

Are Men More Susceptible to Seizure-Related Brain Damage?

LOS ANGELES—The risk of brain abnormalities associated with seizures is significantly greater in men than it is in women, according to investigators from the Brain Research Institute at the University of Melbourne, Australia. The researchers, led by Associate Professor of Medicine Graeme David Jackson, MD, presented their findings at the 54th Annual Meeting of the American Epilepsy Society. According to their report, men with lateralized temporal lobe epilepsy exhibit more brain atrophy as a result of refractory seizures than their female counterparts.

The research team's interest in the relationship between sex and brain atrophy stemmed from their work in pediatric epilepsy. By investigating the severity of seizure-related brain damage in males versus that in females, they hoped to determine whether radical intervention in children with epilepsy, particularly in boys, was warranted.

"We often operate on people in their mid-20s who've had bad epilepsy since they were 9 or 10. They've got focal origins of their epilepsy and they come to our unit as adults," said Dr. Jackson, Director of the Brain Research Institute at the University of Melbourne. "We take away the abnormality that's causing their epilepsy, and they're seizure free from then on. But in many cases, a lot of the damage is already done," he said.

SEX DIFFERENCES IN SEIZURE-RELATED BRAIN ATROPHY

"We got the impression that there was a difference between boys and girls, because we have a big epilepsy genetics group [at the university], and obviously one of the big genes that's different in people

is the X and the Y chromosome," commented Dr. Jackson. Based on supporting evidence that males experience more brain damage from other neurologic diseases, his team compared the levels of atrophy caused by ongoing epileptic seizures in males and females.

Dr. Jackson and colleagues used magnetic resonance imaging to study 60 consecutive patients with temporal lobe epilepsy (28 male) and 54 controls. They investigated whether sex was an important factor in determining the nature and severity of detectable brain damage resulting from epileptic seizure. Patients were between the ages of 26 to 46 and controls were between the ages of 22 to 40. Both the male and female patients were well matched in demographic variables; the average height and weight of the patients and controls were similar.

The research team found that male patients had substantially greater ipsilateral hemispheric volume loss and contralateral volume loss as a result of generalized tonic-clonic seizures compared with the male controls, female patients, and female controls.

SEPARATING THE SEXES

"We weren't surprised [at the findings], but I think the general scientific community was surprised," said Dr. Jackson. "Everyone in this area has published results of progressive atrophy, mixing the sexes together. There's one study that looked at only men and said seizures are related to the degree of atrophy you get in the brain, and there's another study that had mostly females that contradicted it completely. They hadn't even thought that [sex] might have been a factor, so they just lumped these two studies into the same area....

It's incredibly simple, but when you read the literature, it's incredibly controversial because no one ever thought to separate them out," he added.

The factors that protect women from seizure-related brain abnormalities are not known. In addition, it is not known whether the sex difference in post-seizure brain damage levels is seen in other seizure-related occurrences, like allergic reaction, or whether the results are specific to temporal lobe epilepsy patients. However, Dr. Jackson suggested that

further study of this neuroprotective mechanism could lead to new concepts in epilepsy treatment.

"We think this is a basic biological susceptibility to things that happen during seizures," said Dr. Jackson. "We believe it's quite generalizable to many disorders." His team is currently continuing their research in this area. They are conducting expanded studies to determine what mechanism causes seizure-related damage in the brain.

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—Leslie Rosenberg

When Are Headaches a Warning Sign for Stroke?

FORT LAUDERDALE, FLA—Severe headache with neurologic signs, such as aphasia or motor and sensory deficits, may signal cerebral venous thrombosis. Although this form of stroke is rare, recent research suggests that cerebral venous thrombosis can be recognized early by its clinical features. "Headache is the most frequent and often the earliest symptom," said Erica C. S. Camargo, MD, from the University of São Paulo, Brazil.

"It is particularly important to recognize this condition early before the clot may spread in the cerebral venous system leading to other neurological complications, such as seizures or visual or motor deficits, and increase of intracranial pressure," emphasized Dr. Camargo. Cerebral venous thrombosis is often difficult to diagnose, she noted, because patients may experience a wide range of symptoms that can occur suddenly or progress for weeks.

Dr. Camargo and colleagues, Ayrton R. Massaro, MD, and Luiz A. Bacheschi, MD, prospectively evaluated 39 patients with cerebral venous thrombosis from March 1996 to June 2000. The average age was 35 (range, 8 to 81 years). Magnetic resonance imaging and/or angiography were performed and the severity, duration, and location of headaches were documented.

HEADACHE IS OFTEN THE INITIAL SYMPTOM

Headache was the most common symptom among the patients with cerebral venous thrombosis, Dr. Camargo reported at the 26th International Stroke Conference. In fact, almost all the patients reported headache as their initial symptom, she added. About half of the patients had chronic headaches for more than 30 days before seeking

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