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**Foundation for the Education and Research in  
Neurological Emergencies (FERNE) Symposium**

**The Management of ED Seizure and Status Epilepticus Patients:  
The Role of 1<sup>st</sup> and 2<sup>nd</sup> Generation Anti-epileptic Drugs in 2007**

**Sunday, October 15, 2006  
06:00 am – 08:00 am**

**New Orleans Marriott Hotel  
New Orleans, Louisiana**

***Room Location: Mardi Gras Salon E***

- 6:00 am**      **Welcome / Symposium Introduction/Overview**  
*Edward P. Sloan, MD, MPH*
- 6:10 am**      **ED Seizure and Status Epilepticus Patient Management:  
Seizure, SE Guidelines and AED Use**  
*Andrew Jagoda, MD*
- 6:35 am**      **ED Seizure and Status Epilepticus Patient Management:  
A Neurologist's Perspective on Treatment Objectives & AED Use**  
*Gregory K. Bergey, MD*
- 7:00 am**      **Second Generation AEDs:  
Characteristics, Guidelines and Patient Selection in the ED**  
*Yevgenya Kaydanova, MD, PhD*
- 7:25 am**      **1<sup>st</sup> and 2<sup>nd</sup> Generation AED Use in the ED: Optimal 2007 Strategies**  
*Edward P. Sloan, MD, MPH*
- 7:45 am**      **Panel Discussion  
Questions & Answers**
- 8:00 am**      **Program Adjournment**

*This educational symposium is supported by an unrestricted educational grant from Eisai, Inc.*

**6:00 am Welcome / Symposium Introduction / Overview**

***Edward P. Sloan, MD, MPH***

## **Key Concepts**

- \*There are countless articles in medical literature related to seizure and SE Rx**
- \*Remarkably few guidelines exist that direct seizure, SE patient care**
- \*These guidelines delineate few standards; most reflect options for Rx**
- \*Many EM physicians have limited knowledge of parenteral AEDs beyond that of the benzodiazepines and and phenytoins**
- \*Second generation AEDs exist, many ED seizure patients present on these AEDs**
- \*Great deal of variability in use of these agents**
- \*Many clinically relevant questions regarding optimal AED use in the ED**

## **Key Clinical Questions**

- \*What can we learn from the currently published guidelines and protocols from the Emergency Medicine and Neurology literature?**
- \*How can we best meet the needs of the neurology consultants who care for epilepsy patients after we treat their acute seizures in the ED?**
- \*Which are the second generation AEDs, and what are the clinical characteristics (indications, efficacy, effectiveness, adverse event profiles, safety, cost) of these newer AEDs?**
- \*Based on the currently available guidelines, protocols, and information on all AEDs, including the 2<sup>nd</sup> generations AEDs, what can we recommend to emergency physicians regarding optimal ED AED use in 2007?**

**Comments:**

**6:10 am ED Seizure and Status Epilepticus Patient Management:  
Seizure, SE Guidelines and AED Use**

***Andrew Jagoda, MD***

**Key Concepts**

- \*ACEP guidelines address the use of phenytoins and the use of all parenteral AEDs in actively seizing patients after the benzos and phenytoins**
- \*No clear recommendations regarding phenytoins use**
- \*No clear recommendations regarding other parenteral AEDs in SE**
- \*Few published protocols that state preferred use of AEDs**
- \*Limited studies in patients with seizure flurries or SE**
- \*Neurology guidelines suggest use of all AEDs, including second generation AEDS, in the treatment of seizures of varied etiologies**
- \*Neurology guidelines do not specifically address AED use in the acute setting**

**Key Clinical Questions**

- \*What can we learn from the currently published guidelines and protocols from the Emergency Medicine and Neurology literature regarding parenteral AED use in the ED setting?**
- \*Should specific AEDs be recommended in ED-based protocols based on seizure patient demographics (pediatric, adult) and the clinical setting (partial seizure vs. generalized seizure, SE and/or on an oral AED)?**
- \*Is the second generation AED data from the neurology clinical guidelines of sufficient scope that recommendations regarding AED use can be made?**
- \*Does any of the medical literature support specific recommendations regarding the use of parenteral or oral AEDs in the ED?**

**Comments:**

**6:35 am ED Seizure and Status Epilepticus Patient Management:  
A Neurologist's Perspective on Rx Objectives & AED Use**

***Gregory K. Bergey, MD***

**Key Concepts**

- \*Emergency physicians in general use the benzodiazepines and phenytoins for all generalized seizure patients in the ED when AED loading is required**
- \*Little information whether the seizure was partial in onset in documented**
- \*Limited alterations in AED decision making based on likely seizure etiology**
- \*Use of other AEDs may occur if the patient is on other oral AEDs (carbamazepine, phenobarbital, valproate, levetiracetam)**
- \*Diagnoses such as juvenile myoclonic epilepsy, which might be exacerbated by phenytoins use, are not part of mainstream EM literature**
- \*Once placed on an AED in the ED, patients generally remain on these AEDs unless complication occur or lack of efficacy is suggested by seizure recurrence**

**Key Clinical Questions**

- \*It is possible that ED seizure and SE patient care can be enhanced in order to meet the needs of the consulting neurologist and optimize patient outcome?**
- \*What can we learn from the currently published guidelines and protocols from the Emergency Medicine and Neurology literature regarding parenteral AED use in the ED setting?**
- \*Should specific AEDs be recommended in ED-based protocols based on seizure patient demographics (pediatric, adult) and the clinical setting (partial seizure vs. generalized seizure, SE and/or on an oral AED)?**
- \*Is the second generation AED data from the neurology clinical guidelines of sufficient scope that recommendations regarding ED use can be made?**
- \*Does any of the medical literature support specific recommendations regarding the use of parenteral or oral AEDs in the ED?**

**Comments:**

**7:00 am    Second Generation AEDs:  
Characteristics, Guidelines and Patient Selection in the ED**

***Yevgenya Kaydanova, MD, PhD***

**Key Concepts**

- \*Second generation AEDs are those developed during the last 10-15 years**
- \*Reported similar efficacy and improved tolerance, suggesting improved clinical effectiveness due to improved compliance**
- \*Fosphenytoin available as generic in 2007**
- \*IV levetiracetam, phenobarbital, and valproate also available for ED use**
- \*Use of second generation AEDs for epilepsy described in guidelines**
- \*Limited FDA approval for second generation AED use as monotherapy for epilepsy indications**
- \*Lack of emergency physician familiarity with second generation AEDs**

**Key Clinical Questions**

- \*Which are the second generation AEDs?**
- \*How do they compare as a class of drugs with the first generation AEDs with respect to efficacy, safety and tolerance, clinical effectiveness, and cost?**
- \*How do they compare with one another with respect to these attributes?**
- \*Are there unique loading attributes that influence the choice of these AEDs?**
- \*In general, should all seizure and epilepsy patients be treated with second generation AEDs (as opposed to first generation AEDs)?**
- \*Should all new onset seizure patients be started on second generation AEDs as monotherapy based on the published guidelines?**
- \*Are there specific seizure types or patient populations in whom specific first or second generation AEDs should be utilized in order to maximize effectiveness?**
- \*Is it reasonable to expect that emergency physicians initiate the use of first or second generation AEDs in ED patients, when indicated, without neurological consultation?**

**Comments:**

**7:25 am 1<sup>st</sup> and 2<sup>nd</sup> Generation AED Use in the ED:  
Optimal 2007 Strategies**

***Edward P. Sloan, MD, MPH***

**Key Concepts**

- \*Useful AEDs are available for the ED treatment of seizure and SE patients**
- \*The guidelines do not suggest one therapy, but rather a systematic approach to the use of AEDs through a protocol that provides serial AEDs**
- \*AED delivery should be staged in parallel; order a second AED while the first is being administered to an actively seizing patient or SE patient**
- \*AED dosing should be based on mg/kg approach in order to maximize efficacy**
- \*Systems approach needed in order to have ready access to AEDs in the rare instances when SE occurs and serial AEDs must be provided**
- \*Emergency physicians need to know the attributes of bolus infusion AEDs including fosphenytoin, levetiracetam, phenobarbital, phenytoin, valproate**
- \*Emergency physicians need to know the attributes of continuous infusion AEDs including midazolam, pentobarbital, and propofol**
- \*Familiarity with published guidelines, including those that describe second generation AED use, is essential for emergency physicians**

**Key Clinical Questions**

- \*Do the guidelines tell the complete story with respect to the ED use of AEDs?**
- \*What can be learned from the guidelines even though standards are not provided regarding AED use?**
- \*What easily implemented ED operations changes could be made that would optimize the use of AEDs and improve patient outcomes?**
- \*What general principles should drive the development of broadly applicable protocols for the management of ED seizure and SE patients?**
- \*What needs to be known about fosphenytoin, levetiracetam, midazolam, pentobarbital, phenobarbital, phenytoin, propofol and valproate?**
- \*What needs to be known about the second generation AEDs, even if just to improve communications with our neurology consultants?**
- \*What should be taught regarding specific seizure types or patient populations in whom specific first or second generation AEDs should be utilized in order to maximize effectiveness?**

**Comments:**

**7:45 am Panel Discussion  
Questions and Answers**

***Panel***

**Key Concepts**

- \*Four areas presented today: currently available guidelines, neurologist's perspective on optimal seizure and SE patient management by emergency physicians, second generation AED characteristics and indications, and optimal clinical and operations approach to use of AEDs in the ED**
- \*Opportunity to discuss issues and possibly develop consensus of the panelists**
- \*Opportunity to address new questions that arise from the presentations and discussion**
- \*New areas of research or inquiry might be identified**
- \*New questions for upcoming clinical policy revisions might be identified**

**Key Clinical Questions**

- \*Are there areas of consensus regarding AED use in the ED**
- \*Do the guidelines address the clinically relevant seizure and SE patient issues?**
- \*What might be the role of second generation AEDs in the ED in 2007?**
- \*What operations or systems approaches would benefit seizure and SE patient management in the ED?**
- \*What are the optimal next steps in research, clinical policies, and education?**

**Comments:**

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