Electrographic Seizures vs Psychogenic Nonepileptic Events

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Objectives

- Definitions
- Causes
- Distinguishing features
- Treatment
- Cases (time permitting)
Definitions

Electrographic seizure

- Paroxysmal, transient episode of alteration in awareness, behavior, somatosensory, motor activity, or visual symptom that is caused by abnormal rhythmic electrical brain discharges
- ”Epileptic seizures”

PNEE

- Paroxysmal, transient episode of alteration in awareness, behavior, somatosensory, or motor activity that is not associated with abnormal rhythmic electrical brain discharges
- ”Psychogenic nonepileptic seizures”
- ”Pseudoseizures”
Causes

Electrographic Seizures
- Abnormal rhythmic electrical brain discharges

PNEE
- A subtype of conversion disorder
  - Neurologic symptoms or deficits in the absence of pathologic disease
- Psychological stressors manifest specifically as physical symptoms resembling electrographic seizures
Why does correct diagnosis matter?

- On average, 25% of referrals for intractable epilepsy diagnosed as PNEE
- Delay in correct diagnosis of PNEE on average between 1-7 yrs
- Unnecessary exposure to AEDs and potential negative side effects
- Unnecessary invasive treatment (e.g. intubation and sedation for perceived status epilepticus)
# Distinguishing Features on History*

<table>
<thead>
<tr>
<th>Electrographic seizures</th>
<th>PNEE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. (+/-) Epilepsy risk factors</td>
<td>1. Multiple Psychiatric risk factors</td>
</tr>
<tr>
<td>- Perinatal complication, developmental delay, febrile seizures, (h)x meningitis/encephalitis, (+FH)x seizures/epilepsy, (h)x significant/severe (TBI), (h)x stroke or known (CNS) lesion</td>
<td>- Uncontrolled depression, anxiety, (PTSD), bipolar, schizophrenia, or other psych conditions</td>
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<tr>
<td>- Very stereotypic so pts or family usually do not have a hard time describing history or event semiology</td>
<td>- (H)x past abuse, traumatic event, or assault</td>
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<tr>
<td>- (H)x chronic pain, (fibromyalgia)</td>
<td>- Pts or family may have a hard time describing history or event semiology or there are inconsistencies</td>
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</tbody>
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*No single feature is sensitive or specific for electrographic seizure vs PNEE, must take into account whole clinical picture.
Distinguishing Features on History*

- Electrographic seizures
- PNEE
  - Multiple AEDs at therapeutic doses not effective
  - +/- Pt exposure to someone close with epilepsy and has witnessed someone else’s seizures
  - Occurrence in doctor’s office

*No single feature is sensitive or specific for electrographic seizure vs PNEE, must take into account whole clinical picture
Distinguishing Features in Event Semiology*

Electrographic seizures
- Occur directly out of electrographic sleep architecture

PNEE
- Occur out of waking background activity when pt appears to be asleep
- High cluster of events w/in short amount of time or in 1 day

*No single feature is sensitive or specific for electrographic seizure vs PNEE, must take into account whole clinical picture
Distinguishing Features in Event Semiology*

**Electrographic seizures**
- Brief duration
  - Usually <1-2 minutes
- Eyes open
- Vocalization:
  - A brief guttural yell at beginning of a GTC sz

**PNEE**
- Long duration
  - >2 minutes
  - Waxing and waning over long period (15-30min or up to hrs)
- Eyes closed
- Vocalization:
  - Moaning throughout event, crying, coughing

*No single feature is sensitive or specific for electrographic seizure vs PNEE, must take into account whole clinical picture*
Distinguishing Features in Event Semiology*

Electrographic seizures
- **Motor activity:**
  - Stereotyped
  - Synchronous
  - Builds and progresses
  - LOC during a GTC seizure

PNEE
- **Motor activity:**
  - Variable direction, frequency, amplitude
  - Asynchronous
  - Waxes and wanes
  - Retained awareness or incomplete loss of consciousness during a whole body shaking event
  - Thrashing or flailing of limbs
  - Squirming or writhing
  - Facial grimacing
  - Forward pelvic thrusting
  - Side-to-side rolling
  - Side-to-side head or limb shaking
  - Back arching

*No single feature is sensitive or specific for electrographic seizure vs PNEE, must take into account whole clinical picture*
Treatment

- Electrographic seizures
  - AEDs and, if necessary, other more invasive epilepsy treatments (implanted devices or surgery)

- PNEE
  - Psychiatry and psychotherapy
  - **No AED** if pt does not have concomittant epilepsy or other beneficial indication (eg, mood stabilization or migraine prevention)
Interactive Cases
Case 1

- MM: 18 y/o RH woman
- Event Semiologies:
  - Stay tuned!
- Triggers:
  - Stay tuned!

Initial thoughts?
A. Electrographic seizures
B. PNEE
C. Need more information
Case 1

• MM: 18 y/o RH woman

• Studies:
  ▫ Stay tuned!

• Epilepsy Risk Factors:
  ▫ Stay tuned!

• Psychiatric Risk Factors:
  ▫ Stay tuned!
Case 2

- NL: 67 y/o RH woman
- Event semiology:
  - Stay tuned!
- Triggers:
  - Stay tuned!

- Initial thoughts?
  A. Electrographic seizures
  B. PNEE
  C. Need more information
Case 2

- NL: 67 y/o RH woman
- Event semiology:
  - Stay tuned!
- Triggers:
  - Stay tuned!

- Epilepsy Risk Factors
  - Stay tuned!
- Psychiatric Risk Factors
  - Stay tuned!
Case 2

- NL: 67 y/o RH woman
- Studies:
  - Stay tuned!
Case 3

• AN: 23 y/o RH woman
• Event semiology:
  ▫ Stay tuned!
• Triggers:
  ▫ Stay tuned!

• Initial thoughts?
  A. Electrographic seizures
  B. PNEE
  C. Need more information
Case 3

- AN: 23 y/o RH woman
- Event semiology:
  - Stay tuned!
- Triggers:
  - Stay tuned!

- Epilepsy Risk Factors:
  - Stay tuned!
- Psychiatric Risk Factors:
  - Stay tuned!
Case 3

- AN: 23 y/o RH woman
- Studies:
  - Stay tuned!
Case 4

TL: 57 y/o RH woman

- Event semiology:
  - Stay tuned!

- Triggers:
  - Stay tuned!

- Initial thoughts?
  A. Electrographic seizures
  B. PNEE
  C. Need more information
Case 4

TL: 57 y/o RH woman
  • Event semiology:
    ▫ Stay tuned!
  • Triggers:
    ▫ Stay tuned!

• Epilepsy Risk Factors:
  ▫ Stay tuned!
• Psychiatric Risk Factors:
  ▫ Stay tuned!
Case 4

- TL: 57 y/o RH woman
- STUDIES:
  - Stay tuned!
Case 5

- TN: 32 y/o RH man with intellectual disability and hx intractable epilepsy
- Event Semiologies
  - Stay tuned!
- Triggers:
  - Stay tuned!
- Epilepsy Risk Factors:
  - Stay tuned!
- Psychiatric Risk Factors:
  - Stay tuned!
Case 5

- TN: 32 y/o RH man with mild intellectual disability and diagnosis of intractable epilepsy
- Studies:
  - Stay tuned!
Thank you
References