Course-CC-6 (Neuropsychology) Unit 2; SEM II
By
Ranjeet Kumar Ranjan
Part time Assistant Professor, P.G Department of Psychology
Patna University
Contact No-993408701, E-mail: ranjeetkrbhu1234@gmail.com

EPILEPSY

In epilepsy, a person suffers recurrent seizures of various types that register on an Electro gram and are associated with disturbances of consciousness. Epileptic episodes have been called convulsions, seizures, fits, and attacks.

Epileptic seizures are common; 1 person in 20 will experience at least one seizure in his or her lifetime. The prevalence of multiple seizures is much lower, however—about 1 in 200.

CLASSIFICATION

Symptomatic Seizures- Epileptic seizures are classified as symptomatic seizures if they can be identified with a specific cause, such as infection, trauma, tumour, vascular malformation, toxic chemicals, very high fever, or other neurological disorders.

Idiopathic Seizures- Seizures are called idiopathic seizures if they appear to arise spontaneously and in the absence of other diseases of the central nervous system. Although the range of these circumstances is striking, a consistent feature is that the brain is most epileptogenic when it is relatively inactive and the patient is sitting still.

Although epilepsy has long been known to run in families, its incidence is lower than a one-gene genetic model would predict. What is more likely is that certain genotypes have a predisposition to seizure problems given certain environmental

circumstances. The most remarkable clinical feature of epileptic disorders is the widely varying length of intervals between attacks—from minutes to hours to weeks or even years.

SYMPTOMS

At the same time, three particular symptoms *are* found in many types of epilepsy:

1. *An aura, or warning, of impending seizure.* This aura may take the form of a sensation—an odour or a noise—or it may simply be a “feeling” that the seizure is going to occur.

2. *Loss of consciousness.* Ranging from complete collapse in some people to simply staring off into space in others, loss of consciousness is often accompanied by amnesia in which the victim forgets the seizure itself and the period of lost consciousness.

3. *Movement.* Seizures commonly have a motor component, although the characteristics vary considerably. Some people shake during an attack; others exhibit automatic movements, such as rubbing the hands or chewing. A diagnosis of epilepsy is usually confirmed by EEG. In some epileptics, however, seizures are difficult to demonstrate in this way except under special circumstances (for example, in an EEG recorded during sleep). Moreover, not all persons with an EEG suggestive of epilepsy actually have seizures, 4 people in 20 have abnormal EEG patterns, which is many more than the number of people thought to suffer from epilepsy.

TYPES

Four commonly recognized types of seizures are:

1. Focal seizures,
2. Generalized seizures,
3. Akinetic and
4. Myoclonic seizures.

Focal Seizures

A focal seizure begins in one place and then spreads. In a Jacksonian focal seizure, for example, the attack begins with jerking movements in one part of the body (for example, a finger, a toe, or the mouth) and then spreads to adjacent parts. If the attack begins with a finger, the jerks might spread to other fingers, then the hand, the arm, and so on, producing the so-called Jacksonian march. Hugh lings Jackson hypothesized in 1870 that such seizures probably originate from the point (focus) in the neocortex representing the region of the body where the movement is first seen. He was later proved correct.

Complex partial seizures, another type of focal seizure, originate most commonly in the temporal lobe and somewhat less frequently in the frontal lobe. Complex partial seizures are characterized by three common manifestations:

(1) subjective experiences that presage the attack such as forced, repetitive thoughts, sudden alterations in mood, feelings of déjà vu, or hallucinations;

(2) Automatisms, which are repetitive stereotyped movements such as lip smacking or chewing or activities such as undoing buttons; and

(3) Postural changes, as when the person assumes a catatonic, or frozen, posture.

Generalized Seizures

Generalized seizures are bilaterally symmetrical without focal onset. One subtype, the grand mal attack, is characterized by loss of consciousness and by stereotyped motor activity. This kind of seizure typically comprises three stages:

(1) A tonic stage, in which the body stiffens and breathing stops;
(2) aclonic stage, in which there is rhythmic shaking; and
(3) a postseizure, also called postictal, depression, during which the patient is confused. About 50% of these seizures are preceded by an aura. The petit mal attack is a loss of awareness during which there is no motor activity except for blinking, turning the head, or rolling the eyes. These attacks
are of brief duration, seldom exceeding about 10 seconds. The EEG recording of a petit mal seizure has a typical pattern known as the three-per-second spike and wave.

Akinetic and Myoclonic Seizures

Akinetic seizures are ordinarily seen only in children. Usually an affected child collapses suddenly and without warning. These seizures are often of very short duration, and the child may get up after only a few seconds. The fall can be dangerous, however, and it is commonly recommended that the children
wear football helmets until the seizures can be controlled by medication.

Myoclonic spasms are massive seizures that basically consist of a sudden flexion or extension of the body and often begin with a cry.

Treatment of Epilepsy

The treatment of choice for epilepsy is an anticonvulsant drug such as diphenylhydantoin (DPH, Dilantin), phenobarbital, or one of several others. Although the mechanism by which these drugs act is uncertain, they presumably inhibit the discharge of abnormal neurons by stabilizing the neuronal membrane. If medication fails to alleviate the seizure problem satisfactorily, surgery can be performed to remove the focus of abnormal functioning in patients with focal seizures.

REFERENCES

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