Researchers testing most effective seizure treatments

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Hahnemann University Hospital Emergency Room at dusk. Credit: Hahnemann University Hospital

Drexel University College of Medicine researchers are conducting an emergency medicine study to find out the most effective drug for treating established status epilepticus—a life-threatening condition in which the brain is in a state of persistent seizure.

Patients with established status epilepticus (ESE) have one or repeated seizures lasting longer than five minutes and do not respond to a full dose of typical medication, like valium. There are an estimated 120,000 to 180,000 episodes of SE in the United States each year. Emergency room doctors across the country use a variety of drugs to treat the condition, however, the most effective treatment is not yet known.

The Established Status Epilepticus Treatment Trial (ESETT) is a randomized, four-year, multi-center study to learn which treatment is most effective at stopping a seizure quickly.

Hahnemann University Hospital—the College of Medicine's primary teaching affiliate—is one of more than 40 sites participating in the trial. Each will look at three commonly used medications given in emergency rooms to treat ESE.

"The longer the seizures go on, there are possibilities for permanent brain damage or even death, so it is very important to stop them as soon as possible," said Ralph Riviello, MD, a professor of emergency medicine and vice chair of clinical operations in the College of Medicine, who will lead the study at Hahnemann.

Normally, researchers need permission before a patient can be included in a study. Since the ESE trial has the potential to save the life of an unconscious person, and a seizure must be treated quickly, a traditional informed and signed consent is not needed to begin study actions. This rule is part of the U.S. Food and Drug Administration's "Exception from Informed Consent" (EFIC), which allows certain research studies to be conducted without consent when a person's life is at risk, current treatment does not work and the patient is unable to give permission.

Any patient admitted to the Hahnemann emergency room who is older than two years old, having a long-lasting seizure, and is not responding to an adequate dose of valium, could be enrolled in the study. A patient will randomly receive one of three medications. As the study goes on, a higher proportion of patients will be randomized to the drug or drugs that better stop seizures.

Riviello hopes results from this nationwide study will help to standardize care for persistent seizures and ultimately save lives.

"Right now, you can pick one of those three drugs, or a combination of the three, and hope that it works," he said. "We hopefully will show which of those is proven to be the most beneficial, and that will become the go-to agent."

Provided by Drexel University