

Brain Disorders in Epilepsy

Jing Xiang*

Director of MEG Research, Division of Neurology, UC Department of Pediatrics USA

Epilepsy is a condition of the central nervous system, which controls the body's actions by sending and receiving information from the brain and spinal cord. Seizures are caused by electrical activity disruptions in the central nervous system. There are bursts of electrical activity in your brain during a seizure, similar to an electrical storm. Depending on the type of seizure and where portion of the brain is involved, this activity produces a variety of symptoms. Seizures come in a variety of shapes and sizes, and they impact people differently. Seizures (both repeated and brief seizures) have the potential to destroy brain cells (neurons). Seizures can occur anywhere in the brain, but they are more common in the temporal and frontal lobes in children, impairing the functions controlled by these areas. The mesial, or middle, section of the temporal lobe is particularly important in adults with epilepsy, but less so in children.

The electrical activity of the brain is periodically disrupted in seizure disorders, resulting in some degree of transient brain impairment. There are two types of seizures: focal, often known as partial seizures, and generalised seizures. When nerve cells in the brain send out sudden, excessive, uncontrolled electrical signals, this is known as a focal (partial) seizure. When nerve cells in a specific section of the brain are affected, focal seizures develop. The manner a child behaves during a focal seizure is determined by the brain area that is affected. Symptoms are as follows:

- Muscle contractions, followed by relaxation.
- Contractions on just one side of your body.

- Unusual head or eye movements.
- Numbness, tingling, or a feeling that something is crawling on your skin.
- Abdominal pain.
- Rapid heart rate or pulse.

A underlying anatomical defect in the brain may be the source of focal seizures. MRI scan findings, on the other hand, are frequently normal. Doctors assume something is wrong with a group of neurons, or brain cells, in one or more specific locations even if they can't observe an anomaly. Cortical dysplasia is a condition in which an area of the brain does not grow normally, with brain cells failing to grow in the correct layers. Head trauma, stroke, infection, tumours, and other factors can all produce focal seizures. When aberrant electrical activity causes a seizure in both halves (hemispheres) of the brain at the same time, it is called a generalised seizure. A generalised tonic-clonic seizure, often known as a grand mal seizure, is produced by aberrant electrical activity in the brain. Epilepsy is usually the cause of a grand mal seizure. Primary generalised epilepsy, also known as idiopathic generalised epilepsy, is characterised by seizures that originate in both hemispheres of the brain at the same time. Generalized seizures are thought to be caused by a genetic mutation. The genetic defect is only known in a small percentage of cases; in the majority of cases, it is unknown, and no additional family members are known to have epilepsy.

***Address for Correspondence:** Jing Xiang, Associate Professor, Director of MEG Research, Division of Neurology, UC Department of Pediatrics USA, E-mail: jing.xiang@cchmc.org

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