

Neurological Disorders: Etiology and Types of Epilepsy

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DESCRIPTION

After stroke, epilepsy is one of the most prevalent major neurological disorders that affects up to 1% of the population. 90% of those who suffer from epilepsy are from underdeveloped nations. It is a group of many seizure types that varies substantially in terms of their intensity, manifestation, underlying factors, outcomes, and therapies. The typical signs and/or symptoms of aberrant, excessive, or synchronized neuronal activity in the brain include seizures. Epileptic seizures frequently result in a brief loss of consciousness, put the person experiencing them at risk for bodily harm, and frequently lead them to miss out on school or their job.

A brain condition known as epilepsy is characterized by recurring seizures. The typical definition of a seizure is an abrupt change in behaviour brought on by transient alterations in the electrical activity of the brain. The brain typically continuously produces minute electrical impulses that follow predictable patterns. These impulses are sent throughout the body *via* chemical messengers known as neurotransmitters and neurons, which are networks of nerve cells in the brain.

Etiology

The exact cause of epilepsy is uncertain. The term "epilepsy" doesn't specify the origin or seriousness of a person's seizures. While some cases of epilepsy are inherited in nature, others are brought on by trauma to the head, stroke, infections, high fever, tumours, etc. that results in brain damage. Young children are particularly affected by the causes of epileps, however epilepsy can affect people of all ages. For instance, not everyone who has a severe head injury, which is a known activate for seizures, develops epilepsy [1-4].

Epilepsy has many causes and is common in many age groups:

- The most frequent causes of hypoxic-ischemic encephalopathy in newborns and the first few months of life are central nervous system infections, trauma, congenital abnormalities of the central nervous system, and metabolic problems.
- Central Nervous System (CNS) infections or trauma are two of the most frequent causes of febrile seizures in late infancy and early childhood.

- A clearly defined epileptic syndrome is typically seen in children.

Types

Various types of seizures and its brief description are:

Partial seizures: Simple partial seizures (cortical focal epilepsy) are seizures characterized by repetitive spasms of a particular muscle group brought on by the seizure focus in the context of movement. Without losing consciousness, patients deliberately lose control of the injured bodily part.

When a partial seizure is complex, the discharge frequently starts locally and stays locally. Involuntary muscle contractions, unusual sensory experiences, autonomic discharges, behavioral and emotional changes, and psychomotor epilepsy are among the symptoms [5].

Generalized seizures: Generalized seizures cause aberrant electrical activity in both hemispheres of the brain, including the reticular system. An abrupt loss of consciousness is a characteristic of generalized seizures. [6]

Unclassified category: Unclassified epilepsy and epilepsy syndromes are included in a third group. Conditions like febrile seizures, when seizures are linked to certain circumstances, are examples of specialized syndromes.

Status epilepticus: Status epilepticus is characterized by prolonged and repetitive seizure activity lasting more than 5-10 minutes. It can also be described as continuous seizures lasting longer than 30 minutes or recurrent seizures without regaining normal consciousness. Status epilepticus is the name for it, and therapy is necessary.

Symptoms

The brain's neurons send short, high-frequency impulses during seizures, which are a defining feature of epilepsy. The location of epileptic discharges in the cerebral cortex, as well as the amount and pattern of epileptic discharge propagation within the brain, all affect the clinical signs and symptoms of seizures.

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Diagnosis

EEG monitoring: Several seizure disorders can be diagnosed with electroencephalography. It's possible for some patients with epilepsy to have a normal EEG.

Brain scan: This is a crucial diagnostic technique that aids in locating brain cysts, tumours, and other structural abnormalities of the brain. CT, PET, and MRI scans of the brain are the most often utilised types.

CONCLUSION

As a result, choosing an anticonvulsant medicine is mostly determined by how well it controls a particular type of seizure or case of epilepsy. Despite receiving early therapy and the recommended daily doses of the right antiepileptic medications, a significant portion of epilepsy patients nevertheless have refractory or drug-resistant epilepsy. Therefore, even at the expense of efficacy, there is a need for new medications with advantages over existing antiepileptic medications in terms of side effects and tolerability.

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