First Time Non-Febrile Seizures

Timothy Johnson, DO
A mother brings her six year old boy to the emergency department saying he had a seizure during the night. She found him sitting up in bed sweating and talking incoherently. She held and consoled him and after 15-20 minutes he went back to sleep. He was not incontinent during the episode. He has no history of fever and his exam is now normal. He does not have any memory of the episode.

The most likely diagnosis is:

A. Pseudoseizure
B. First-time Nonfebrile Seizure
C. Night Terror
D. Migraine
E. Sandifer’s Syndrome
A 2 year old presents to the ED with an episode of right arm stiffness that progressed to a tonic-clonic seizure. The episode lasted 2-3 minutes and resolved prior to EMS arrival. She is afebrile and has a normal exam when you see her. What do you do next?

A. Check Blood Glucose
B. Arrange Follow-up
C. BMP
D. CT Head
E. Emergent MRI
A 10 year old boy is brought in by his mother after he was found unresponsive and shaking his extremities in his bedroom. The episode happened about 4 hours ago. Your examination is normal except for some difficulty with standing on one foot and walking heel to toe. Your next best action is:

A. Call the pediatric neurologist
B. Arrange Follow-up
C. Perform LP
D. Urine Drug Screen
E. CT Head
Objectives

- Identify the important diagnostic elements of the history in first-time non-febrile seizures.
- Know what elements of the history and exam prompt deviation from established practice parameters.
- Know the practice parameters for diagnostic evaluation in the ED.
- Describe appropriate follow-up for the first-time non-febrile seizure.
Seizure or Not?

- Pseudoseizures
- Syncope
- Breath-Holding Spells
- Sleep Disorders
  - Night Terrors
  - Confusional Arrousals
- Movement Disorders
- Reflux (Sandifer Syndrome)
- Migraine
- Benign Paroxysmal Vertigo
- Behavioral Events
Causes of Seizure

- Head Trauma
- Infection
- Metabolic or Degenerative Disease
- Vascular Problems
- Brain Tumors
- Dysplasias of the Brain (CP)
- Idiopathic- 70%
Important Signs and Symptoms

- Fever or Abnormal Vitals
- Signs of trauma
- Dysmorphic features
- Papilledema
- Meningism
- Skin features
- Persistent Focal Neurologic Deficits
- Failure to return to normal mental status
• LP
• CT Head
• MRI
• Blood Glucose
• Electrolytes
• CBC
• EEG
• Admit
Non-Febrile Seizures

- 25,000-40,000 children per year have a first non-febrile seizure
- Very Scary for parents
- Parents want a definitive answer now
- Majority can not be explained by an immediate provoking cause
- 75% will not have a second seizure
Practice Guideline


Out of Bounds

- Fever
- Trauma
- Persistent Neurologic Deficit
- Neonates <28 days
- Status Epilepticus
- Epilepsy (2 or more unprovoked seizures)
- Don’t return to baseline
- Infection
- Toxic Ingestion
Lab

- **Routine Lab Testing is not necessary**
  - Serum and urine testing should be ordered based on individual clinical circumstances e.g., vomiting, diarrhea, dehydration, failure to return to baseline alertness.
  - Consider Toxicology Screens if any question of drug exposure or substance abuse.
  - Lumbar Puncture should be considered when meningitis is suspected.
EEG

- Not Urgent, Does not require admission
- Recommended for evaluation of first-time non-febrile seizures
- Optimal timing is unclear
Imaging

- Emergent CT in absence of specific findings is not indicated
  - Emergent imaging is indicated when there is a persistent focal deficit or when baseline mental status has not returned after several hours
  - If a neuroimaging study is obtained, MRI is the preferred modality
Treatment

- Treatment with AED after first seizure has not been shown to improve progress prognosis for long-term seizure remission
- If second seizure, call neurology before starting any agent
- Rectal valium if seizure was prolonged or if second seizure
Follow-up

- **Primary Care Provider**: 3 to 5 days
- **Pediatric Neurologist after 2\(^{nd}\) seizure**
  - PCP May schedule EEG prior to visit
  - No need for pre-visit MRI
Patient Education

- What a seizure is and isn’t
- What activities child can/can’t do
  - No bathing or swimming alone
  - No driving or operating moving equipment
  - Normal Physical Activity OK
  - Video Games, Flashing Lights OK
- Likelihood of Recurrence- 25% within 2 years
- What to do for another seizure
A mother brings her six year old boy to the emergency department saying he had a seizure during the night. She found him sitting up in bed sweating and talking incoherently. She held and consoled him and after 15-20 minutes he went back to sleep. He was not incontinent during the episode. He has no history of fever and his exam is now normal. He does not have any memory of the episode.

The most likely diagnosis is:

A. Pseudoseizure
B. First-time Nonfebrile Seizure  
C. Night Terror  
D. Migraine  
E. Sandifer’s Syndrome

The correct answer is C. Night Terror.
A mother brings her six year old boy to the emergency department saying he had a seizure during t...
A 2 year old presents to the ED with an episode of right arm stiffness that progressed to a tonic-clonic seizure. The episode lasted 2-3 minutes and resolved prior to EMS arrival. She is non-febrile and has a normal exam when you see her. What do you do next?

A. Check Blood Glucose
B. Arrange Follow-up
C. BMP
D. CT Head
E. Emergent MRI
A 2 year old presents to the ED with an episode of right arm stiffness that progressed to a tonic...
A 10 year old boy is brought in by his mother after he was found unresponsive and shaking his extremities in his bedroom. The episode happened about 4 hours ago. Your examination is normal except for some difficulty with standing on one foot and walking heel to toe. Your next best move is:

A. Call the pediatric neurologist
B. Arrange Follow-up
C. Perform LP
D. Urine Drug Screen
E. CT Head

Correct answer: E. CT Head
A 10 year old boy is brought in by his mother after he was found unresponsive and shaking his extremities...
Sunset