First Unprovoked Seizure

Definition:

- Child 1 month to 21 years who experiences a first non-febrile seizure that cannot be explained by an immediate, obvious provoking cause such as head trauma or intracranial infection.
- International League of Epilepsy (ILAE) further defines as multiple seizures within 24 hours with recovery of consciousness between seizures.

Status epilepticus constitutes a separate category and deserves full diagnostic evaluation, including MRI scan of the brain and sleep deprived EEG, with strong consideration of initiation of antiepileptic medication. Evaluation by a pediatric neurologist would be strongly recommended.

Differential diagnosis

- Breath holding spells
- Syncope
- Gastroesophageal reflux (Sandifer syndrome)
- Confusional Migraine
- Benign paroxysmal vertigo
- Movement disorders: tics, dystonia, dyskinesia, dystonia, benign myoclonus
- Psychogenic (pseudo) seizures or panic attack
- Behavioral events: non-epileptic staring spells, jitteriness, self-stimulation, or stereotypies
Goals of evaluation

- Detailed history provided by reliable observer.
  1. Accurate description of event.
  2. Complete history and physical examination
  3. Complete Neurological exam—including mental status, cranial nerves, motor, sensory, DTRs, coordination and gait
  4. Labs tests should individualized to historical /clinical findings such as vomiting, diarrhea, dehydration, or failure to return to mental alertness. Toxicology screens should be done if there is a suspicion of ingestion.
  5. Lumbar puncture is of limited value and should only be done if meningitis or encephalitis is suspected.
  6. Sleep deprived EEG (so that background is obtained during awake and sleep states) is recommended to determine seizure type and risk for recurrence.
     a. Caution should be advised in interpretation of EEG, as some abnormalities such as postictal slowing or central sharp waves are transient or may not be clinically significant.

Clinical correlation is required.
b. Normal EEG does not exclude the diagnosis of epilepsy. However, the child would have to have a recurrent unprovoked seizure to have the diagnosis of epilepsy.

7. Neuroimaging is generally indicated after a first unprovoked seizure.

8. MRI of the Brain is the preferred neuroimaging study
   a. Emergent if suspicion of a serious structural lesion.
   b. Non-urgent if there is no clear cause for seizure
   c. CT scan of brain unnecessarily exposes patient to radiation and does not adequately evaluate intraparenchymal structures.

Prognosis after a first seizure
   b. Recurrence risk at one year increases to 37% in children with a prior neurological insult (remote symptomatic) such as cerebral palsy. *(Shinnar, S, Berg, AT, et al. Risk of Seizure...*
recurrence following a first unprovoked seizure in childhood.

Pediatrics 1990, Shinnar, S, O’Dell, C, Berg, AT et al:


c. Recurrence increases to 70% in patients experiencing 2 seizures separated by 24 hours.

d. Sleep deprived EEG is the most valuable predictor of recurrence.

1. 41% risk in first 12 months if EEG is abnormal (epileptiform activity, focal or generalized slowing)

2. 15% risk in children with a normal EEG


WITHHOLDING TREATMENT UNTIL AFTER THE SECOND SEIZURE DOES NOT ALTER THE LONG-TERM PROGNOSIS OF EPILEPSY.

LONG TERM MORTALITY IS LOW AFTER A SINGLE NON-PROVOKED SEIZURE
RECOMMENDED READING

