GOAL OF TALK

- Present different types of seizures
- Present different types of mood disorders
- Illustrate the relationship between seizures and mood disorders
- Discuss treatment options
**Some Basic Types of Seizures**

- Generalized tonic / clonic seizures

- Partial seizures
  - Simple
  - Complex

- Absence seizures
Simple partial seizures
OF THE MOTOR CORTEX

- Jerking movements in the contralateral body part

- Supplementary motor cortex
  - Causes head turning with arm extension on the same side "fencer’s posture"
PARIETAL LOBE

- Tingling and numbness
- Astomatognosia - sense of absence of one side of the body
- Vertigo
- Disorientation and spatial relationships - inferior regions of the parietal lobe
- Language disturbance - dominant hemisphere parietal lobe
OCCIPITAL LOBE

- Elementary visual hallucinations – Flashes of color, shapes.

- Border of occipital and temporal lobe
  - Micropsia – Things appear smaller than they are
  - Macropsia – Things appear larger than they appear
  - Metamorphopsia – Things appear distorted in shape, different size, or a different location than they are
  - Visual hallucinations of previously experienced imagery
TEMPORAL LOBE

- Most common site
  - ~ 80% of partial seizures
- Symptoms
  - Auditory hallucinations
    - Simple sounds → Complex language
  - Olfactory hallucination
    - Unpleasant odors
  - Gustatory sensations
    - Bad taste
  - Epigastric sensations
    - Nausea or emptiness
  - Mild emotional and psychic phenomena
    - More common in complex partial seizures
COMPLEX PARTIAL SEIZURES
PERIICTAL SYMPTOMS

- **Prodrome**
  - Lasts hours - days before seizure
  - Nervousness, irritability

- **Aura**
  - Harbinger of seizure
  - Symptoms
    - Hallucinations
    - **Intense affective symptoms**
    - Cognitive symptoms
    - Distortions of memory
      - Dreamy states
      - Flashbacks
      - Déjà vu or jamais vu
    - Panoramic vision
      - Your life flashes before your eyes
    - Rage
      - Rare
      - Unprovoked, abates abruptly

- **Postictal**
  - Confusion
  - Lasts 10 minutes or longer
Ictal Symptoms

- Impaired consciousness
- Lasts 60-90 seconds
- May generalize to tonic / clonic seizure

- Automatisms
  - Chewing or swallowing
  - Lip smacking
  - Grimacing
  - Fumbling with objects
  - Walking
  - Trying to stand up
Depression
MAJOR DEPRESSIVE DISORDER: DSM-IV-TR

- 5 or more present during the same 2-week period (at least one of the first 2 symptoms):
  - Low mood
  - Anhedonia
  - Change in weight >5% body weight / month
  - Abnormal sleep
  - Psychomotor disturbance
  - Low energy
  - Worthlessness / guilt
  - Poor concentration
  - Recurrent Suicidal Ideation

- Not Bipolar Affective Disorder

- Causes distress and/or impairs functioning

- Not Substance Induced Mood Disorder or Mood secondary to General Medical Condition

- Not Bereavement
DEPRESSION AND EPILEPSY

- Both have hippocampal atrophy
- Both have change in structure of amygdala
- Both have programmed cell death in hippocampal formations
- Both have abnormalities on imaging
  - Positron Emission Tomography
    - 5HT-1A (serotonin 1A) receptor binding decrease in frontal, temporal, and limbic cortex in both depression and Temporal Lobe Epilepsy
- Electroconvulsive Therapy efficacy
CLINICAL MANIFESTATIONS OF DEPRESSIVE DISORDERS IN EPILEPSY
COMORBIDITY

- Epileptics have 5-20 x risk of developing mood disorder

- Mood d/o patients have 4-7 x risk of developing epilepsy

Prevalence
- Depression in epilepsy is 17.4% vs. 10.7% (general population)
- Any mood disorder in epilepsy is 24.4% vs. 13.2% (general population)
Basic Symptoms

- Sadness, crying bouts, feelings of anhedonia and irritability

- Some meet criteria for Major Depressive Disorder or Bipolar Affective Disorder
  - 25-50% fail to meet DSM-IV-TR criteria
**EPISODES: PREICTAL**

- **Preictal**
  - Starts 3 days prior to seizure
    - Worse 24 hours prior to seizure

- **Postictal**
  - 43% have symptoms of depression within 3 days postictal
    - 66% are within first 24 hours postictal
**Ictal**

- **Auras**
  - Psychiatric symptoms occur in 25% of auras
    - 15% involve mood or affect changes

- **Difficult to recognize as epileptic**

- **Typical presentation**
  - Brief, stereotyped, occur out of context, associated with other ictal phenomena
  - Most frequent symptoms are anhedonia, guilt, and suicidal ideation
  - Followed by alteration of consciousness
INTERICTAL:
INTERICTAL DYSPHORIC DISORDER

- More frequent than ictal and periictal
  - 66% of depressed epileptics

- Symptoms
  - Irritability intermixed with euphoric mood
  - Fear, anxiety, anergia, pain, insomnia
  - Anhedonia, poor frustration tolerance, mood lability
  - Some have sleep disturbance, change in appetite, poor concentration

- Waxing and waning course, repeated, interspersed, symptoms-free periods (1 - several days duration)
IMPACT OF DEPRESSIVE DISORDERS ON EPILEPSY

- History of depressive disorder is predictor of a more severe form of epilepsy
  - 2.2 x likely to have epilepsy that is resistant to Antiepileptics
  - Associated with more likelihood of recurrence of epilepsy after surgical removal of focus.

- Depressive disorder is a risk factor for the development of suicidal ideation, behavior, and completed suicide

- Depressive disorder is an independent predictor of poor quality of life.
**Suicidality in Epilepsy**

- Lifetime prevalence of suicide in general
  - 1.1-1.2 %
    - Of attempts – 1.1-4.6%

- Epileptics have 3 x risk of committing suicide
  - Highest risk if they have comorbid depression
    - 32 x risk of committing suicide

- Lifetime prevalence of suicidal ideation in epileptics - 25%

- Lifetime prevalence of suicidal ideation and suicide attempts in epileptic - 5-14.3%
  - Temporal Lobe Epileptics have suicide rates 6-25x that of general population.
**Variations of Suicidality in Epilepsy**

- **Bidirectional**
  - Prior history of suicide associated with 5x increased risk of developing epilepsy

- **Suicidal ideation (SI) as postictal phenomenon**
  - 13% had SI after 50% of seizures over past 3 months
  - Last 0.5-108 hours (median length – 24 hours)
  - 77% have past history of Major Depressive Disorder or Bipolar Affective Disorder

- **SI as complication of interictal psychiatric disorders**
  - Of those with interictal psychiatric disorders
    - 12.2% prevalence rate of current SI
    - 20.8% lifetime prevalence of suicide attempts
  - Depression and anxiety most predictive of current SI.
SUICIDALITY DUE TO MEDICATION

- Antiepileptic drugs (AEDs)
  - Barbiturates
  - Topiramate, zonisamide, Keppra, vigabatrin, felbamate

- Discontinuation of mood stabilizing AEDs

- Forced normalization presenting as Major Depressive Disorder

- January 2008 FDA
  - Association between suicidality and AEDs
    - Warning issued for all AEDs, but only topiramate and lamotrigine were significant
PSYCHOLOGICAL REACTION TO EPILEPSY

- Learned helplessness occurring in epilepsy as a consequence of repeatedly experiencing unpredictable and unavoidable seizures

- Stress of having to live with stigmatized chronic illness
TREATMENT

- Selective Serotonin Reuptake Inhibitors (SSRIs) and other antidepressants are safe
  - Exceptions
    - Bupropion
    - Amoxapine
    - Mianserin
    - Clomipramine
    - Any antidepressant taken as overdose
    - Tricyclic agents also lower seizure threshold
      - More likely to cause seizures than bupropion

- SSRIs and Serotonin Norepinephrine Reuptake Inhibitors have a protective effect against seizures.

- Venlafaxine and mirtazapine show promise.

- Patients given antidepressant treatment had significantly lower seizure occurrence.
Citations
CITATIONS

