

# Epilepsy Information Guide



INDIAN ACADEMY OF  
**NEUROLOGY**

**A Public Information Initiative**

Epilepsy is a common neurological condition in which a person experiences repeated seizures. A seizure is a brief event of altered brain function due to an abnormality in the brain function. This altered brain function can result in various short-lasting manifestations like brief lapses in consciousness, sudden unawareness about the surrounding environment, abnormal movements of limbs, or sudden falls with jerky movements of all limbs (convulsions). These manifestations largely depend upon the area of the brain involved in generating the seizures. Majority of the seizures are self-limiting and last for 1-2 minutes but the post-seizure confusion may last for 10-15 minutes. However, not all the patients with seizures have epilepsy. A single seizure can occur due to a variety of acute self-limiting problems like low blood sugar levels (hypoglycemia) or brain infection, while patients with epilepsy have tendency for repeated seizures. For practical purposes, a person should have two or more unprovoked seizures before the diagnosis of epilepsy can be established.

Epilepsy is one of the commonest neurological diseases. Worldwide, approximately 50 to 100 million people have epilepsy, of which nearly 80% live in developing countries. By a rough estimate there are about 8-10 million people with epilepsy in India.

### **Types and causes of epilepsies**

Deciding the type and cause for epilepsy is important for planning the effective management and for assessing the outcome. Epilepsies are broadly divided into two categories:

**Focal epilepsies:** In focal or partial epilepsy, the seizures originate from one part of the brain. This is usually caused by a localized damage or a developmental problem in a restricted area of the brain. Common causes for focal epilepsy are birth injuries, brain trauma, brain infections like meningitis/encephalitis, neurocysticercosis and tuberculosis, brain tumors, stroke and developmental problems like mesial temporal sclerosis and focal cortical dysplasia. Some of the benign focal epilepsies in children occur at particular age groups and disappear by puberty. Patients with focal epilepsy whose seizures are not controlled with drugs may be considered for epilepsy surgery.

**Generalized epilepsies:** In generalized epilepsies, the seizures involve both sides of the brain simultaneously. These epilepsies are usually caused by genetic factors, although it is difficult to identify one particular gene in a given patient. Generalized epilepsies can be well-controlled with proper antiepileptic drugs (AEDs). Surgery is not an option in this type of epilepsies. There are different types within this group, depending upon the age-at-onset and seizure types, such as absence epilepsy and juvenile myoclonic epilepsy (JME) etc..

### **Diagnosis of epilepsy**

Diagnosis of epilepsy is made by a neurologist on the basis of patient's history and clinical characteristics. Accurate description of patient's seizures is important for making a correct diagnosis. Diagnosis of epilepsy can be supplemented by electro-encephalography (EEG) and magnetic resonance imaging (MRI). A long-term video-EEG which includes simultaneous recording of video and EEG is undertaken when diagnosis of epilepsy is not certain, or while planning epilepsy surgery. Similarly, investigations such as functional-MRI (fMRI), Positron emission tomography (PET) and single photon emission computed tomography (SPECT) are also undertaken in those cases where seizures are not controlled with drugs and an epilepsy surgery is being planned.

## **Treatment of epilepsy**

Medical treatment with antiepileptic drugs (AEDs) is the first-line treatment of epilepsy. The goal of epilepsy treatment is the complete freedom from seizures without producing any major side-effects. All the patients with two or more unprovoked seizures require treatment with AEDs, however, AED therapy is not indicated in all the patients after a single unprovoked seizure. Introduction of many newer AEDs over the last two decades, which have better tolerability as compared to older drugs, has simplified the treatment of epilepsies. The type of the drug prescribed will depend on several factors, including the type of epilepsy (focal versus generalized), the frequency and severity of the seizures, the person's age, sex (male or female), financial status, overall health, and medical history. About half of the patients with newly diagnosed epilepsy can be easily controlled with one drug. If the first drug is not effective or it produces side-effects, then it is either replaced or added with a second alternative drug. In approximately 65-70% of patients, epilepsy can be well-controlled with proper medical therapy. These drugs are very safe and do not produce any major problems. Usually, the side-effects of these drugs are dose-related in which higher doses or too many drugs can cause side-effects like, excessive drowsiness, speech problems, and walking difficulty which can be eliminated by either reducing the dose or the number of drugs.

All these drugs can only control the seizures and do not have any curative effect. Still, two-third of patients with newly diagnosed epilepsy will have long-term remission after 2 to 5 years. Duration of treatment is not fixed and is decided by the type of epilepsy and its cause. Children with benign epilepsies may require treatment only for one year, while patients with JME may require life-long treatment. All other epilepsies have intermediate prognosis and AED taper is usually attempted after 2-3 years of seizure freedom.

## **Surgical treatment of epilepsies**

In approximately 30% of the patients with epilepsy, seizures are not effectively controlled with medicines. Many of these patients can benefit with surgical treatment (epilepsy surgery) provided that they are selected properly. Epilepsy surgery involves the removal of the part of the brain which is responsible for origin of seizures. Two factors which are important in the success of epilepsy surgery are the correct identification of the area from which the seizures are originating and its complete removal without producing any complications or deficits. Various tests used for this purpose are VEEG monitoring, MRI, SPECT, PET, functional-MRI and intracranial monitoring. Depending upon the complexities involved in each case, one may require only few or all the tests.

In properly selected patients, there is 50-80% chance of seizure freedom and 30-50% chance of drug freedom after surgery depending upon the type of epilepsy. Epilepsy surgery is usually very safe with a complication rate of less than one percent. In some patients with drug refractory epilepsy, the routine surgical treatment is not possible. These patients can be considered for palliative surgeries like corpus callosotomy and vagal nerve stimulation (VNS) to reduce the seizure frequency and the severity.

## **Psychosocial issues in epilepsy management**

Epilepsy, especially the uncontrolled epilepsy, affects all aspects of a person's life, including personal relationships, employment, and social functioning. Common nonmedical problems include the feeling of stigma and loss of independence, psychological distress, unemployment, low self-esteem, and interpersonal difficulties including social isolation. Behavioral and psychiatric problems are also common in persons with

epilepsy. All of these problems can be managed effectively with proper counseling, family and social support, and if required with medicines. Over the years, the treatment of epilepsy has become very safe and effective. Majority of patients with epilepsy can lead a completely normal life with proper medical and surgical treatment.

*Disclaimer:*

*This brochure is for the general information of the public and the patients. People should not self-medicate themselves with the medicines and treatments mentioned here. Before taking any of the medications mentioned in the information brochure, please consult your neurologist*

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