

**SEIZURES and
Developmental Disabilities**

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OBJECTIVES:

- Define epilepsy, seizure types and those most at risk
- Explain treatment options and first aid for seizures
- Describe the issues that complicate diagnosis and treatment in persons with DD
- Describe disorders that mimic seizures
- Distinguish frontal lobe seizures from intentional behaviors
- Describe use of non-convulsive ictal signs checklist
- Define seizure observations and reporting elements helpful to physicians
- Describe ways that ictal events differ from intentional behaviors
- Learn when to refer clients to neurological specialists

EPILEPSY is a disorder characterized by recurring seizures (also known as “seizure disorder”)

A SEIZURE is a brief, temporary disturbance in the electrical activity of the brain

A seizure is a symptom of epilepsy

WHO HAS EPILEPSY?

- About 2.2 million Americans have Epilepsy
- Roughly 180,000 new cases of seizures and epilepsy occur each year
- 50% of people with epilepsy develop seizures by the age of 25; however, anyone can get epilepsy at any time
- Now there are as many people with epilepsy who are 60 or older as children aged 10 or younger

WHAT CAUSES EPILEPSY?

- In about 70 % of people with epilepsy, the cause is not known
- In the remaining 30 %, the most common causes are:
 - Head trauma
 - Infection of brain tissue
 - Prenatal disturbance
 - Brain development
 - Heredity
 - Lead poisoning
 - Brain tumor and stroke

Groups at Increased Risk for Epilepsy

- About 1 % of the general population develops epilepsy
- The risk is higher in people with certain medical conditions:
 - Mental Retardation
 - Cerebral Palsy
 - Alzheimer's Disease
 - Stroke

EPILEPSY & DEVELOPMENTAL DISABILITIES

- Seizure disorders affect one in three people with developmental disabilities
- The brain damage that causes the disability is often also responsible for seizure activity

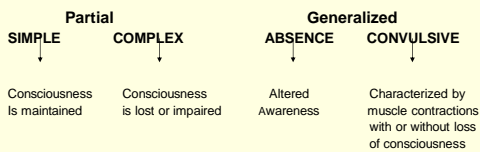
How Is Epilepsy Diagnosed?

- Clinical Assessment
 - Patient History
 - Tests (blood, EEG, CT, MRI, or PET scans)
 - Neurological Exam
- Identification of seizure type or types
- Clinical evaluation to look for causes

Classifying Epilepsy and Seizures

Classifying epilepsy involves seizure type and clinical presentation

Seizure types:



TYPES of GENERALIZED SEIZURES

- **Absence (Petit Mal)**
Brief Onset (2-15 Seconds) Episodes of staring and inability to respond
- **Atonic Seizures**
Brief (15 seconds or less) Sudden loss of muscle tone, falls or drops things
- **Tonic Seizures**
Brief (20 seconds) bilateral stiffening of body and upper arms
- **Myoclonic Seizures**
Brief, bilateral jerk of neck, shoulders, body and upper legs
- **Generalized Tonic-Clonic Seizures (Grand Mal or Convulsive)**
Loss of consciousness
Tonic phase, Stiffening --- Falls --- Cries Out--- Clonic phase, (jerking)

PARTIAL SEIZURES

- **Simple Partial** (consciousness not impaired)
 - Auras
 - Alert, able to respond to questions or directives (response may be slowed)
 - Affects movement, sensations, emotions
- **Complex Partial**
(symptoms relate to the part of the brain affected)
 - Automatisms
 - Impaired consciousness and recall
 - Last 30 seconds to three minutes
 - Malaise and confusion usually occurs for 15 minutes or more after the seizure

Simple Partial and Complex Partial Seizure may secondarily generalize

Status Epilepticus – Seizure lasting longer than 30 minutes or clusters of seizures without recovery of consciousness between events

SEIZURE TRIGGERS

- Missed medication (# 1 reason)
- Stress / anxiety
- Hormonal changes
- Dehydration
- Lack of sleep/extreme fatigue
- Photosensitivity
- Drug/alcohol use; drug interactions

TYPES OF TREATMENT

- Medication
- Surgery
- Non-pharmacologic treatment
 - Ketogenic Diet
 - Vagus Nerve Stimulation
 - Lifestyle Modifications

TOLERATING MEDICATIONS

Most Common Side Effects

Rash
Clumsiness
Drowsiness
Irritability
Nausea

Side effects may be related to dose
Care must be taken in discontinuing drug due to risk of seizure recurrence

Warning Signs of Possible Serious Side Effects

Prolonged fever
Rash, nausea/vomiting
Severe sore throat
Mouth ulcers
Easy bruising
Pinpoint bleeding
Weakness
Fatigue
Swollen glands
Lack of appetite
Abdominal pain

SURGERY

Factors influencing decision:

- Likelihood seizures are due to epilepsy
- Likelihood surgery will help
- Ability to identify focus of seizures
- Other treatments attempted
- Benefits versus risks

Ketogenic Diet

- Based on finding that starvation – which burns fat for energy – has an antiepileptic effect
- Used primarily to treat severe childhood epilepsy, has been effective in some adults & adolescents
- High fat, low carbohydrate and protein intake
- Usually started in hospital
- Requires strong family commitment

Vagus Nerve Stimulation

- Device is implanted to control seizures by delivering electrical stimulation to the vagus nerve in the neck, which relays impulses to widespread areas of the brain
- Used to treat partial seizures when medication does not work

* Courtesy of Cyberonics Inc.

Issues That Can Complicate Treatment for Persons With Developmental Disabilities

- Person unable to describe seizure / event
- Observers unfamiliar with epilepsy
- Person has more than one seizure type
- Person has communication/cooperation issues
- Stereotyped motor/other abnormal behavior may be confused with complex partial seizures
- May have greater likelihood of adverse drug effects producing:
 - behavioral changes
 - personality changes
 - motor changes

COMPLEX PARTIAL SEIZURES

- SPEAK CALMLY and REASSURINGLY
- DO NOT GRAB OR RESTRAIN
- SHEPHERD and GUIDE AWAY FROM HAZARDS OR CROWDS
- REMEMBER THAT THREATENING BEHAVIOR IS INVOLUNTARY!
- STAY WITH PERSON UNTIL FULLY RECOVERED
- IF CONFUSION IS CONSTANT and UNREMITTING, CALL FOR MEDICAL ASSISTANCE

FIRST AID FOR GTC SEIZURES

- Stay calm and track time
- Do Not restrain person, but help them avoid hazards
 - Protect head, remove glasses, loosen tight neckwear
 - Move anything hard or sharp out of the way
 - Turn person on one side, position mouth to ground
- Check for epilepsy or seizure disorder ID
- Understand that verbal instructions may not be obeyed
- Stay until person is fully aware and help to reorient
- Call Emergency Medical Services if seizure lasts more than 5 minutes or if it is unknown whether the person has had prior seizures

Potentially Dangerous Responses to Seizure

DO NOT !

- Put anything in the person's mouth
- Try to hold down or restrain the person
- Attempt to give oral anti-seizure medication
- Keep the person on their back face up throughout convulsion

COMORBIDITY WITH PSYCHIATRIC DISORDERS

- Psychiatric disorders are seen in 30-40% of persons with mental retardation/developmental disorders
- In persons with profound DD, psychiatric disorders may be misdiagnosed as epileptic events
- Some antiepileptic medications, which are effective in psychiatric disorders, may add to the confusion
- Psychotropic medications may decrease the threshold for epileptic seizures
- Adverse effects of psychotropic meds may resemble seizures (eg. myoclonus)

DISORDERS THAT MAY MIMIC EPILEPSY

- Loss of REM Sleep—related atonia behaviors—may include punching, kicking, running, yelling or any behavior that may occur during a dream
- Rhythmic Movement Disorder—movement occurs before sleep onset, stereotyped, may include head banging, body rocking, humming, chanting (seen in young children especially those with mental disabilities and autism)
- Panic Disorder--1% to 3% of population with MRDD, most occur during the day, 2.5% occur at night only
- Obstructive Sleep Apnea—loud snoring, attempts to catch breath (impairs quality of sleep)
- SYNCOPE- (fainting) Due to inadequate blood flow to the brain or blood chemistry, Usually of short duration
- Narcolepsy
- Hyperventilation
- Temper Tantrums

NONEPILEPTIC SEIZURES (NES)

NES Has been documented in 30-40 % of persons with DD referred for evaluation of epilepsy in comprehensive centers.

PHYSIOLOGIC NONEPILEPTIC EVENTS— may be cardiac rhythm disturbances, strokes, respiratory issues, metabolic causes, etc.

PSYCHOGENIC NONEPILEPTIC SEIZURES

Seizures are real but have no physical cause
May be physical reactions to psychological stressors
Persons do not have voluntary control over seizures
Some persons have both epileptic and non-epileptic seizures

EPILEPSY MONITORING UNIT

Simultaneous video and EEG recordings

Differential Diagnosis in Adults with DD no different, but can be more challenging due to:

- Inability of person to communicate
- Caregivers have no idea what involuntary episodes look like
- Misinterpretation of movements or sounds as deliberate acts
- Viewing aggressive or self-injurious behaviors as intentional
- Differentiating "ictal aggression" from aggression displayed during post-ictal confusion or psychosis

Presentation Resources

Epilepsy Foundation of America
Journal of American Academy of Family Physicians
Risk Among Children; Epidemiology of MR; M. D'Amelio, S Shinnar and WA Hauser

THANK YOU
