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Monthly newsletter from the epilepsy RESOURCE CONNECTION

Switching Seizure Medications

Half of people with newly diagnosed epilepsy will become seizure-free with the first epilepsy drug they try. For the rest, it's try, try again: switching epilepsy medications, adjusting to side effects, and waiting to make sure the new drug works. Others find their seizures are controlled, but they can't tolerate the medication's side effects and need to switch drugs.

Before you ask your doctor if your medication should be switched, make sure you are taking your current medication exactly as prescribed. Missing doses, splitting pills, or not following instructions to the letter could affect your control and the side effects you experience. If you are already complying with your doctor's instructions, but still are having breakthrough seizures, talk to your neurologist or epileptologist (specialists who are experts in treating epilepsy). Your doctor will evaluate whether you should switch medications.

Eventually, up to 70% of people with epilepsy become seizure-free with minimal side effects while taking epilepsy drugs. But switching epilepsy medications takes time and patience. Finally finding the right epilepsy drug can require equal parts art and science -- and sometimes a bit of luck.

Switching Epilepsy Medications: A Small Leap of Faith

Here's a little-known fact of treating epilepsy: even the best doctors don't know which epilepsy drug will work best in any given person.

When managing epilepsy, doctors take a snapshot of your epilepsy profile: your type of seizures, your age and gender, other medical conditions, medicines you're on or may be on later, your time of life, and epilepsy drugs you've tried in the past.

Based on that information, your doctor may narrow down the field to a few epilepsy drugs to try. But after that, it's an educated leap of faith, experts say.

While most people will find controlling seizures to be relatively easy, others aren't so lucky. They experience either continued seizures, or intolerable side effects from their epilepsy drug. When that happens, switching epilepsy medications is most likely a good idea.

ϟWEB MD *Editor's Note: You should always consult with your physician before adopting any new treatment regimen.*

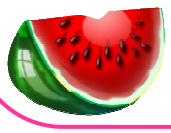
Family Camp Day

Sunday, August 2, 2009 12:30 – 5:30 PM

Camp Hiawatha (1605 W. 51st St. N., Wichita)

FUN!!

Lunch
Inflatable-fun
Games & Crafts
Horseback Riding
Swimming
Watermelon Feed



Camp welcomes persons of all ages with epilepsy and their families.

REGISTRATION

Individual. . . . . $ 5
Family. $15

Register by phone at:

316•943•2453

▶Register by July 29◀

Pinpointing Problems in the Brain

Doctors are now using a new kind of brain scan called magnetoencephalography (MEG), which measures brain activity in real time. In some cases, MEG can pinpoint the source of an epileptic seizure much more accurately than the traditional method of electroencephalography (EEG). Using a combination of MEG and MRI, neurosurgeons have a detailed brain map that allows them to remove just the damaged tissue while preserving healthy cells.

Epilepsy is a frustrating and often debilitating condition. Medication may control seizures in about 75% of cases, but neurologists say surgery is the only potential cure. Currently, researchers are using the device to determine the location of seizures in epileptic patients and identify the functional centers of the brain responsible for language, vision, motor and sensory information.

Unlike other, other imaging tools that sample it several or tens or hundreds times, this imaging technology can take thousands of samples every second. Real-time brain mapping and monitoring is considered to be one of the most exciting areas of neuroscience today. Magnetoencephalography (MEG) measures the magnetic fields produced by electrical activity in the brain via extremely sensitive superconducting sensors. Any electrical current will produce a magnetic field, and MEG measures the field generated by the brain's electrical currents. Traditionally, brain activity has been measured using electroencephalography (EEG), in which the electrical signals are recorded from electrodes placed on the scalp.

Using a combination of MEG and MRI, neurosurgeons have a detailed brain map guiding them during surgery to remove just the damaged tissue, while preserving healthy cells.

Researchers say in the future, the MEG brain scanner may aid in the diagnosis and study of other disorders like dementia, migraines, Parkinson's disease, depression and traumatic brain injuries, in addition to epilepsy.

With MEG, clinicians can now map nerve cell activity in the brain non-invasively to see the brain in action, rather than analyzing a series of still images. The system simultaneously produces 306 separate recordings of magnetic activity and determines where it originates and which parts of the brain undertake various tasks. An MEG scan can also determine how the brain functions both normally and in cases of illness. The graphical representations produced by the system can be sent directly into a navigational system used by neurosurgeons in the operating room to help guide them to the area of the brain that should be taken out, while at the same time marking vital centers and abnormalities -- thereby improving surgical outcomes.

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Adult Epilepsy Support Group

Meets Second Tuesday of Month at 5:00 PM
2919 W. Second Street* in Wichita ◆ 943-2453
*** 2nd and St. Paul St. between West Street and Meridian Ave.**
Accessible via Wichita Transit

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Gene in Mice may Guide Infantile Spasms Treatment

Researchers studying a difficult-to-treat form of childhood epilepsy called infantile spasms have developed a line of mice that experiences seizures with features closely resembling those occurring in patients with infantile seizures. These genetically engineered mice provide a new opportunity for scientists to test treatments that may benefit children.

Approximately one out of every 100 infants has a seizure. Many of them go on to have epilepsy. One obstacle to developing better therapies for children has been the lack of a good animal model," said study leader Jeffrey A. Golden, M.D., pathologist-in-chief at The Children's Hospital of Philadelphia.

Infantile spasms are a type of seizure that occurs in an estimated 1 in 2000 to 1 in 6000 babies, with onset between ages three months and one year. During the seizures, infants have jerking movements and abnormal brain waves seen on EEGs. "Children with infantile spasms often have a poor developmental outcome," said Golden. "Despite current treatment, many children with infantile spasms go on to develop lifelong epilepsy and varying degrees of mental retardation."

Finding a treatment for infantile spasms is crucial. "If we could better treat the infantile spasms, it is very possible some of these later problems could be prevented," added Golden.

"This is the first genetic model of a developmental epilepsy, and even more importantly, it was generated by mutating the same gene that can be found mutated in humans with infantile spasms," said Golden.

Going forward, Golden said, this new animal model provides an important tool: an opportunity to begin testing drugs in the mice to identify potential treatments for children. "We can screen existing drugs to see if they are effective against this type of epilepsy," said Golden, adding that understanding the biological mechanism by which infantile spasms develop may also lead to more specific treatments. ϟSCIENCE DAILY

The Greek physician, Hippocrates ,wrote the first book on epilepsy in 400 B.C. He proved that epilepsy is a brain disorder. "It is thus with regard to the disease called Sacred: it appears to me to be nowise more divine nor more sacred than other diseases, but has a natural cause like other affections. . ." ϟ EPILEPSY.COM

Childhood Epilepsy Research

Rutgers researchers have discovered a potential new way to treat childhood epilepsy using a widely available therapeutic drug.

Rutgers neuroscientist Gabriella D'Arcangelo and her colleagues have published their research findings in the journal *Disease Models and Mechanisms* (in press).

In their quest for new therapeutic approaches, the researchers are investigating the molecular basis of the disease. The article describes the first use of a mouse model of cortical dysplasia, a malformation of the brain that is most often the cause of childhood epilepsy. Introducing the drug rapamycin, originally used to prevent rejection in organ transplants, suppressed epileptic seizures in the mice.

Epilepsy is the third most common neurological disorder in the US after Alzheimer's disease and stroke. It currently affects more than 326,000 children under age 15. More than 90,000 of them have severe seizures that cannot be adequately treated. The children often go on to develop cognitive problems due to recurrent and uncontrolled seizures and the combined effects of heavy medication. They may also suffer consequences from having parts of their brains removed during surgery.

According to the International League Against Epilepsy (ILAE), approximately 45% of the pediatric epilepsy surgery cases (patients under age 18) are due to cortical dysplasia. A staggering 75% of surgery patients under age 2 have the condition.

"The surgery is not without risks, and while it may help control the seizures, it does not work in all cases," said D'Arcangelo, an associate professor in the Department of Cell Biology and Neuroscience at Rutgers, The State University of New Jersey. "Clearly there is a pressing need to come up with new strategies for treatment."

D'Arcangelo's mutant mice lack a gene (Pten) that suppresses cell growth in some neurons, resulting in these mutants displaying molecular, cellular and physiological traits of cortical dysplasia. The researchers treated the mice with rapamycin. It had already shown promise in a different mouse model for treating tuberous sclerosis complex (TSC), a subtype of cortical dysplasia.

"We demonstrated that rapamycin is a novel and effective anti-epileptic agent that suppresses seizures in our mice, as well as in the TSC model, and this has raised some hope for the future," said D'Arcangelo. "This drug is being tested on human patients of tuberous sclerosis in a multicenter study throughout the US. I hope it will soon be tested for all cortical dysplasia patients."

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