Seizures

Background

Seizures are abnormal electrical discharges that occur in the brain, subsequently causing involuntary changes in movement, behavior, awareness, and sensation. Seizures occur when brain cells abnormally misfire and cause a disruption of the brain's electrical activity. Seizures can be caused by infection, brain injury or trauma, congenital conditions, genetic factors, metabolic abnormalities, tumors, medication, and alcohol or drug withdrawal. Epilepsy is a brain disorder that causes recurring, unprovoked seizures. A child who experiences two or more unprovoked seizures may be diagnosed with epilepsy or a seizure disorder.

Most seizures can be classified by where they begin in the brain, the individual's level of awareness during the seizure, and other features (e.g., movements, changes in sensation, emotions, aura). The two major types or groups of seizures are focal onset (seizure begins in one area and can spread) and generalized onset (affects both sides of the brain at the same time.) Seizures will present differently based on their classification and can cause changes to:

- Awareness
- Movement
- Muscle control
- Sensation
- Behavior

More specific signs and symptoms of seizures include confusion, loss of consciousness, changes in muscle tone, falls, twitching or jerking movements of the extremities, wandering, chewing, periods of rapid eye blinking or staring, extreme tiredness, breathing problems, loss of bowel and bladder function, and psychological symptoms such as fear, anxiety, or déjà vu. Some people can experience an aura or early warning signs before the seizure starts. Drowsiness and confusion are common after the seizure ends.

Seizure triggers are internal or external factors that can increase the likelihood of a seizure in a person with epilepsy or a low seizure threshold. The most common trigger is missed medication. Other triggers include fever or illness, stress, lack of sleep, poor eating habits, increased caffeine, dehydration, change in hormones, flashing lights or patterns, and use of illegal drugs.

Treatment options are based on the type of seizure and may include anti-seizure medications, seizure devices such as vagus nerve stimulation (VNS), dietary therapy such as the ketogenic diet, and alternative or complementary therapies. Brain surgery is another option for controlling seizures when other treatments are not effective.

Top Takeaways for School

Staff should be educated on recognizing the signs and symptoms of a seizure and procedures for notifying trained staff. Refer to the student's seizure action plan for individualized care.

Never leave the student unattended during a seizure. Protect the student from hazards and position them to minimize harm. Do not restrain the student and do not put anything in their mouth.

School performance may be affected because learning does not occur during a seizure and may be limited afterward when a child is fatigued and/or confused. Difficulties with attention, concentration, memory, and organization have been identified.

Emotional and behavioral issues are more prevalent in students with epilepsy including depression, anxiety, attention-deficit/hyperactivity disorder (ADHD), developmental delay, aggression, and irritability.

Side effects of anti-seizure medication may include fatigue, inattention, and restlessness, which can further impact school performance.

Considerations for the Individualized Healthcare Plan (IHP)

- Nursing diagnoses: Risk for ineffective airway clearance, risk for injury and fatigue
- Student-specific triggers, avoidance, or intervention strategies
- Assessment of implanted medical device (consider location, date of surgical placement, and device-specific information)
- Temperature regulation considerations in school setting and transportation
- Use of specialized equipment, adaptive equipment and orthotics
- Activity, positioning, transferring (consider precautions and/or restrictions)
- Equipment troubleshooting (consider equipment/device user manual, battery, charger)
- Consider emergency action plans (EAPs) and emergency evacuation plans (EEPs) related to special health care needs, including staff education/training

Discussion Starters for the Educational Team

1. Would the student benefit from evaluations or assessments in any of the following areas: physical therapy, occupational therapy, speech and language therapy, assistive technology, adapted physical education, functional behavior, psychology, hearing and vision?
2. Would the student benefit from additional academic support and/or modified education (e.g., copies of notes, extra time, reduced workload, simplified instructions, alternative formats for presentation of material, 504/IEP)?
3. Does the student need additional adult support to access the academic curriculum in the least restrictive environment?
4. Is the physical school environment safely accessible for the student's mobility needs (e.g., entry and exit, ramps, location of classes, access to elevator, doorways)?
5. Does the classroom environment support the student's needs and/or equipment (e.g., desk/seating options, maneuverability space, electrical outlets, flash pass for bathroom or nurse)?
6. Will staff receive education/training to implement the student-specific emergency plan (seizure action plan)?

Resources

Kennedy Krieger Institute: Neurology and Neurogenetics Clinic
kennedykrieger.org/patient-care/centers-and-programs/neurology-and-neurogenetics-clinics

Epilepsy Foundation
epilepsy.com/

Epilepsy Foundation: Training Portal
learn.epilepsy.com/

For more information, please scan the QR code or visit: KennedyKrieger.org/SHNIC

Kennedy Krieger