

# ASSESSMENT OF SEIZURE IN THE EMERGENCY ROOM



A seizure is a sudden, uncontrolled burst of electrical activity in the brain

#### Focal seizures:

Abnormal excitation in a discrete region of the cerebral cortex

#### Generalized seizures:

Synchronous excitation of bihemispheric thalamocortical pathways

Focal seizures may spread to be Generalized

Features of Seizures on History	
Preictal:	Generalized: often abrupt with no warning Focal: may have ascending epigastric sensation, fear, panic, dizziness, paresthesia, nausea
<u>lctal:</u>	Motor: Generalized or focal movements, sustained head or eye deviation Automatisms: repetitive purposeless movements Autonomic: pupillary dilation, vitals sign changes, pallor, incontinence, tongue bite Loss of consciousness or inability to understand/speak
Postictal:	Amnesia, confusion, sleepiness over 30 min, nausea/vomiting, headache, transient focal weakness (Todd's paresis)

#### Provoked

#### Druas: Metabolic:

-Accidental or -Hyper/hyponatremia intentional -Hypoglycemia ingestions -Hypoxia -Hypercalcemia

### Infectious:

-Febrile Seizure Structural: -Meningitis -Head trauma -Sepsis -Neoplasm -Stroke

Inflammatory: -Hydrocephalus -Encephalitis -Space occupying

lesion

### Seizure

Is the event a provoked seizure (lower risk for future epilepsy) or unprovoked?

### Single unprovoked Seizure



## **Epilepsy**

Unprovoked

#### Defined as:

- 1) At least two unprovoked seizures occurring >24h apart
- One unprovoked seizure and a probability of further seizures (i.e., epileptiform activity on EEG, potential epileptogenic lesion on brain imaging)

### **Initial Laboratory Work-up:**

Point-of-care glucose should be checked in all patients

For young children (6 mo - 5 years) with a typical history of simple febrile seizure and nonfocal exam, further diagnostic testing is unnecessary in most cases

#### If indicated:

Electrolytes, calcium, magnesium, complete blood count with differential, renal and liver function tests, urinalysis, toxicology screen, pregnancy test, partial or full septic workup.

### Other Investigations to consider:

<u>Lumbar Puncture</u> → if concern for CNS infectious/inflammatory process. Always consider in an unwell patient presenting with fever and seizure∧

<u>Urgent Neuroimaging</u> – indicated for focal seizure onset, new focal neurological deficit, or a prolonged altered mental status. CT Head is usually obtained.

EEG – indicated for every child with an unprovoked seizure or recurrent seizures.

ECG – if concern for a cardiogenic cause.

Brain MRI - indicated for known or suspected localization-related epilepsy, associated developmental delay, or focal findings on EEG.

Referral to Pediatric Neurology - indicated for a child presenting with first-time unprovoked seizure or complex febrile seizure. Simple febrile seizures may benefit from consultation on a case-by-case basis.

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