



What you should know about pediatric epilepsy

Most children categorize good days as those when they have won a baseball game, received an "A" on a book report or were allowed to order pizza and stay up late. Other children categorize a good day as one in which they are seizure-free. These are epileptic children.

According to the Epilepsy Foundation, more than two million Americans have epilepsy and 181,000 people are diagnosed with the condition each year. A substantial number of these people are children. In fact, there are thousands of children who do not respond to anti-epileptic medications, and who are excellent candidates for surgery. Over the past decade, tremendous advances have been made in the success and safety of epilepsy for children.

There is no known cause for epilepsy in children. Frequently identified causes may include: trauma at birth or a high fever, head injuries that cause scarring of the brain tissue and certain drugs or toxic substances when taken in large doses. Symptoms of epilepsy, though difficult to detect early on, can include strange sensations, emotional or behavioral problems, convulsions, muscle spasms and loss of consciousness.

The main symptom of a child with epilepsy is a seizure. Seizures may occur throughout a person's lifetime from infancy to old age. Children may develop seizures at the time of a high fever. In some cases, severe head injury can lead to seizures or epilepsy. Seizures in children are very common, estimated to occur in 4 percent of children nationwide. They are defined as individual events or episodes, indicative of a temporary electrical "misfiring" in the brain. When seizures occur repeatedly, the

child is said to have epilepsy. Many children with epilepsy or recurrent seizures will benefit from initial conservative treatment with anti-epileptic medications that reduce or eliminate the number of seizures.

There are many children who do not respond to high doses of multiple medications, and have continued seizures. Significant evidence now indicates that recurrent seizures, which are poorly controlled by medications, are harmful to the development of the brain of a child. Moreover, the medications used to treat these seizures may have side-effects such as lethargy or behavioral changes. For these reasons, there has been a growing interest in surgery to cure seizures in children and improve their developmental outcome.

"Children can actually experience physical injury during a seizure, impairment of learning and attention and negative side effects from medications. Long term effects include brain injury due to seizures and disruption of family life," says New York neurosurgeon Howard Weiner, MD, a member of the American Association of Neurological Surgeons. "Any or all of these factors, in addition to concerns about quality of life and future childhood development, may influence a family to think about having neurosurgery performed to improve seizure control."

An Overview of Epilepsy Surgery for Children

Infants, children and young adults with frequent seizures may be considered for epilepsy surgery when conservative treatment with anti-epileptic medication fails. Neurosurgical intervention at an early age can very frequently cure children

of their seizures that can result in dramatic improvements in their development.

There are two main surgical procedures performed to treat children with epilepsy. Resective surgery removes the source of seizures, whereas disconnection surgery disrupts the pathways that spread seizures. In resective surgery, a team of epilepsy specialists will identify the part or region of the brain that causes an infant's or child's seizures and then remove this area. The goal of this procedure is to cure the seizures. In disconnection surgery, neurosurgeons will disrupt seizure pathways in order to reduce spreading throughout the brain. The most common type of disconnection surgery is corpus callosotomy, a disruption of a structure that connects the two hemispheres of the brain. Disconnection surgery is rarely curative.

Hemispherectomy is another type of epilepsy surgery performed in children. This procedure is commonly performed in children whose origin of epilepsy is located only in one hemisphere (half) of the brain. Hemispherectomy has a very high success rate for curing seizures.

While epilepsy is not 100 percent curable, for some people it does eventually go away. A recent study found that children with idiopathic epilepsy, or epilepsy with an unknown cause, had a 68 to 92 percent chance of becoming seizure-free 20 years after their initial diagnosis.

It is important to take precautionary steps to avoid severe head injury such as wearing seat belts in cars and using helmets when riding a bicycle or playing competitive sports. Following these simple precautions can protect people from epilepsy and additional problems that result from head injury.

For more information on epilepsy, or to find a neurosurgeon in your area, visit the Web site of the American Association of Neurological Surgeons at www.aans.org.