SEIZURE 101

Kim Orton, RN
Pediatric Epilepsy Care Coordinator

Disclosures:

Seizure Myths
**Epilepsy/Seizure True or False**

1. People with epilepsy usually have an Intellectual Disability \( \text{FALSE} \)
2. People with epilepsy can be identified by the way they look \( \text{FALSE} \)
3. People with epilepsy can predict the future \( \text{FALSE} \)
4. Epilepsy is contagious—you can catch it from anyone \( \text{FALSE} \)
5. Most seizures last from a few seconds to a few minutes \( \text{TRUE} \)
6. People with epilepsy should avoid strobe lights, disco balls, or video games \( \text{FALSE} \)
7. Some people just have seizures during sleep \( \text{TRUE} \)
8. People with epilepsy always have convulsions (shakes) \( \text{FALSE} \)
9. When a person has a seizure, he/she is in danger of swallowing their tongue \( \text{FALSE} \)
10. Some people experience a warning before a seizure, allowing them to move to a safe area \( \text{TRUE} \)
11. Most epilepsy is has a genetic cause \( \text{FALSE} \)
12. People with epilepsy are possessed by demons \( \text{FALSE} \)
13. Epilepsy can be caused by head injuries or other trauma \( \text{TRUE} \)
14. Most people will never know what the cause of their epilepsy is \( \text{TRUE} \)
15. Women with epilepsy should not have children as this is a health risk \( \text{FALSE} \)
16. Children with epilepsy need to attend special schools or classes \( \text{FALSE} \)
17. Children with epilepsy should not participate in sports \( \text{FALSE} \)
18. Anti-epileptic medication makes most people too weak to work \( \text{FALSE} \)
19. Only surgery can cure epilepsy \( \text{FALSE} \)
20. Most people with epilepsy cannot work because of frequent and/or severe seizures \( \text{FALSE} \)

**Seizure Categories**

<table>
<thead>
<tr>
<th>Seizure Type</th>
<th>Absence</th>
<th>Tonic</th>
<th>Clonic</th>
<th>Simple</th>
<th>Complex</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Seizures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Generalized</strong></td>
<td>Absence</td>
<td>Tonic</td>
<td>Clonic</td>
<td>Simple</td>
<td>Complex</td>
</tr>
<tr>
<td><strong>Partial</strong></td>
<td>Absence</td>
<td>Tonic</td>
<td>Clonic</td>
<td>Simple</td>
<td>Complex</td>
</tr>
</tbody>
</table>

**Seizure Chart**

- **Absence**: Duration: \(<15\) sec
- **Tonic Clonic**: Frequency: Many/day
- **Simple**: Aura?: NO
- **Complex**: LOC?: YES
- **Motor**: Minor
- **Post-ictal?**: NO
- **How Common**: 2-11%
- **Average age onset/range**: 1.8 yrs/2-13 yrs
- **Pediatric?**: NO
Benign Rolandic Epilepsy (BRE)

- 4x more common than ABS (24%)
- Onset – 2-12 yrs, average 5-10 yrs
- Outgrown by 16 yrs
- Typically nighttime sz, may present during the day
- Sometimes never treated with AED
- Normal IQ

Febrile Seizures

- Not Epilepsy
- Onset – after 3 mths old and before 5 yrs old, Average onset 18 mths – 22 mths
- Only 2% of sz are febrile
- Boys > Girls
- Temp 102 degrees (rectal)
- May only have one
- Can last up to 15 mins
- Typically outgrown by 5 yrs old

Common Anti-Epilepsy Drug (AED)

**Daily**

- *Depakote*(valproic acid)
- *Zarontin*(Ethosuximide)
- *Banzel*(rufinamide)
- *Epidolex*(CBD)
- *Onfi*(clobazam)
- *Sabril*(Vigabatrin)
- *Felbatol*(felbamate)
- *Keppra*(Levetiracetam)
- *Luminal*(phenobarbital)
- *Topamax*(topiramate)
- *Zonegran*(zonisamide)

**Rescue**

- *Ativan*(Lorazepam) – buccal paste
- *Valium*(Diazepam) – rectal
- *Versed*(Midazolam) – intranasal

* = Most commonly used

Intranasal Midazolam vs Rectal Diazepam for the Home Treatment of Acute Seizures in Pediatric Patients With Epilepsy. *Arch Pediatr Adolesc Med.* 2010; 164 (8); 747-753

Non-Pharmaceutical Treatments

Palliative
- Ketogenic Diet
- Modified Atkins’ Diet
- VNS
- RNS

Curative
- Resections
- Lobectomies
- Hemispherectomies/istomy
- Corpus Callosotomy
- Laser ablation

Rapid Seizure Response

Remember STAR

- S - S A F E T Y
  - Make sure the area is safe/clear of hazardous objects and minimize the number of people in the area.
  - Put something soft under the person’s head (if needed)
- T - TIME, TIME, TIME
  - Time how long the seizure lasts (at 5 mins obtain the seizure rescue medication)
  - 98% of seizures self-resolve by 5 mins
- A - ACT CAMLY
  - It’s important to keep your cool so you can help the person who is having the seizure.
- R - RECOVERY POSITION
  - Once the seizure has stopped, place the person in the recovery position. Stay with the person until they are conscious, breathing, and recovered.
  - Write details that you recall, if someone is with you have them write it too.

DON’T
- DON’T PANIC
- DON’T Put something in their mouth
- DON’T Give chest compressions/rescue breaths
- DON’T Worry about needing oxygen during a seizure
- DON’T Give rescue unless advised prior to 5 mins (98% of all seizures self-resolve)

How do I know?

Epileptic (rescue)
- Automatisms
  - No smacking, chewing, picking, repeat phrases, etc
- 5 phases (FETCP)
  - Flexion (5 sec)
    - Face or eyes open roll, mouth tight
  - Extension (10-30 sec)
    - Forced cry, apnea, thoracic and abdominal muscles contract, arms/legs adduct
  - Tremor (5-10 sec)
    - Fine motor proximally
  - Clonic (30-50 sec)
    - Muscles relaxation interspersed with tonic contractions “rhythmic jerking” this will decrease in frequency as seizure continues
  - Postictal (varies, 5-15 mins)
    - Incontinence may occur, breathing resumes, increased secretions, if cyanosis resolves, if present, slowly awakens = confusion, stupor, drowsy, even sleep

Nonepileptic (no rescue)
- Closed/squeezed eyes or blinking
- Asynchronous movements/shaking
- Can be interrupted (e.g. dental work)
- Drop (especially with protection)
- Tone (atlas/alecrum) (flaccid)
- UGS
- Fish Flopping
- Nonepileptic are real but treated differently
### Seizure Types

<table>
<thead>
<tr>
<th>Seizure Type</th>
<th>Absence</th>
<th>General Tonic Clonic</th>
<th>Simple Partial (Hink lobe)</th>
<th>Complex Partial</th>
<th>2a Generalized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>&lt;15 sec</td>
<td>2-3 mins</td>
<td>mins or &gt;&gt;</td>
<td>&gt; 30 sec - 2 mins</td>
<td>mins or &gt;</td>
</tr>
<tr>
<td>Frequency</td>
<td>Many/day</td>
<td>Variable wkly/mthly</td>
<td>Variable wkly/mthly</td>
<td>Variable wkly/mthly</td>
<td>Usually</td>
</tr>
<tr>
<td>Aura?</td>
<td>NO</td>
<td>NO</td>
<td>depends</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>LOC?</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>Altered</td>
<td>YES</td>
</tr>
<tr>
<td>Motor</td>
<td>Minor</td>
<td>YES</td>
<td>Varies</td>
<td>Automatisms</td>
<td>Auto - GTC</td>
</tr>
<tr>
<td>Post-ictal?</td>
<td>NO</td>
<td>YES</td>
<td>Variable</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>How Common</td>
<td>2-11%</td>
<td>7-12%</td>
<td>5-10%</td>
<td>18-90%</td>
<td>&gt;20%</td>
</tr>
<tr>
<td>Age onset</td>
<td>3.8 yrs/2-13 yrs</td>
<td>3 yrs/any</td>
<td>5 yrs/any</td>
<td>Varies</td>
<td></td>
</tr>
<tr>
<td>Prodromal?</td>
<td>NO</td>
<td>YES (day/hours)</td>
<td>Very</td>
<td>YES (day/hours)</td>
<td>YES</td>
</tr>
</tbody>
</table>

### Other Interesting Seizures Facts

- What do these types of seizures have in common?
  - Absence
  - BRE (Benign Rolandic Epilepsy)
  - Primary GTC
  - JME (Juvenile Myoclonic Epilepsy)
  - 1:10 – will have a single seizure
  - 1:26 – will have epilepsy

- Seizures presents with single side involvement, seizures are starting from the opposite side
- International Epilepsy Day – 2nd Monday of February
- National Epilepsy Awareness Month - November
- Purple Day – March 26th

### Helpful Websites

- [www.drugs.com](http://www.drugs.com)
- [www.medicalhomeportal.org](http://www.medicalhomeportal.org)
- [www.epilepsy.org](http://www.epilepsy.org)
- [www.epilepsyut.org](http://www.epilepsyut.org)
- [www.epilepsy.com](http://www.epilepsy.com)
Resources (too many to name all of them)

- Francis Filloux, M. D., Pediatric Neurologist and Division Chief of Pediatric Neurology at University of Utah School of Medicine, Primary Children’s Hospital.
- Colm Van Orman, M.D., Pediatric Epileptologist for Pediatric Neurology at University of Utah School of Medicine, Primary Children’s Hospital.
- Matthew Sweney, M.D., Pediatric Epileptologist for Pediatric Neurology at University of Utah School of Medicine, Primary Children’s Hospital.
- Kenneth “Kenny” Orton, patient with epilepsy
- 4 years as Pediatric Epilepsy Care Coordinator + 10 years of having a child with epilepsy