

Study examines effectiveness of medications for treating epileptic seizures in children

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Although some studies have suggested that the drug lorazepam may be more effective or safer than the drug diazepam in treating a type of epileptic seizures among children, a randomized trial finds that lorazepam is not better at stopping seizures compared to diazepam, according to a study in the April 23/30 issue of *JAMA*, a neurology theme issue.

Status epilepticus is a prolonged epileptic seizure or seizures that occurs approximately 10,000 times in children annually in the United States. Rapid control of status epilepticus is essential to avoid permanent injury and life-threatening complications such as respiratory failure. The Food and Drug Administration has approved [diazepam](#), but not lorazepam, for the treatment of status epilepticus in children. Studies involving lorazepam have shown mixed results, according to background information in the article.

James M. Chamberlain, M.D., of the Children's National Medical Center, Washington, D.C., and colleagues with the Pediatric Emergency Care Applied Research Network, randomly assigned 273 patients (age 3 months to younger than 18 years with convulsive status epilepticus) presenting to one of 11 pediatric emergency departments to receive diazepam or lorazepam intravenously.

The researchers found that the primary measure of effectiveness, cessation of status epilepticus for 10 minutes without recurrence within 30 minutes, occurred in 101 of 140 (72.1 percent) in the diazepam group

and 97 of 133 (72.9 percent) in the lorazepam group. Twenty-six patients in each group required assisted ventilation (the primary safety outcome; 16.0 percent given diazepam and 17.6 percent given lorazepam).

There were no significant differences in other outcomes such as rates of seizure recurrence and time to cessation of convulsions, except that patients receiving lorazepam were more likely to experience sedation (67 percent vs 50 percent).

The authors write that the study results have important implications for both outside the hospital and emergency department care. "Diazepam can be stored without refrigeration and thus has been used as the treatment of choice in many prehospital systems. The results of this study do not support the superiority of [lorazepam](#) over diazepam as a first-line agent for pediatric status epilepticus."

The researchers add that future trials should consider newer medications and novel interventions targeting those at highest risk for medication failure or respiratory depression.

More information: [DOI: 10.1001/jama.2014.2625](https://doi.org/10.1001/jama.2014.2625)

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