Seizure Rounds with S.Khoshbin M.D.

Disclosures: NONE

Case 1:
45 yo male while jogging with his wife stopped, acted strangely for a while then fell to the ground and had a convulsion. EMT’s were called by a passerby and he was brought to the ER

Issues in this case
Was this a seizure? Epilepsy?
Driving and Epilepsy
Sleep deprivation and seizures
Treating the first seizure
Workup of the first seizure

Generalized Seizures
(Loss of consciousness, convulsive, non-convulsive)
- Generalized tonic-clonic convulsions
- Clonic
- Tonic
- Absence (simple, complex)
- Myoclonic
- Atonic

Standard AEDs
- Phenytoin (Dilantin)
- Carbamazepine (Tegretol)
- Valproate (Depakote)
- Clonazepam (Klonopin)
- Ethosuxamide (Zarontin)
- Phenytoin (Dilantin)
- Primidone (Mysoline)

New AEDs
- Fosphenytoin (Cerebyx)
- Felbamate (Felbatol)
- Gabapentin (Neurontin)
- Lamotrigine (Lamictal)
- Tiagabine (Gabitril)
- Topiramate (Topamax)
- Oxebarbazepine (Trileptal)
- Levetiracetam (Keppra)
- Zonisamide (Zonegran)
### Broad spectrum AED’s

<table>
<thead>
<tr>
<th>Drug</th>
<th>Benefit</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valproate (VPA)</td>
<td>IV, PR forms Migraine/bipolar</td>
<td>Interaction/PRETTG Hep Toxic, hair loss, teratogenic</td>
</tr>
<tr>
<td>Lamotrigine (LTG)</td>
<td>qd/bid dosing Drug rash Interaction: PB, PHT, VPA</td>
<td></td>
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<tr>
<td>Zonisamide (ZNS)</td>
<td>qd/bid dosing Interaction: few Renal stones</td>
<td></td>
</tr>
<tr>
<td>Topiramate (TPM)</td>
<td>bid dosing Interaction: few Cognitive difficulties, Renal stones</td>
<td></td>
</tr>
</tbody>
</table>

### Evaluation

- Blood work - CSF
- Electroencephalography
  - Special leads
  - Activation (HV, PS, sleep, drug withdrawal)
  - Long-term monitoring (video EEG)
  - Cortical mapping
- Neuroimaging (MRI, fMRI, CT, PET, SPECT)
- Neuropsychological evaluation

### Case 2:

75 yo male noticed an unusual sensation in his left leg “reflex difference” while driving.
He then entered a paint store dragging his foot, his foot started jerking uncontrollably for a few seconds

### Issues in this Case

- Seizure vs TIA
- Stroke and Epilepsy
- Epilepsy in the elderly
- Anticonvulsant use in the elderly

### Simple Partial Seizures

*(Consciousness not impaired)*

- Simple motor (Jacksonian, march) Adversive
- Simple sensory
  - Special sensory
  - Somatosensory
- Autonomic
- Psychic

### Case 3:

21 yo Nursing student working in the hospital was found unconscious in the medication room
Issues in this case
Seizures vs cardiogenic syncope
Epilepsy in women

Epilepsy in Women
• Special issues at menarche-during menstrual cycles
• Adolescent issues-sexual function-contraception
• Pregnancy-conception-AED teratogenicity-postpartum
• Menopause-HRT-bone density

Case 4:
23 yo Medical Student collapsed while observing surgery

Issues in this case
Seizures vs vaso-vagal syncope
Epilepsy and alcohol
Epilepsy and substance abuse

Case 5:
35 yo car salesman ha had a number of episodes of sudden nausea. At one point did not respond to a customer during a test drive. His employer wants a Medical clearance

Issues in this case
Seizures vs Migraine
Imaging in Epilepsy
Case 6:
28 yo shoe store clerk starts groaning while on the phone. He then starts wandering aimlessly. He assaults a coworker who tries to help him.

Issues in this case
- Epilepsy and aggression
  - Ictal Behaviour
  - Interictal Behaviour

Complex Partial Seizures
*(Consciousness impaired)*
- CPS with motor symptomatology (frontal-temporal) absence, automatisms, adversion
- CPS with sensory symptomatology (parietal-temporal-occipital) somatosensory, primitive visual, dizziness
- CPS with cognitive symptomatology (temporal-occipital-limbic) amnesia, deja vu, jamais vu, macropsia, micropsia, teleopsia
- CPS with affective symptomatology (temporal-limbic) fear, depression, sexual excitement, rage

Case 7:
15 yo high school student treated for seizures since age 2 with carbamazepine has had increasing frequency of seizures. Phenytoin and Valproate have been added with no improvement

Issues in this case
- Epileptic vs non epileptic seizures
- Polypharmacy
- Refractory Epilepsy

<table>
<thead>
<tr>
<th>Epileptic</th>
<th>Non-epileptic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ictally unresponsive</td>
<td>Ictally responsive</td>
</tr>
<tr>
<td>Brief</td>
<td>Prolonged</td>
</tr>
<tr>
<td>Injury common</td>
<td>Injury uncommon</td>
</tr>
<tr>
<td>Urinary incontinence</td>
<td>Fecal incontinence</td>
</tr>
<tr>
<td>All ages</td>
<td>10-40 years of age</td>
</tr>
<tr>
<td>Male &gt; Female</td>
<td>Female &gt; Male</td>
</tr>
<tr>
<td>Speech arrest</td>
<td>Appeal to emotions</td>
</tr>
<tr>
<td><em>Epileptic cry</em></td>
<td>Conversant</td>
</tr>
<tr>
<td>Bilateral movements</td>
<td>Alternating movements</td>
</tr>
<tr>
<td>Symmetric</td>
<td>Pelvic thrusting</td>
</tr>
<tr>
<td>Unprovoked</td>
<td>Suggestible</td>
</tr>
<tr>
<td>↑ Prolactin</td>
<td>Negative Babinski</td>
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</tbody>
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## Behavioral Symptom Analysis

- **Prodromal** (long duration - 2-3 days before seizure)
- **Ictal** (brief duration, consciousness, motor, sensory, and autonomic symptoms)
- **Postictal** (brief to long duration, sleep and headache)
- **Interictal** (intermittent, episodic, or persistent)
- **Forced normalization** (with cessation of seizure and normal EEG)

## Geschwind’s Syndrome

**Van Gogh’s Malady**

- Hypergraphia
- Religiosity
- Aggressivity
- Altered sexuality
- Viscosity

## Surgery

- **Topectomy** (cortex)
- **Lobectomy** (cortex, subcortical), (mesial temporal sclerosis)
- **Collostomy** (multifocal)
- **Hemispherectomy** (catastrophic epilepsy, Rasmussen Encephalitis)

## Differential Diagnosis

- **Syncope** (cardiac, non-cardiac)
- Migraine
- TIA
- Transient global amnesia
- Sleep disorders
- Movement disorders
- Episodic toxic/metabolic disorders
- Episodic psychiatric disorders
- Behavioral seizures