

Title: Shaking Things Up: Examining the Role of Novel Anti-Seizure Medications in Refractory Status Epilepticus

Presenter:

Clayton Hausberger, PharmD
PGY-1 Acute Care Resident
UPMC Presbyterian

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Learning Objectives:

Define the pathophysiology of refractory status epilepticus, and the current guideline recommendations for management

Discuss the mechanisms of action of the novel anti-seizure medications brivaracetam, perampanel, cenobamate, and cannabidiol and the evidence for the use of these medications in refractory status epilepticus.

Identify the circumstances favoring the use of novel anti-seizure medications and make recommendations for their place in our treatment of refractory status epilepticus

Abstract:

Status epilepticus (SE) is a state of continuous or recurrent seizure activity without a return to baseline for five or more minutes. Beyond five minutes, the seizure is unlikely to terminate on its own. The initial guideline directed management for SE is an IV/IM benzodiazepine followed by an IV antiseizure medication (ASM). If a patient does not respond to adequate doses of these therapies, they are considered to have refractory status epilepticus (RSE). Once a patient is in RSE, there is limited data to support next steps. The guidelines recommend either repeating an IV ASM or starting a continuous infusion anesthetic, but these recommendations have no guiding evidence. The novel ASMs brivaracetam, perampanel, cenobamate, and cannabidiol have begun to be utilized in treating RSE, but questions remain about when to consider these new agents. While they have had some success in practice, the literature surrounding their use in RSE is largely case studies and larger prospective or registry-based studies are needed to firmly establish their role.

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Audience Response Questions:

Patient Case: AB

AB is a 45-year-old male who has been admitted to the NICU after a witnessed Generalized Tonic-Clonic Seizure lasting 7 minutes followed by unresponsiveness. He has a remote history of traumatic brain injury following a motor vehicle accident while he was intoxicated.

He has received 10 mg of IM Midazolam and 2250 mg PE of Fosphenytoin, 3000 mg of Valproic Acid, and 400 mg of Lacosamide with no response. After an EEG he is diagnosed with NCSE. He has IV and Enteral Access.

Height: 172 cm	Weight: 90 kg
PMH: Traumatic Brain Injury Hypertension Type 2 Diabetes	

- 1.) What is the most appropriate next step in treatment of his Refractory Status Epilepticus?
 - A.) Perampanel 24 mg PO
 - B.) Lamotrigine 400 mg PO
 - C.) Brivaracetam 400 mg IV
 - D.) Fosphenytoin 450 mg IV
- 2.) AB is now on Fosphenytoin, Brivaracetam, Lacosamide, and infusions of Ketamine and Propofol. The EEG is showing burst suppression, but NCSE returns when sedation is weaned. What treatment option may be the best to help transition AB off these continuous infusion anesthetics?
 - A.) Perampanel 24 mg PO
 - B.) Perampanel 16 mg PO
 - C.) Cenobamate 50 mg PO
 - D.) Cenobamate 12.5 mg PO
- 3.) Which novel ASM does not increase concentrations of Phenytoin?
 - A.) Brivaracetam
 - B.) Perampanel
 - C.) Cenobamate
 - D.) Cannabidiol