An Evidence-Based Approach To Pediatric Seizures In The Emergency Department  
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An evidence-based review of the evaluation and management of pediatric seizures in the emergency department is presented in this issue of Pediatric Emergency Medicine Practice. Here, we outline key recommendations for practice based on valid research evidence within the journal issue. For a more detailed and systematic look at the latest evidence on pediatric seizures as well as other considerations such as diagnostic studies, clinical pathways, and special circumstances not noted here, see the full text article.

| **EVIDENCE-BASED CLINICAL RECOMMENDATIONS FOR PRACTICE** |
|---------------------------------|------------------|-----------------|
| **Key Points**                  | **References**   | **Comments**    |
| Pediatric seizures are a common occurrence and a frequent presentation to the emergency department. It is estimated that at least 4% to 6% of all children will have a seizure by the time they are 16 years of age. | 1                | By using a practical and pragmatic approach, the physician can reduce the number of laboratory tests, painful phlebotomies, and uncomfortable lumbar punctures. |
| Laboratory tests may be of use in the initial evaluation of the pediatric seizure patient in the ED, depending on the type of seizure and the age of the patient. | 2,126            | Afebrile neonatal seizures require an initial evaluation of serum electrolytes, glucose, calcium, and magnesium. For febrile seizures, laboratory tests (such as CBC, electrolytes, calcium, magnesium, glucose, and phosphorus) should be tailored to the child’s symptoms, seizure type, and history. |
| The literature primarily indicates that a lumbar puncture is indicated when meningitis or encephalitis may be the cause of the seizure. | 23-25            | Contraindications to a LP include: signs of increased intracranial pressure with altered mental status, focal neurological signs, coagulopathy or bleeding diathesis, platelet abnormality or deficiency, cardiorespiratory compromise or distress, and local infection at the site of proposed insertion of the spinal needle. |
| Several medications are available for the management of various pediatric seizure disorders. | 52, 61,87,97     | Lorazepam and diazepam are equally efficacious and safe for the management of pediatric convulsive status epilepticus. IM midazolam may represent an alternative and effective route of drug administration. Phenobarbital and phenytoin have been used historically but a study concluded that they were ineffective in controlling neonatal seizures. IV valproic acid may be an appropriate ED treatment for seizing patients with subtherapeutic valproic acid levels. |
| Treatment approach remains controversial in regards to neonatal seizures. Evidence exists that treatment of prolonged or repetitive seizures and short-term seizure recurrence is indicated to help prevent lasting cortical brain damage. | 118              | In treating a seizing pediatric patient, treat the ABC’s first. Also place cardiac and pulse oximetry monitoring and deliver AEDs via IV, IO, or other methods. |
| Focus in the literature is on treating seizures lasting longer than 5 to 10 minutes, as these seizures are more likely to result in status epilepticus. | 25,119           | Status epilepticus (a seizure lasting longer than 30 minutes) is an emergency. These seizures need to be stopped, and the etiology needs to be addressed, so as to avoid neurological damage. |
| Admission is usually indicated for a first-time neonatal seizure, also for pediatric patients with uncontrolled seizure, meningitis, encephalitis, neurosurgical complications, and poor guarantee for follow-up. Simple febrile seizures usually do not require admission if the child appears well and no serious infection exists. | 20,120,126       | Complex febrile seizures carry a higher risk for meningitis than simple febrile seizures, so there should be a lower threshold for performing an LP and admitting children with complex seizures. |

* See reverse side for reference citations.
REFERENCES

119. Shinnar S. Who is at risk for prolonged seizures? *Jour Child Neurol.* 2007;22(suppl no.5,14s-21s. (Systematic review)

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