

Early treatment with AED reduces duration of febrile seizures

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New research shows that children with febrile status epilepticus (FSE) who receive earlier treatment with antiepileptic drugs (AEDs) experience a reduction in the duration of the seizure. The study published in *Epilepsia*, a journal of the International League Against Epilepsy (ILAE), suggests that a standard Emergency Medical Services (EMS) treatment protocol for FSE is needed in the U.S.

While medical evidence reports that brief or simple febrile seizures are most common, up to 10% of cases are prolonged and meet the criteria for status epilepticus (SE)—a critical condition where a persistent [seizure](#) lasts more than 30 minutes. Prior research shows that FSE accounts for 25% of all childhood SE, with more than 70% of SE cases occurring in the second year of life. Prolonged seizures place patients at risk of short-term and long-term complications, including the development of epilepsy.

"The time from the start of the seizure to treatment is crucial to improving patient outcomes," said lead author Syndi Seinfeld, DO, assistant professor, Division of Child Neurology at Children's Hospital of Richmond at Virginia Commonwealth University. "Our study is the first to examine the treatment of FSE by EMS, which currently does not have a standard therapy protocol for prolonged seizures."

The present study recruited 199 pediatric patients who were part of the FEBSTAT study—a prospective, multicenter, NIH-funded study (PI Shlomo Shinnar MD PhD at Albert Einstein College of Medicine)

investigating the consequences of FSE. The [children](#), between the ages of 1 month and 6 years, had a seizure or cluster of seizures lasting more than 30 minutes. Researchers analyzed the relationship between seizure duration, treatment delay and related morbidity.

"The FEBSTAT study is designed to understand the consequences of prolonged [febrile seizures](#) in hopes of identifying children at greater risk of adverse outcomes and to help develop better treatments," said Brandy Fureman, Ph.D., a program director at the National Institute of Neurological Disorders and Stroke, part of the National Institutes of Health.

Findings indicate that roughly 90% (179) of children received at least one AED and more than AED was needed in 70% (140) of patients to terminate FSE. On average it was 30 minutes from the seizure onset to the time EMS or emergency department staff administered the first AED. The mean seizure time was 81 minutes for children treated prior to arrival at the emergency department and 95 minutes for those who were not.

Further analyses determined the average time to end the seizure was 38 minutes following the first AED dose. Seizure duration was 83 minutes in 48% of patients who needed respiratory support and 58 minutes for subjects not requiring respiratory support.

"Our findings clearly show that early AED initiation results in shorter seizure duration," concludes Dr. Seinfeld. "A standard FSE [treatment protocol](#) prior to arrival at the hospital, along with training for EMS staff, is needed across the U.S. to help improve outcomes for children with prolonged seizures."

More information: "Emergency Management of Febrile Status Epilepticus: Results of The FEBSTAT Study." Syndi Seinfeld, Shlomo

Shinnar, Shumei Sun, Dale C Hesdorffer, Xiaoyan Deng, Ruth C Shinnar, Kathryn O'Hara, Douglas R Nordli Jr, L Matthew Frank, William Gallentine, Solomon L Moshé, John M Pellock and the FEBSTAT study team. *Epilepsia*; Published Online: February 6, 2014.
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