

# Seizures and Epilepsies

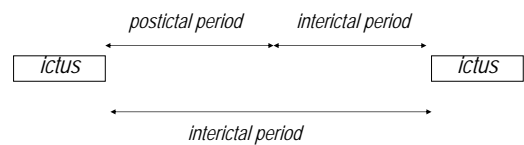
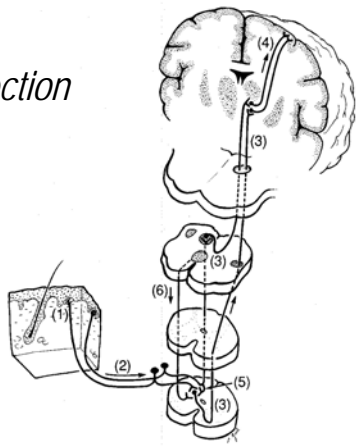
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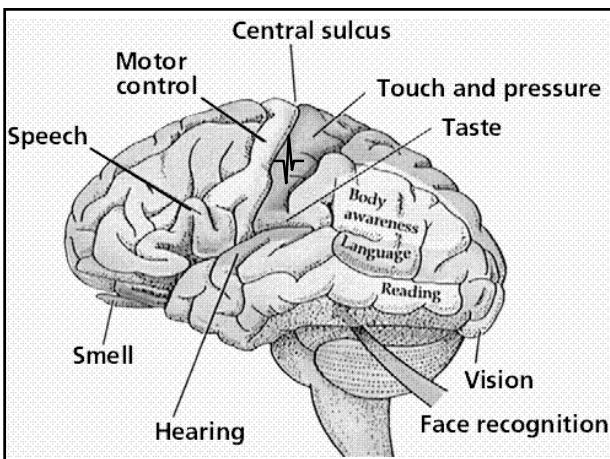
## Definition

- neurological deficits (positive or negative) caused by abnormal neuronal discharges in the hemisphere or brain stem
- seizure, epileptic seizure
- epilepsy (chronic, recurrent seizures)

## Law of Projection Labeled line



- ictus, ictal period
- postictal period
- interictal period



## Etiologies

### Normal reaction to stress:

- sleep deprivation
- physical stress: fever, overwork, over exercise
- chemical reaction: alcohol
- psychological stress

## *Etiologies*

- *Vascular: cerebrovascular disease*
- *Infectious/inflammatory: encephalitis*
- *Neoplastic: primary v.s. metastatic*
- *Degenerative: Alzheimer*
- *Intoxicative: alcohol*
- *Congenital/hereditary: neurocutaneous ~*
- *Autoimmune: multiple sclerosis, LE*

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## *Partial seizure*

- *Epileptic focus confined to unilateral hemisphere*
- *Simple = normal consciousness (wakefulness and awareness)*
- *Complex, involved frontal, temporal or limbic system = impaired awareness (normal wakefulness)*

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## *Etiologies*

- *Traumatic*
- *Endocrinopathic: DM*
- *Nutritional: pyridoxine deficiency*
- *Hematologic: polycythemia, leukemia*
- *Idiopathic*
- *Metabolic: uremia, electrolyte imbalance*

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## *Simple Partial ~*

- *With motor signs: jerks of body parts*
- *With somatosensory or special sense symptoms: touch, numbness, etc.*
  - *somatosensory, visual, auditory, olfactory, gustatory, vertiginous ~*
- *With autonomic s/s:*
  - *palpitation, nausea, vomiting*
- *With psychic s/s:*
  - *rage, aggression*

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## *Classification*

- *Partial: epileptic activity confined to one hemisphere*
- *Generalized: epileptic activity originated from both hemispheres*
- *Unclassifiable*

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## *Complex Partial ~*

- *Impaired awareness always*
- *With automatism*
  - *involuntary, automatic behaviors while having impaired consciousness*
- *Spontaneous ~ v.s. reactive ~*

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## *Generalized seizures*

- *Epileptic foci confined to both hemispheres*
- *Impaired consciousness is a must, except myoclonus*
- *Postictal symptoms is a must, except absence and myoclonus*

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## *Clinical Diagnosis*

### *Seizure history*

- *aura: somatosensory, visual, olfactory*
- *clinical seizure: details of description*
- *postical period: confusion*
- *precipitating factor: sleep deprivation, alcohol, fever, overwork, work stress, psychological stress*
- *frequency: per month, per year*
- *age of onset: childhood, adult, elderly*
- *progression of symptoms: improved or worsened*
- *AED: what, dose, side effects*

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- *Absence*
- *Myoclonic*
- *Clonic*
- *Tonic*
- *Tonic-clonic*
- *Atonic*

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## *Clinical Diagnosis*

- *Past medical history*
- *Family history*
- *Psychosocial history*

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## *Diagnosis*

- *Clinical diagnosis*
- *Definite diagnosis*

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## *Physical Examination*

- *General examination*
- *Neurological examination*

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## Observation of Seizures

- *When necessary, observation may be the only way to diagnosis.*

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## Differential Diagnosis

- *TIA (transient ischemic attack)*
- *Migraine*
- *NES*
- *etc.*

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## Lab Examination

- *Routine lab: relevant investigations*
- *EEG: negative interictal EEG does not exclude seizure/epilepsy. Positive EEG is diagnostic only with related clinical S/S.*
- *CT or other imaging: indicated only when focal pathology is suspected.*

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## Syncope

- *relation to posture*
- *time of day*
- *skin color*
- *aura duration*
- *convulsion*
- *injury*
- *incontinence*
- *postictal confusion*
- *postictal headache*
- *focal neurological deficits*
- *cardiovascular signs*
- *abnormal EEG*

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## Differential Diagnosis

- *Syncope: generalized weakness of muscles with loss of muscle tone, inability to stand upright, and a loss of consciousness due to reduced of oxygenation by any cause.*
- *Fainting (presyncope)*
- *Hypoglycemia*

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## Migraine

- |                                |                   |                    |
|--------------------------------|-------------------|--------------------|
|                                | <i>Migraine</i>   | <i>Seizure</i>     |
| • <i>Motor seizures</i>        | <i>no</i>         | <i>yes</i>         |
| • <i>Prodrome symptoms</i>     | <i>&gt;5 min.</i> | <i>&lt; 1 min.</i> |
| • <i>Loss of consciousness</i> | <i>no</i>         | <i>yes</i>         |
| • <i>Epigastric sensation</i>  | <i>nausea</i>     | <i>pain</i>        |
| • <i>EEG</i>                   | <i>slowing</i>    | <i>discharge</i>   |

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## *Hypoglycemia*

- *Epinephrine release: sweating, tremor, tachycardia, anxiety, hunger*
- *CNS symptoms: dizziness, headache, clouding of vision, blunted mental acuity, loss of fine motor skill, confusion, abnormal behavior, convulsion and loss of consciousness*
- *Blood sugar (45 mg/dL)*

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## *Management*

- *Precipitating factors*
  - *sleep deprivation, alcohol, overwork, stress, fever*
- *Pharmacological treatment*
  - *phenobarbital gr I: 1-3 tab oral OD, hs*
  - *phenytoin 100 mg: 1 cap tid pc*
  - *carbamazepine 200 mg: 1 tab tid pc*
  - *valproate 200 mg: 1 tab tid pc*

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## *Drug treatment*

- *Duration of treatment = 3-4 years*
- *Tapering off 1/3-1/4 q 3 months*

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