resistance to infectious illnesses. Once sick, it will take longer for the student to recover. Frequent school absences often interfere with academic progress.

For some students, self-esteem, mood or social relationships have frequent pain, illness and hospitalization.

Students may have frequent medical appointments causing absences and missed instruction.

Educational Options

Those students whose sickle cell disease adversely affects their educational performance may benefit from special education under the Individuals with Disabilities Education Act (IDEA). To qualify under IDEA, a student must meet eligibility criteria in one of thirteen specific disability categories. Under IDEA, a student with a disability is entitled to a free appropriate public education (FAPE) and an individualized education program, including individual goals, objectives, related services, accommodations and modifications.

Students that do not qualify for services under IDEA may qualify under Section 504 of the Rehabilitation Act. To qualify under Section 504, a student must have a physical or mental impairment that substantially limits one or more major life activities (for example learning, breathing, thinking, concentrating, walking, bodily functions). Under Section 504, a student is entitled to equal opportunity, and may qualify for a Section 504 plan that provides regular or special education and related aids and services.

A student with a health condition who does not require special instruction and related services can receive, as appropriate, a wide range of supports in the general education classroom, including accommodations, individualized health plans (IHP), emergency care plans (ECP) and local education agency supports.