Study supports link between stress, epileptic seizures

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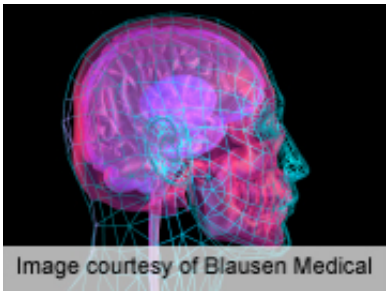

Stress activated brain response for some patients in preliminary research.

(HealthDay)—Scientists have long thought that stress plays a role in epileptic seizures, and new evidence suggests that epilepsy patients who believe this is the case experience a different brain response when faced with a nerve-wracking situation.

Researchers from the University of Cincinnati performed functional MRI brain scans during a stressful math exercise on 16 epilepsy patients who pegged stress as a factor in their seizure control and seven patients who did not. While both groups performed similarly on the test, those who perceived stress to have an impact on their epilepsy showed greater brain activation than the others during intimidating parts of the test.

"One of the things we often hear is that a lot of epilepsy patients feel their seizures are affected by stress . . . but no one had really looked at

their [brain response] or other elements of their physiological response," said study author Jane Allendorfer, an instructor of neurology at the University of Alabama at Birmingham. Allendorfer worked at University of Cincinnati while the study was conducted.

"We were a bit surprised to see this difference," she added, "but really excited to see it as well because this is something that hadn't been done before."

The research was scheduled to be presented Monday at the annual meeting of the American Epilepsy Society, in San Diego. Data presented at scientific conferences often has not been peer-reviewed or published and is considered preliminary.

A brain disorder producing repeated seizures, epilepsy affects more than 2 million people in the United States, according to the U.S. Centers for Disease Control and Prevention. An estimated 50 million to 65 million people are affected by the condition worldwide.

For the new study, all participants were initially given simple subtraction problems to solve and then a "stress task" during which they performed difficult subtraction. Participants were given positive feedback during the easier portion and negative feedback during the difficult section regardless of how well they were actually performing.

The brain activation observed on MRI among those who perceived stress to impact their seizures was seen in several regions, including the left temporal lobe, where their epilepsy originated. No such brain activation was noted in the comparison group.

An epilepsy expert said the study results reflect what he hears from patients.

"Everyone who treats a lot of seizure patients knows that a good proportion blame stress for any breakthrough seizures they're having—even when they're taking their medications, even when they're not sleep-deprived," said Dr. Steven Pacia, director of the Epilepsy Center and the division of neurology at Lenox Hill Hospital in New York City. "This study is the first to truly show there might be some activation issue in the brain that's different in patients who report this problem. I think we all know that telling patients to reduce their stress to reduce seizures is a good thing to do."

Pacia and study author Allendorfer agreed that the research needs to be replicated in larger groups of patients, which may point to new ways of controlling or treating seizures.

"Eventually, if we can characterize the stress response in patients . . . maybe this can be a way to target different kinds of therapy to help reduce seizure frequency," Allendorfer said.

While the study found an association between stress response and epileptic seizures, it did not prove a cause-and-effect relationship.

More information: The U.S. National Library of Medicine has more about epilepsy.