How well versed are you in various epilepsy treatments? Our quiz covers medications and non-drug treatments.

1. Which of the following third-generation antiepileptic drugs (AEDs) is FDA approved as monotherapy for focal epilepsy?

A. Lacosamide
B. Rufinamide
C. Ezogabine
D. Esclicarbazepine

Click here for answer and next question.

Answer: A. Lacosamide
In 2014 the Food and Drug Administration approved lacosamide (LSM) as monotherapy in the treatment of focal epilepsy. LSM can be used as initial monotherapy in newly diagnosed epilepsy or in patients who are converting from combination therapy to monotherapy. The advantage of using LSM as monotherapy is that it could decrease side effects and improve adherence. In addition, no drug interactions between LSM and other AEDs or other medications have been reported. LSM is available in an oral formulation and an IV formulation that can be used in status epilepticus. Other third-generation AEDs that have been FDA approved in the last five years include rufinamide, ezogabine, eslicarbazepine, and perampanel.

2. Which of the following third generation AEDs carries an FDA boxed warning for serious psychiatric reactions?

A. Lacosamide
B. Rufinamide
C. Percampanel
D. Ezogabine

Click here for answer and next question.

Answer: C. Percampanel
Percampanel (PER) carries an FDA boxed warning for serious psychiatric reactions, which include aggression, hostility, irritability, anger, and homicidal ideation. Patients at risk include those with a personal or family history of psychiatric disorders. At-risk patients should be identified before prescribing PER. The FDA has also issued a warning about ezogabine, stating that the drug can cause blue discoloration of the skin and retina. Although the clinical significance of this discoloring remains unclear, ezogabine use may carry the potential for retinopathy.

3. As a class, antiepileptic drugs carry an FDA black box warning for which of the following?

A. Depression
B. Serious cardiac side effects
C. Renal Failure
D. Suicidality

Click here for answer and next question.

Answer: D. Suicidality
In 2009, the FDA issued a black box warning for suicidality for AEDs used as monotherapy and as adjunctive medication. The warning was based on a 2008 FDA review of 199 pooled, placebo-controlled clinical trials covering 27,000 patients exposed to AEDs. The review found that increased risk of suicidality of patients on AEDs appeared to be a class effect, after controlling for mechanism of action, age, race, and gender. The odds ratio of suicidal behavior for patients on AEDs was 2.92, compared to placebo. Patients on AEDs specifically for epilepsy had even higher odds for suicidal ideation (OR 3.53).

4. Which of the following may represent promising new non-drug treatments for epilepsy?
A. Laser thermal ablation
B. Corpus callostomy
C. Brain stimulation
D. A and C

Click here for answer and next question.

Answer: D. A and C

MRI-guided laser thermal ablation is used for patients with treatment-resistant focal epilepsy and MRI-visible lesions. The technique basically “burns” these lesions. A laser fiber is inserted through a small burr hole in the skull and advanced using MRI guidance. Hospital stays are short (about 1-2 days), as is recovery time. Brain stimulation using the RNS system (Mountain View, CA), was approved by the FDA in 2013 for treatment-resistant epilepsy. The RNS system consists of a neurostimulator placed into the skull and connected to one or two intracranial electrodes. The system uses a computer chip programmed to detect epileptic activity, which triggers electrical stimulation to epileptogenic areas. Corpus callostomy involves severing the neural connection between the brain’s two hemispheres, and was pioneered in the 1940s by William P. van Wagenen.

5. Approximately what percentage of patients with epilepsy is resistant to current AEDs?
A. 10%
B. 15%
C. 30%
D. 40%

Click here for answer and next question.

Answer: C. 30%

Up to 30% of patients with epilepsy may be resistant to current AEDs. Because some of these patients will not be candidates for epilepsy surgery, drug development continues to focus on finding new antiepileptic agents, as well as agents that could modify the disease process itself and prevent the development of treatment-resistant epilepsy, as well as cognitive and psychiatric comorbidities. New approaches include: mTOR inhibitors targeting hyperactive mTOR signaling; anti-inflammatories targeting brain inflammation and neurodegeneration, like corticosteroids, adrenocorticotropic hormone (ACTH), COX-2 inhibitors, IL-1β-converting enzyme (ICE)/caspase-1 inhibitors, and antagonists of IL-1β receptors; and neurosteroids like allopregnanalone and its analogs.

6. Which of the following statements about the ketone diet is true?
A. Consists of a high fat diet followed for two years
B. Geared toward children and adolescents with refractory epilepsy
C. Coadjuvant treatment for most refractory and generalized epilepsies
D. All of the above

Click here for answer.

Answer: D. All of the above

The ketone diet was developed in the 1920s and consists of a high fat (about 90%), low carbohydrate, and moderate protein regime followed for two years, after which time the diet is discontinued. This plan is mainly geared toward treating children and adolescents with refractory epilepsy. The ketone diet can also be used as a coadjuvant for treating refractory and generalized epilepsies, with some studies suggesting over 50% reduction in seizure frequency. The antiepileptic mechanisms of the diet may involve fatty acid oxidation which produces ketone bodies that modulate neurotransmitters like GABA and glutamate and have antioxidant effects on the brain.

References:


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