

### Objectives of treatment

Undoubtedly, people with epilepsy want to live seizure-free lives and be free from the fear of future attacks. It is usually the fear of attacks which interferes with the day-to-day activities of affected people. Hence, management of epilepsy should include:

- (a) Control or prevention of seizures;
- (b) Determining the underlying cause of the seizures if possible, and treating it, and
- (c) Psychosocial support to patients.

Until the mid-nineteenth century, people with epilepsy received many strange remedies without any success. Bromide was the first antiepileptic drug and remained in use till the beginning of the twentieth century. It was effective but was discontinued because of its undesirable side-effects. The first true antiepileptic drug, phenobarbitone, was discovered in 1912. This drug continues to be the mainstay of medical management of epilepsy in SEAR Member Countries. Several drugs have entered the market since, and in the last ten years, many new drugs have been discovered with the objective of finding an “ideal” antiepileptic drug.

The first step in the management of any seizure is to stop the ongoing seizure through specific first-aid measures.

#### **First aid: Generalized convulsion**

During this type of seizure, the patient may fall down and experience jerking of the limbs. Hence, first-aid measures should ensure that the patient is safe.

- Help the person into a lying position, preferably on the floor.
- Loosen tight clothing, remove glasses.
- Clear the surrounding area of any objects that may hurt the patient.
- Do not force anything into the patient’s mouth.
- Make the person lie down on the side, so that any secretions from the mouth can flow out freely.
- Do not hold the patient, as the seizures cannot be stopped by restraint.

Once the seizure stops, keep the patient lying on one side to allow saliva to drain out from the mouth. Do not offer any food or drink until the patient is fully alert.

In case the patient has recurrent seizures, i.e. status epilepticus, the following steps need to be taken immediately.

### **First aid: Status epilepticus**

Status epilepticus is a serious emergency. If the patient suffers repeated seizures without regaining consciousness, immediate medical attention is needed. Hence, the patient needs to be shifted to the nearest medical centre. Immediate medical measures include:

- Supportive measures to ensure a clear airway
- Intravenous drugs to stop the ongoing seizure
- Subsequently, the administration of medications to control seizures

Patients experiencing other kinds of seizures also need help.

### **First aid: Complex partial seizures**

During this type of seizure, the patient may remain unresponsive, stare, perform some inappropriate movements/gestures or appear totally confused.

- Such a patient should not be restrained.
- The patient should be moved to a safe place.
- The patient should not be agitated.
- The patient should not be forced to eat or drink anything.

### **Advice to care-givers**

Relatives are often very concerned about their loved ones having seizures. However, they should note the following points:

- Although seizures look frightening, they are not painful and patients often will have no recollection of the episode.
- Seizures are generally self-limiting, i.e. they stop spontaneously.
- Injury to the patient should be prevented.
- There should be no attempt to force open the patient's mouth if clenched. This may damage the teeth.
- Until the patient has regained full consciousness, no drink should be forced into the mouth.
- There is no need for an extra dose of antiepileptic drugs.
- The care-giver needs to stay with the patient and provide reassurance once the patient regains consciousness.
- If the seizure persists for more than 10 minutes or if it recurs, medical assistance should be sought.

## Precipitating factors

In some patients, there are certain precipitating or triggering factors, for example:

- *Sleeplessness: Sleep deprivation is a definite precipitating factor for some, and hence needs to be avoided.*
- *Flickering lights: In some patients, flickering bright lights, such as those found in discotheques may precipitate seizures. If a patient's seizures are precipitated by such lights, these should be avoided. However, not ALL people with epilepsy need to avoid bright flickering lights.*
- *Alcohol abuse: Excess consumption of alcohol may lead to seizures. Seizures may also occur when recovering from an episode of excess alcohol consumption.*

Patients should carefully identify their own precipitating factors and report them to the treating physician. Once a triggering factor is recognized, it should be avoided.

## Advice to patients:

If seizures are well controlled, patients are encouraged to lead as normal a life as possible, conducting activities of daily living, working and engage in recreation. However, certain precautions must be taken.

- *Driving:* Driving a motor vehicle is an essential part of living and working in urban areas. Each country has its own law about people with epilepsy and driving. Even if the patient is within the law and has a valid driving licence, routine precautions, such as not driving when sleepy or avoiding driving for an extended period, should be taken. This is further dealt with in another section of the monograph.
- *Working with heavy machines:* Although people with epilepsy are encouraged to work, working with heavy and dangerous machines should be avoided.
- *Daily activities:* Simple precautions should be taken while engaging in daily activities and doing chores around the house, such as while cooking. These activities should be avoided when the patient is tired, has not had adequate sleep or when an aura occurs.
- *Rural areas:* Although life is simpler in rural areas compared to urban areas, there are other hazards, such as falling into a well, into an open fire or getting limbs cut while working with machines such as harvesters,

threshers and tractors used in agriculture. Patients and families should take adequate precautions.

## Aspects of treatment

### ***Need for regular use of antiepileptic drugs***

- (a) Antiepileptic drugs must be taken daily as prescribed. Missing a dose or taking twice the dose are both undesirable. If the patient is unable to take the initiative to take the medicine daily, the family should help to ensure that the drugs are taken as prescribed.
- (b) Patients should be aware of “withdrawal seizures”, i.e. an abrupt discontinuation of antiepileptic drugs may cause an increasing number of seizures. Patients also need to be informed about the necessity of good compliance, with taking medicines keeping an adequate stock of drugs with them, not changing the brand of drugs and storing the daily quota in a small container so that no dose is missed.
- (c) Certain antiepileptic drugs interact with commonly-used drugs such as some anti-asthmatic drugs like theophylline or antibiotics such as erythromycin. Patients should inform their family physicians about the antiepileptic drugs they are taking, so that drug interactions are avoided.
- (d) Some drugs cause undesirable effects if the dose is increased too quickly, hence this should be avoided.
- (e) If the first drug is not effective or not tolerated, a second drug from the commonly used drug list can be tried, and the previous drug withdrawn.

## One-drug treatment

About 75-80% of people with epilepsy can be managed easily with one drug. This is called monotherapy, and it prevents interaction between drugs, ensures good compliance with taking medicines and also proves cost-effective. However, the remaining 20–25% of patients may require multiple drugs. This is known as polytherapy. For each type of epilepsy, there is a drug that usually proves to be the most effective. The best drug for the specific type of epilepsy should be started in a low dose, once or twice daily depending upon the nature of the drug. Dose escalation should always be under medical guidance and needs to be undertaken slowly during follow-up, in a gradual process, until either the seizures are controlled or undesirable side-effects appear.

## Long-term antiepileptic drug treatment

Epilepsy is a chronic illness as is hypertension or diabetes mellitus and requires long-term treatment. In view of the stigma attached to this disorder and the requirement for long-term administration of medications, it is essential to confirm the diagnosis before treatment commences. Not all seizures require antiepileptic drugs. For example, a young housewife, whose general health, neurological examination and all tests are normal and who has suffered only one seizure, may not require antiepileptic drugs in the first instance. Similarly, a child experiencing convulsions with only high fever is not started on long-term antiepileptic drug treatment.

## Systemic disorders

Since people with epilepsy can also suffer from other diseases such as asthma, hypertension, diabetes, renal and liver disorders, it is essential that patients inform their treating physicians of their other illnesses, so that those drugs which interact with antiepileptic drugs can be avoided. As certain kidney and liver disorders interfere with the excretion of some antiepileptic drugs, the doses of these antiepileptic drugs need to be adjusted and some drugs completely avoided. The physician will decide the drug and its dose.

## Serum antiepileptic drug estimation

The dose of drug required by each patient depends largely on its effectiveness and is, therefore, based on success in controlling seizures or the appearance of side-effects. This is dependent on the amount of medicine which enters the body through the stomach. One way to assess this is to measure the level of medication in the patients' serum. Only a few major hospitals in SEAR Member Countries offer a facility for serum antiepileptic drug estimation, but it is not necessary to refer all patients there. Serum antiepileptic drug levels need to be estimated only in certain conditions:

- To monitor compliance in patients with uncontrolled/refractory seizures;
- In patients with kidney or liver disorders;
- To assess antiepileptic drug dosage in pregnant women with epilepsy;
- In patients participating in controlled trials of antiepileptic drug safety;

- When the patient is on polytherapy and drug interaction is suspected.

## Adverse effects of medications

A few patients experience adverse effects when antiepileptic drugs are administered. These are of four types:

- (a) Acute dose-related effects
- (b) Chronic toxic effects
- (c) Idiosyncratic or allergic reactions
- (d) Teratogenic effects (affecting the unborn child)

**Acute** dose-related side-effects are similar for most antiepileptic drugs. These include dizziness, gait imbalance, nausea, visual disturbances and excessive drowsiness. Once reported, these can be mitigated by reducing the dose of the drug or by starting with small doses of the drug and gradually building it up.

**Chronic** toxic effects develop gradually and can be observed during follow-up. The side-effects common to most antiepileptic drugs are drowsiness, lethargy, mental slowing, memory disturbance, irritability and aggression. In addition, there are specific toxic effects of each individual drug.

**Idiosyncratic** (allergic) side-effects are temporally related to the administration of a particular drug. These are not dose-related, and require a complete, immediate cessation of the drug.

**Teratogenic** effects (effects on the unborn child) may result if a pregnant woman is on antiepileptic drugs, especially if she is on multiple drugs. Teratogenic effects vary from drug to drug. Some effects noted include cleft lip or palate, congenital heart defects, mental retardation, deformities of the brain and small size of head.

### ***Follow-up evaluation***

Follow-up is an essential step in the management of epilepsy. The patient has to maintain a "seizure diary" where every seizure is recorded and report to the treating physician periodically. The interval between follow-up varies, depending upon the frequency of seizures. The treating physician will evaluate the clinical response of the patient with respect to the dose of the drug being administered and any side-effects

Even a minor episode should be reported to the doctor. The doctor will decide whether these were epileptic events or non-epileptic ones. If diagnosed as epileptic events, they will affect the duration of treatment.

noted during follow-up visits. It is essential to note the effect of seizures on the patient's day-to-day activities.

### Why does treatment fail?

Despite the best of efforts, some patients fail to respond to medication and continue to suffer from seizures. This is referred to as chronic epilepsy, difficult-to-treat epilepsy or refractory epilepsy. The following factors may be responsible:

- Poor drug compliance;
- Inadequate dosage, i.e. not enough drug levels in the blood;
- Patient cannot afford the medication;
- Non-availability of drugs;
- Inappropriate medication;
- Wrong diagnosis;
- Seizures secondary to an underlying cause.

Most of these causes are preventable and, hence, easily remedied. In developing countries of SEAR, non-availability of the specified drugs and unaffordability play an important role in poor drug compliance. In some cases, patients continue to get seizures subsequent to eliminating the above factors and, thus, further investigations are essential to rule out an underlying cause.

### ***Duration of treatment***

Once commenced, antiepileptic drug treatment should be continued till the patient has been totally seizure-free for a minimum of two years. Some physicians treat for three years. Before considering discontinuation, it is necessary to ensure the following:

- The patient has had no major or minor episodes in the last two years;
- The patient has normal mental development;
- The seizures are not due to a progressive brain disorder;
- Periodic EEGs have been normal, and EEG prior to tapering medicines is normal.

If the above-mentioned factors are not met, it is advisable to continue antiepileptic drug treatment for a longer period.

After successful completion of the course of treatment, the drug should not be stopped abruptly; it should be withdrawn slowly over a period of several months. In the case of a

patient taking more than one drug, withdrawal of one drug should be complete before the dose of the other drug is reduced.

**Risk of recurrence after stopping the antiepileptic drug**

The risk of recurrence remains, even after a seizure-free two-year period on treatment and a gradual reduction and cessation of drug therapy. Patients should be informed about this. The chances of recurrence are about 10% for children and about 20% for adults. In other words, there is still a one in five chance of recurrence. It is believed that patients with symptomatic seizures, associated mental handicaps and initial difficulty in achieving control have a higher susceptibility to recurrence. Risk of recurrence is highest soon after stopping the drug and gradually declines with time. It is essential that patients remain in contact with their doctors during this period.

**Under no circumstances should antiepileptic medications be stopped suddenly. This can be life-threatening.**