Epilepsy and Seizures: Causes, Classification and Diagnosis

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Evaluation:
- History/Exam
- EEG
- Imaging

Controlled
- Video-EEG
  - Non-epileptic Events
    - Refer
  - Epilepsy
    - Medical Management
    - Surgical Management

Not Controlled
Epilepsy and Seizures: Definition

- What is epilepsy?
- What is a seizure?
Incidence of Seizures and Epilepsy (how frequent)

- Epilepsy: 0.5-1%
- Seizures: 5-10%
Causes of Seizures

- **Epileptic**
- **Non-epileptic**
  - **Physiologic**
    - Seizures: Syncope, low sugar, toxic.
    - Look like seizures: transitory stroke, febrile seizures, migraines, sleep disorders, movement disorders, G-I (reflux)
  - **Psychological**
Causes of Epilepsy

- Idiopathic (unknown)
- Symptomatic (known)
  - Head injury
  - Stroke
  - Tumor
  - Infection
  - Metabolic
  - Genetic
Causes: investigation

- Blood work
- Imaging: CT, MRI
- EEG
- Genetic testing
Classification of Seizures

- Partial
  - Simple
  - Complex

- Generalized
  - Absence
  - Atonic
  - Clonic
  - Tonic
  - Tonic-clonic
  - Myoclonic
Seizure Components

- Aura
- Seizure
- Postictal phase (after the seizure)
- Precipitants
- Patterns
- Frequency
Classification of Epilepsies

- **By Location:**
  - Partial (focal, localization-related)
  - Generalized

- **By Cause:**
  - Idiopathic (unknown)
  - Cryptogenic (unknown but suspected)
  - Symptomatic (known)
Evaluation...A Team Approach

- Initial intake by epileptologist
  - Patient/family history
  - Physical exam
  - Review of records
Plan to include...

- Testing
  - EEG, labs
- Imaging
  - MRI, CT
Diagnosis and Control

- Diagnosis is clear
- Patient placed on anti-epileptic drug appropriate for type of epilepsy
The Poorly Controlled, Intractable Seizure Patient

- Despite medical management, patient continues to have frequent, debilitating seizures
- Commonly on polytherapy (more than one medication)
Video-EEG Monitoring

- Continuous EEG monitoring along with continuous audio-video taping
- Requires inpatient admission
Goals of Video-EEG Monitoring

- Epilepsy vs. non-epileptic events
- Characterize epilepsy type
- Pre-surgical evaluation
Non-Epileptic Events

- 20 to 30% of patients referred with diagnosis of intractable epilepsy
- Events that do not have electrical source in brain
- May have physical or psychological causes that are not epilepsy
- But CAN also occur in patients who have epilepsy
Non-epileptic events

- Physiologic (other medical conditions)
  - Referred to other medical specialist

- Psychological
  - Referred to psychiatry and neuropsychologist who work with this type of stress-seizure
  - Psychiatric medication, psychotherapy, education