Epilepsy, Seizures and paroxysmal disorders: Lessons for 2017

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Goals and Objectives

• New definitions and concepts: Epilepsy/Seizures/Paroxysmal Disorders
• Epidemiology of Epilepsy and Seizures
• Current concepts of anti-seizure therapy—
  • Applying these concepts in clinical practice — technology
• Seniors/Funny Spells/Seizures
• Paroxysmal disorders: “Ictal Aphasia vs TIA” and Non-epileptic seizures
Seizure

• About one in 8 of us will have at least one seizure if we live to be 80
• Any brain can make a seizure if it is sick enough
• “Acute symptomatic seizure” is the current term for a provoked seizure
• Provoked seizure are not epilepsy
Examples of acute symptomatic seizures

- Febrile convulsions in otherwise healthy infants and small children
- Hypoglycemic seizure
- Seizures associated with eclampsia or PRES
- K2 (synthetic marijuana)

A thoughtful evaluation is often warranted, and in Pennsylvania driving may be restricted but anti-epilepsy therapy not necessary.
When a patient presents with a single seizure?

- History- provocative factors?
- Examine for focal findings
- Lab work – in part dependent on age and location- ED- adults- standard labs plus tox screen
- Imaging- CT in the ED, MRI if outpatient setting
- EEG *essential* if unprovoked seizure
Epilepsy: 2017 definitions

• 2 or more unprovoked seizures
• Single seizure with 60% chance of ten year recurrence
  – What are the risk factors for developing epilepsy?

Clinical pearls

• Single seizure and specific syndromes
  – Single seizure plus EEG or clinical scenario highly associated with recurrence

• First presentation for seizure is often just the first recognition of epilepsy

• Epilepsy is more than just having seizures
Epilepsy is more than just having seizures

- People with Epilepsy (PWE) suffer with problems with:
  - Depression
  - Anxiety
  - Memory
  - Worsening cognitive dysfunction when seizures not controlled
  - Stigma

- Other co-morbidities:
  - Osteoporosis, poor self management skills, perhaps higher rates of stroke risk behaviors and worse atherosclerosis profile.

- Drug interactions
Matching the Medicine to the Patient

• Depression/memory loss: Lamotrigine, valproate, carbamazepine and cousins may be better choices
• Women’s reproductive health issues
• HIV: avoid drugs which induce retrovirals
• Some seizure medicines induce the P450 system—hence an issue for warfarin, oral contraceptives, HIV meds
• Complex vs easy titration schedules.
• Access to seizure medicine
First presentation for seizure is often just the first recognition of epilepsy

• JME or Juvenile Myoclonic Epilepsy:
  – 3 seizure types- TC, myoclonic, absence
  – When teen presents with TC, often myoclonic or other seizure types present for years

• Tonic clonic or Complex partial seizure presentation
  – Often patients have had aura or other symptoms prior to the first clearly recognized event
  – Family may have recognized space out spells or other odd events
  – History must include some open and closed ended questions

• Clinical Pearl: It seemed like it was the first seizure but it wasn’t. Therefore AED therapy is indicated.
Case Example

- 24 yo male graduate student noted to drive erratically home to family for Thanksgiving. Crashes into guard rail, air bags don’t go off, but has bitten tongue, peed and is hazy about events after the crash, first recognized event
- Hx childhood prolonged feb conv.
- Further questioning: has been having episodes déjà vu and epigastric rising when he stays up late preparing to defend thesis dissertation
- If the MVA a first seizure? A provoked seizure, or the worst seizure of many?
MRI findings: Temporal lobe

Left temporal lobe changes delineated by arrow
Case examples

- 72 yo farmer had a R MCA infarct 3 years ago. He recovered, still drives, lives on his farm. He presents to you after an observed seizure. He was aware of an odd sensation on the left, then eyes and head deviated to left, had brief stiffening and loss of awareness for some time.
- BP well controlled on Metoprolol, he also takes ASA 325 mg and Atorvastatin 40 mg
- Repeat MRI shows chronic infarct, labs were unremarkable.
- Will an EEG help?
- Will you treat with a seizure medicine?
- What drug will you choose?
- Can he drive in Pennsylvania?
Case Example

• 84 yo retired librarian has multiple cortical infarcts and cognitive impairment. She is now in assisted living, with her otherwise healthy 86 year old spouse. She has a daytime aide, no longer drives.
• She had a single confusional spell, but with clear head turning, drooling and posturing of the left arm in the context of a minor UTI (no fever).
• Meds: Coumadin, Lisinopril, Vitamin D, Donezipl
• Will you treat?
• Which drugs will you choose?
Making an accurate epilepsy diagnosis

• History, examination
• Asking, is this an acute symptomatic seizure?
• Imaging:
  • MRI with 1.5 Tesla scanner and thin sections through the temporal lobes
  • Pacemaker patients go to CT, though there are newer MRI compatible pacemakers
• EEG: routine 20 minutes, sleep deprived, 1 hour, home ambulatory and inpatient 24 hour options
• When seizures *not* controlled or diagnosis unclear refer to an Epilepsy Center
Case Example: using technology to confirm diagnosis

- 82 yo woman with well controlled HTN, HLD has been to various ED three times for TIA characterized by aphasia with R facial droop, drooling.
- MRI x 3 shows small amount ischemic white matter changes
- Carotid Ultrasound- no significant stenosis
- ECHO: normal EF 55%, no pathology
- LDL 110, HgbA1c 4.8
- Round 1- starts ASA
- Round 2 switches to Plavix, gets loop recorder
- Round 3: dual antiplatelet and has ECHO with bubble study
- Round 4: EEG shows L temporal sharp waves and Left temporal focal slowing. Low dose Keppra is started and no further events occur
- Alternative strategy if events frequent: 1 hour EEG, ambulatory EEG or 24 hour EEG depending on what technology is available to you
Inpatient Video EEG Monitor

Trained techs or nurses watch cameras and EEG. Software can also be used to identify spikes. Similar technology for bedside EEG critical care EEG monitor.
Paroxysmal events of uncertain nature

- History is critical
- How frequent are events
- What technology is available to you and appropriate to the patient
- Can you capture an event
Basic principles of AED selection

• Make sure that the diagnosis is seizure /epilepsy
• Is medicine indicated?
• Does the medicine treat the type of seizure in question?
• Does the medicine fit with the other patient aspects- patient focused care
• Generics vs not
2017 Treatment concepts

- The vast majority of AEDS are now available on generic
- Some are broad spectrum:
  - Keppra/Levetiracetam
  - Lamictal/lamotrigine
  - Topamax/Topiramate
- Use the tools available to you:
  - Epilepsy.com
  - North American pregnancy registry
  - Seizuretracker.com
- Send the patient to an epilepsy center for advanced care
Advanced epilepsy therapies

EEG monitoring to secure the diagnosis
Epilepsy surgery
Laser ablation therapy Vagal Nerve stimulator
Neuropace implantable device when surgery isn’t an option
Conclusions

• New definitions of epilepsy
• Recognition of the co-morbidities of epilepsy
• Patient focused care in Epilepsy
• Recognize when the diagnosis is in question or Epilepsy is not controlled
• Refer for expanded evaluation, refining the diagnosis or new therapies