Medications for Epilepsy: Choices, Chances and Changes

Rohit Marawar, MD
Assistant Professor & Adult Epilepsy Specialist
Wayne State University, Detroit Medical Center
Disorder VS Symptoms

• Epilepsy is the disorder
• Seizures are the symptoms

Like

• Pneumonia is the disorder
• Fever and cough are the symptoms
Anti-Epileptic Medications OR Anti-Seizure Medications

• Medications for epilepsy prevent the seizures from occurring
• They do not treat the underlying reason that is causing seizures or epilepsy in the first place
• Tylenol for fever but we do not have the “antibiotics” for epilepsy like we have for pneumonia
How do medications work?

• Two main mechanisms

• Prevent Excitation of Neurons

• Increase Inhibition within Neurons
Goals of Medication Use

• No seizures
• No side effects
• With the least amount of medication possible
CHOICES
How many medications do we have?

20+
Which is the best medication?

• No such thing as the best medication

• Every person responds to a different medication
Which is the best medication?

- Childhood absence epilepsy

Ethosuximide
Which is the best medication?

- Juvenile myoclonic epilepsy

- Valproic Acid
- Lamotrigine
- Topiramate
How do physicians choose a medication?

• Type of seizures/epilepsy
  • Focal vs Generalized - How is that decided
    • Your seizure story
    • EEG
    • Brain imaging – CT, MRI
How do physicians choose a medication?

• Other medical conditions
  • Migraine
  • Neuropathy
  • Mood issues
  • Kidney problems
  • Liver problems
How do physicians choose a medication?

- Sex - Male vs Female
How do physicians choose a medication?

• Long-term side effects
  • Older medications
How do physicians choose a medication?

- Existing medication
  - Any interactions?
How do physicians choose a medication?

• Brand name vs Generic

• Two recent trials showed no difference between
  • Brand name lamotrigine (Lamictal) and generic lamotrigine
  • Between two commonly available generic lamotrigine formulations

Privitera 2016, Ting 2015
How do physicians choose a medication?

• How many times a day?
  • Less often = Less likely to forget
How do physicians choose a medication?

- Age
  - Young
    - Children need a variable dose
    - Might need a syrup or something that can be given with food like applesauce
    - Liver and kidney function is different than adults in the very young
  - Old
    - They are already on multiple meds. Need meds that do not interact.
    - Once a day med helps with compliance
    - Liver and kidney function is different than adults
How do physicians choose a medication?

- Rational Polypharmacy
  - Combine medications with different mechanisms of action
  - Theoretical, Not proven
    - Except Valproic Acid + Lamotrigine
How do physicians choose medication dose?

• Lowest possible dose
• Start at a low dose
• Increase dose as needed for seizure freedom without intolerable side effects
• Note interactions with other medications that can increase or decrease blood level
• Blood levels of drug are a rough guide
  • Do not change medication dose solely based on levels....instead use presence of seizures or side-effects as a guide
Chances
How do I know medication is working?

• No seizures
  • 2-3 times inter-seizure interval

All these other Moms are talking about honor roll, dance recitals, softball games and I'm over here like "Woohoo!, No Seizures Today!"
What are the chances that I will be respond to the medication?
What are the chances that I will be respond to the medication?

- ~ 50% will respond to the first medication that they take
- ~ 15% will respond to the second medication that they take
- Any subsequent medications are unlikely to lead to seizure freedom
- One third will not respond to medications

Kwan & Brodie 2000
Medications and Seizure Freedom Over the Years

- Bromide
- Phenytoin
- Ethosuximide
- Carbamazepine
- Valproic Acid
- Lamotrigine
- Gabapentin
- Felbamate
- Zonisamide
- Ocarbazepine
- Levetiracetam
- Tiagabine
- Topiramate
- Brivaracetam
- Perampanel
- Zonisamide
- Engalbine
- Clobazam
- Lacosamide
- Pregabalin
- Vigabatrion
- Rufinamide

# AEDs
 Patients seizure free on AEDs
What are the chances I will have side effects?

• Large variability between medications and different type of side effects
• More likelihood if you are on multiple meds – seizure meds or even other meds
• Important to communicate with physician if the side effects are tolerable or not
What are the options if medications do not stop seizures?

• First and foremost – see an Epilepsy specialist
  • To confirm diagnosis
  • To confirm type of Epilepsy
  • To confirm tried medications are appropriate and at appropriate dose
What are the options if medications do not stop seizures?

• Surgery – Best chance for long-term seizure freedom
What are the options if medications do not stop seizures?

• Devices
  • Vagus Nerve Stimulator (VNS)
  • Responsive Nerve Stimulator (RNS) *Neuropace*
What are the options if medications do not stop seizures?

- Diet – Ketogenic diet, Modified Atkins diet
What are the options if medications do not stop seizures?

• Medical Marijuana
How can I, as a person with seizures, improve my **chances** of seizure freedom?

- Take your medications as you are supposed to
- Keep a seizure diary
- Reach out to your physician if you experience seizures or side effects
Changes
When do I make medication changes?

- Still having seizures
  - Even 1 seizure can prevent you from driving for 6 months
  - Even 1 seizure can cause injury
When do I make medication changes?

- Having intolerable side-effects
- Quality of life is important
When do I make medication changes?

• When you have been seizure free for a while
  • Two years
Freedom Wellness