The ABCs of AEDs: Pharmacology of Antiepileptic Drugs

Speaker(s): Haley Goodwin, PharmD, BCPS
Lourdes James, RN, MS, ACNP-BC, CCRN

Target Audience: Advanced Practice

Content Description: Anticonvulsants, as a class, possess complex pharmacokinetic properties that have clinical implications affecting the way that these medications are dosed and monitored in the critical care setting. This session will provide the participant with an in depth look at the pharmacokinetic properties of antiepileptic drugs that impact the clinical management of patients receiving anticonvulsant therapy, including appropriate dosing, drug interactions, and monitoring of drug levels. Specific medications to be discussed in this session will include phenytoin, valproic acid, levetiracetam and barbiturates.

Learning Outcomes: By the end of this session the participant will be able to:

- Describe the mechanism, salient pharmacokinetic factors of selected anticonvulsants that affect dosing, adverse effects, and therapeutic drug monitoring
- Discuss the common clinical indications of antiepileptic drugs in critically ill patients

Summary of Key Points:

A. Pharmacological Properties of AEDs
   1. phenytoin (Dilantin)
      i. Pharmacology
      ii. Dosing and therapeutic drug monitoring
      iii. Adverse effects
   2. valproic acid (Valproate)
      i. Pharmacology
      ii. Dosing and therapeutic drug monitoring
      iii. Adverse effects
   3. levetiracetam (Keppra)
      i. Pharmacology
      ii. Dosing and therapeutic drug monitoring
      iii. Adverse effects
   4. barbiturates
      i. Pharmacology
      ii. Dosing and therapeutic drug monitoring
      iii. Adverse effects
B. Selected Indications for Use in Critically Ill Patients
   1. Status epilepticus
   2. Seizure prophylaxis

C. Conclusion
   1. Questions/Answers

Bibliography:


Lheureux P, Hantson P. Carnitine in the Treatment of Valproic Acid-Induced Toxicity. Clinical Toxicology 2009; 47: 101–111

Perucca E. Pharmacological and Therapeutic Properties of Valproate: A Summary After 35 Years of Clinical Experience. CNS Drugs 2002; 16(10): 695-714


Speaker Contact Information:

hgoodwi3@jhmi.edu
ljames15@jhmi.edu