

Understanding Pediatric Epilepsy

SAME-DAY APPOINTMENTS AVAILABLE. CALL 866.588.2264

Epilepsy is a chronic medical condition marked by recurrent seizures (an event of altered brain function caused by abnormal or excessive electrical discharges from brain cells). Epilepsy is one of the most common neurological disorders, affecting up to 1 percent of the population in the United States. More than 45,000 children ages 18 and younger are diagnosed with epilepsy every year.

How is epilepsy diagnosed?

The evaluation of patients with epilepsy is aimed at determining the type of seizures (epileptic vs. non-epileptic) and their cause because epilepsies respond best to some medications.

A diagnosis is based on:

- Medical history, including family history of seizures, associated medical conditions and current medications. The physician may ask the following questions:
 - At what age did seizures begin?
 - What circumstances surrounded the first seizure?
 - What factors seem to bring on seizures?
 - What is felt before, during and after seizures?
 - How long do seizures last?
 - Has there been previous treatment for epilepsy?
 - Which medications have been prescribed and in what dosages?
 - Was treatment effective?
- Eyewitness accounts from family or friends who can describe the seizures
- A complete physical and neurological examination of higher mental functions, muscle strength, reflexes, eyesight, hearing

and ability to detect various sensations, so physicians may better understand the cause of seizures

- Electroencephalogram (EEG), which records the electrical activity of the brain and gives useful information regarding the location and type of epileptic discharges
- Additional testing, which often includes:
 - Imaging studies of the brain, such as high-resolution magnetic resonance imaging (MRI)
 - Other brain scans, including positron emission tomography (PET), single photon emission computed tomography (SPECT) and functional magnetic resonance imaging (fMRI)
 - Neuropsychological testing to determine the impact of epilepsy on the child's language function, memory, intelligence, attention span, organizational skills and mood
 - Blood and urine tests to measure blood cell counts, blood sugar and electrolyte levels; liver and kidney function tests; and additional blood and urine tests to look for metabolic or genetic diseases

Can my child lead a normal life after being diagnosed with epilepsy?

Epilepsy is a treatable disorder, with two-thirds of patients becoming seizure free on medication. Even for those who may not respond to medication, epilepsy surgery and electrical brain stimulation may be options. Advancements in our understanding of the causes of epilepsy and new treatments continue to offer hope to even more patients.

Depending upon the degree of seizure control, patients who have epilepsy can participate in many of the same activities that other



people do. We recommend that patients engage in an active and healthy lifestyle, including outdoor and indoor sports. Reasonable seizure precautions are advisable, however, to prevent injury due to falls, drowning or motor vehicle accidents. The treating physician can guide you regarding which activities are safe.

Some patients with epilepsy do have learning or memory difficulties and alterations in mood or behavior, which should be brought to the attention of the treating neurologist for appropriate diagnostic testing and treatment. Cleveland Clinic Epilepsy Center offers a comprehensive and multidisciplinary treatment approach for managing such issues. Specialists in Pediatric Neuropsychology and Child and Adolescent Psychiatry are an integral part of the treatment team.

How effective is medication in treating epilepsy?

Success, defined as seizure freedom, is achieved in about 50 percent of patients treated with the first antiepileptic medication. After failure of the first drug, the seizure-free rate drops to between only 11 and 15 percent when the patient is placed on another drug or uses a combination of two drugs. After two or more antiepileptic medications fail, there is only a 5 percent to 10 percent chance that future medication trials will result in seizure freedom. Overall, between two-thirds and three-quarters of all patients will become seizure free. The remaining group of patients is much harder to control; the term for their condition is “medically refractory” or “intractable epilepsy.”

Why some patients respond well to a given medication and not to another is not fully understood. Precise identification of the exact seizure type with video-EEG monitoring and determination of the underlying cause of epilepsy are important factors when considering the best form of treatment.

If my child needs to have surgery, can he fully recover afterward?

Once considered a last resort, epilepsy surgery in the hands of experts has become a safe and highly effective method of treatment for selected patients whose epilepsy cannot be controlled with anticonvulsant medication. Our epilepsy surgery program identifies patients who are appropriate candidates for surgical intervention. Testing is carried out to localize the seizure focus and determine whether it can be removed safely. Seizure-free rates after surgery can range from 50 percent to 90 percent, depending upon many factors. Pediatric patients are often best suited for epilepsy surgery, due to the fact that their still-developing brains can better adjust to surgery. Each year, our neurosurgeons perform more than 100 pediatric surgical procedures.

Following epilepsy surgery at Cleveland Clinic, children are cared for by an expert team of physicians and nurses. Soon after recovering from anesthesia, children are observed in the Pediatric Intensive Care Unit for one or two days, followed by another three to five days in the hospital. Most children are able to go home, returning in about 10 days for removal of sutures. Some children may need rehabilitative therapy for one to two weeks at Cleveland Clinic Children’s Hospital for Rehabilitation. By two weeks after surgery, patients can stay awake most of the day. At six weeks, they usually are able to return to school or work a full day. Some patients may have mild cognitive difficulties, but these improve and stabilize three to six months after surgery. Patients should continue taking their seizure medications after surgery.

To make an appointment for an evaluation with a Cleveland Clinic pediatric epileptologist, please call **866.588.2264**. To learn more about pediatric epilepsy and Cleveland Clinic Epilepsy Center, visit us online at clevelandclinicchildrens.org/epilepsy.