

EPILEPSY



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Introduction

- **Epilepsy is a group of syndromes characterized by recurring seizures. Epilepsy syndromes are classified by specific pattern of clinical features, family history & seizures type. Epilepsy is a syndrome of another underlying condition such as brain tumor.**

Definition

- **“Epilepsy is a recurrent seizure disorder characterized by abnormal electrical discharge from brain, often in the cerebral cortex.”**

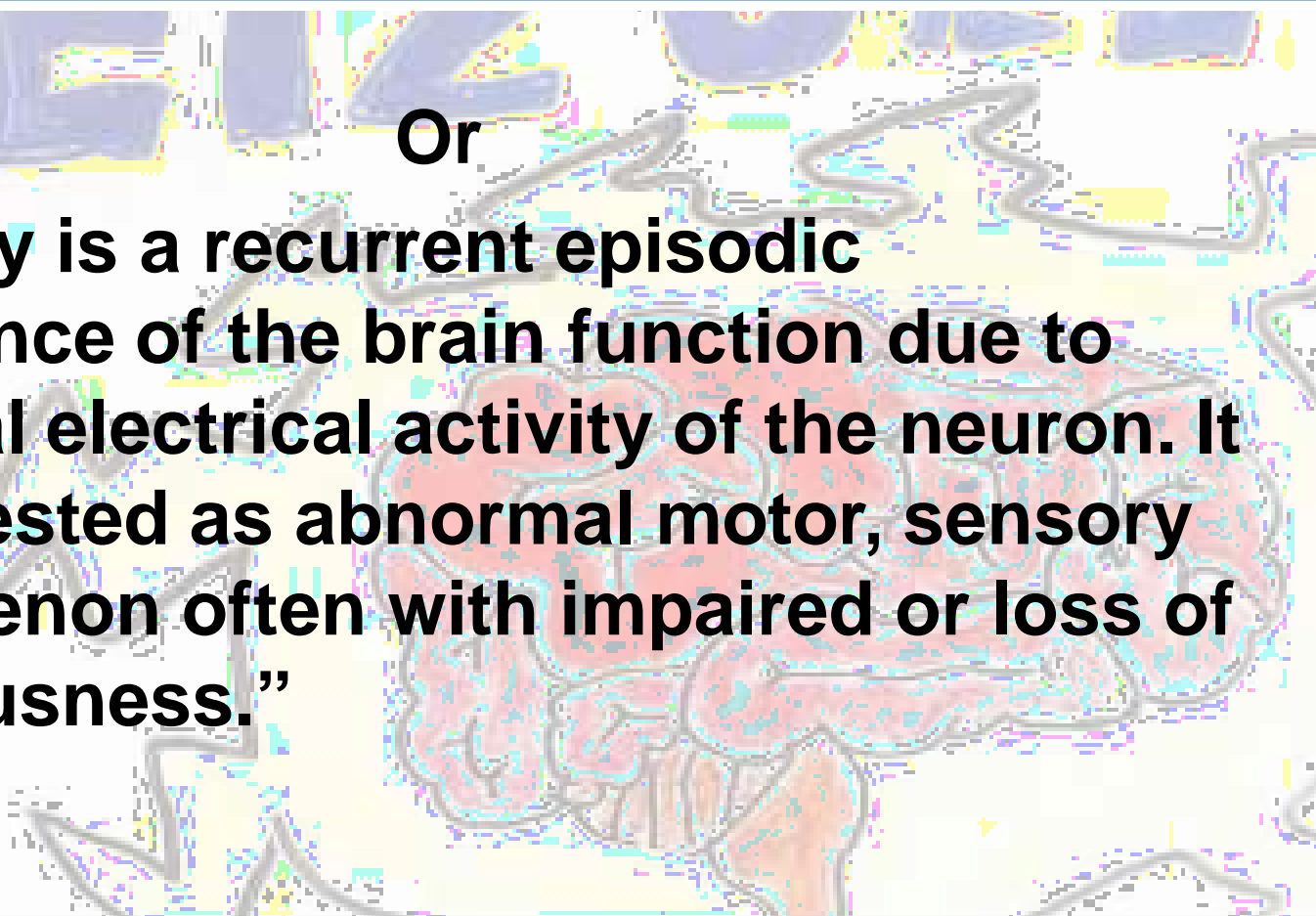
Or

- **“Epilepsy is a chronic seizures disorder with recurrent & unprovoked seizures.”**

SEIZURE

Or

- **“Epilepsy is a recurrent episodic disturbance of the brain function due to abnormal electrical activity of the neuron. It is manifested as abnormal motor, sensory phenomenon often with impaired or loss of consciousness.”**



Incidence

- **Epilepsy is the most common neurological problem. An estimated 2-4 million people are affected in the US with epilepsy. Approximately 50 million people are affected of all age groups globally by epilepsy. According to Venkataswamy (1998), the prevalence of epilepsy in India is 4.4/1000 population.**

Epidemiology

- **Agent factor:**
- Exposure to toxins, e.g. lead, infection & neurologic injury.
- Fever

Cont...

- **Host factor:**
- Age: Most common onset of epilepsy is before the age of 20 years. It is higher during the first year of life & at the onset of puberty.
- Genetic factor (inheritance)
- CVA
- Birth hypoxia
- Brain tumor & abscess
- Congenital abnormalities
- Trauma

Cont...

- **Environmental Factors:**
- Air pollution, i.e. carbon-mono-oxide & lead poisoning.
- Some factors or events may precipitate the seizures.
- Unskilled handling at the time of birth causing brain injury & birth asphyxia.
- Intrauterine infections.
- Emotional disturbances & environmental stressors.
- Drugs & alcohol intoxication.

Patho-physiology

- **Disturbance of the brain functions due to any cause, e.g. genetic factors or head injury may cause brain cells to become overactive & to discharge in sudden, violent disorderly manner, the burst of electrical energy which spreads to adjacent areas of the brain & may jump to distant areas of CNS, resulting in seizures.**

Clinical Manifestations

- Clinical manifestation in epilepsy range from starting episodes to prolonged convulsions with loss of consciousness. The clinical manifestations vary according to the part of the brain involved.
- **Classification of seizures & related clinical manifestation:**
 1. Partial seizures
 2. Generalized seizures

**GENERALIZED
PHASE**



**PARTIAL
PHASE**



Cont...

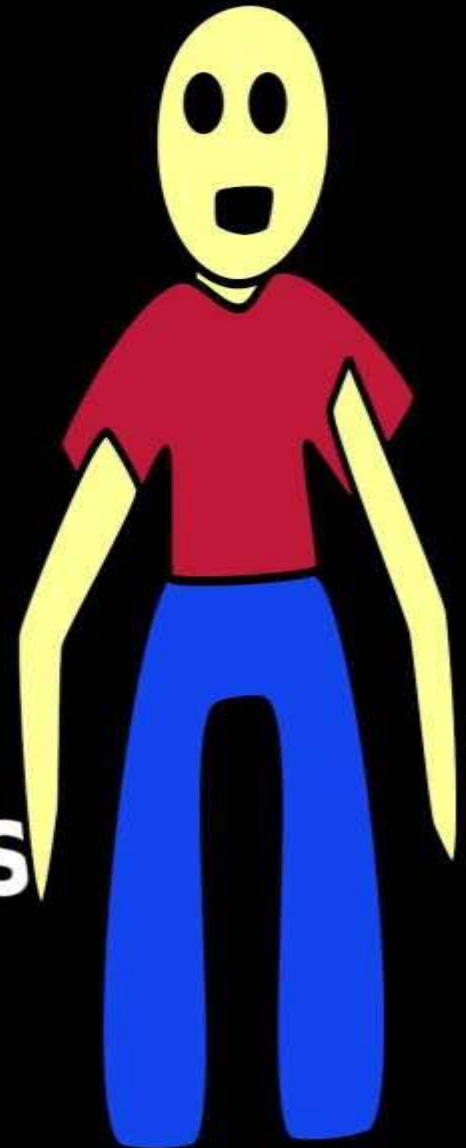
- **Partial seizures:** When seizures appears to result from abnormal activity in just one part of the brain.
- **Simple partial seizures:** They have elementary or simple symptoms & there is no loss of consciousness in this. The patient may experience only a finger or hand shake, mouth may jerk uncontrollably he/she may talk unintelligibly, may feel dizziness or may experience unusual or unpleasant sight, sound, odors or tastes.

Seizure

Partial

Complex

**Consciousness
is impaired**



Cont...

- **Complex partial seizures:** The patient's consciousness is altered during the event. The seizures may begin with an aura. Patient may have no movement or moves automatically but inappropriately for time & place; may experience excessive emotions of fear, anger, elation or irritability & does not remember the episodes when it is over.

Generalized seizures

- **Generalized seizures (Grand Mal Seizures):**
Generalized seizures involve both the hemispheres of the brain. There is intense rigidity of the entire body, followed by alternate of muscles relaxation & contraction (generalized tonic-clonic contraction).
- There are following manifestation:

GENERALIZED SEIZURE

TONIC-CLONIC SEIZURE

THE PHASES OF A "TONIC-CLONIC" SEIZURE



THE "AURA" PHASE

- LIGHT-HEADINESS
- DIZZINESS
- CONFUSION
- HEADACHE



THE "TONIC" PHASE

- SKELETAL MUSCLES TIGHTEN UP
- JERKY MOVEMENT
- USUALLY LASTS 15-20 SECONDS



THE "CLONIC" PHASE

- CONVULSION
- SHIRT RASHER
- UNCONTROLLABLE TWEETING/SOUND
- SOMETIMES BEHAVING STUPID



POSTICTAL SLEEP

- CONFUSION
- ANGER
- AND HEAVY UPON BEHAVING CHANGING

Cont...

- **Tonic phase:**
 - Simultaneous contraction of the diaphragm & chest muscles which produce characteristic epileptic cry.
 - Face may become pale, head turned to one side, eye fixed in one position & hands are clenched.
 - Loss of consciousness. Tongue is bitten.
 - Frothy discharge from the mouth.
 - Ineffective breathing.
 - Pulse becomes weak & irregular.
 - This state may last for 30 seconds.

Cont...

➤ **Clonic phase:**

- Jerky movement last for 1-2 minutes.
- Incontinence of urine & stool.
- The patient relaxes after jerky movements & goes into the deep sleep (coma) breathing is noisy.
- This state lasts for 1-2 minutes.

Postictal State

- **After the seizures, the patients are often confused & hard to arouse & may sleep for hours. Many complain of headache, muscle-ache, fatigue & depression.**

Assessment & diagnostic methods

- History of events during pregnancy & child birth *for example*, difficult labor, trauma & birth asphyxia.
- Neurological examination.
- MRI to detect lesions in the brain, e.g. abscess or tumor, etc.
- EEG to classify the type of seizure.
- CT-scan to identify the epilepto-genic zone.
- Blood tests.

Prevention

- ***Primary Prevention:***
- Use of safety precautions to prevent injury during birth.
- Early detection of high-risk mothers to prevent complications during pregnancy & labor.
- Essential obstetrical care, i.e.:
 1. Institutional delivery to provide basic emergency obstetrical care & basic newborn resuscitation services.
 2. Skilled attendance at birth with appropriate referral services for complicated cases.

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- Avoidance of drugs in pregnancy except where they are essential.
- Genetic counseling:
 - I. Prospective genetic counseling helps to identify heterozygous individuals for any particular defect by screening procedures & explaining to them the risk of having affected children if they marry another heterozygote for the same gene.
 - II. Retrospective genetic counseling can be offered to those individuals or couples where hereditary disorders, *for example*, the nature of seizures has already occurred, in-order to suggest them to adopt methods to prevent conception, pregnancy termination & sterilization depending upon their attitudes & cultural preferences

Cont...

- ***Secondary Prevention:***
- It includes early detection & treatment of cases:
- **Medical management:** Includes need for long-term need & immediate treatment of epileptics using medications. The usual treatment is a single-drug therapy.
- Air-way & oxygen administration & I/V line is established for giving medications.

Cont...

- I/V diazepam, lorazepam or fosphenytoin are administered slowly in an attempt to halt the seizures. General anesthesia with a short-acting barbiturate may be used if initial treatment is unsuccessful.
- To prevent further seizures, other medications (Phenytoin, Phenobarbital) are prescribed after the initial seizure is treated.

Cont...

- **Surgical management:** It is indicated in the following conditions:
- Anatomical lesion, *e.g.* brain tumor, hematoma & abscess or cysts, etc.
- Surgical removal of the epileptogenic focus is done for seizure that originates in a well defined area of the brain that can be excised without producing significant neurologic defects.

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- ***Tertiary Prevention:***
- It aims at rehabilitation & preventing complication & disabilities. Vocational rehabilitation should be done of the patient through proper training & education in some suitable vocation. This enhances the patient's self-esteem, self-confidence & reduces fears & in-security. Psychological support to the patient & his/her family must be provided to relieve their anxiety & fears.

Seizure Man



Saving
the World,
One
Seizure
at a
Time

Nurses role

- ❑ **Protect from injury by removal of sharp objects.**
- ❑ **Prevent patient from fall by providing side rails which should be padded. Remove pillow or ease the patient to the floor, if possible.**
- ❑ **Remove secretions by suctioning to prevent asphyxia & to keep the airway clear. Turn the patient to side-lying position to help in draining pharyngeal secretions.**
- ❑ **Never leave the patient alone. The patient should not be restrained during the seizure attack.**

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- ❑ **Do not insert anything in patient's mouth.**
- ❑ **Close observation should be kept on the conscious level & note fluctuation in mood & attitude.**
- ❑ **Administer oxygen as advised by physician.**
- ❑ **Loosen the patient's clothing from around his/ her neck.**
- ❑ **After the seizure, put the patient on one side to prevent aspiration.**

Cont...

- Health teaching should be given to the patient & his/her family for long term care & follow-up regarding the following:
 - ✓ To continue medication as per physician's advice, teach patient & family regarding side-effects of medicines.
 - ✓ Care during convulsions to prevent injury, tongue bite & not restraining forcefully during the convulsive phase.
 - ✓ Proper nutrition to prevent malnutrition, should avoid stimulants.

Cont...

- ✓ Remove stigma attached to the condition.
- ✓ Should carry an emergency medical identification card or wear an identification bracelet.
- ✓ Counseling of the family & patient should be done regarding the type & nature of epilepsy, need to follow the treatment regimen for life or as the physician advices. Teach the family & the patient to avoid fear, participate in social & recreational activities.

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- ✓ Instruct the patient to avoid excessive stimulants such as bright light by wearing dark glasses or covering the eyes from glare with hand if nothing is available.
- ✓ Emphasize regular follow-up.

References

- Park K., Text Book of Preventive and Social Medicine. 18th Edition, Banarsidas Bhanot: 803-814.
- Singh Simrat Kaur N.J., Community Health Nursing. 1st Edition, Lotus Publishers. Page No. 522-525.



THANK YOU