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Epilepsy

What is epilepsy?

Epilepsy is a brain disorder that results from abnormal electrical discharges that act on the brain's nerve cells causing strange sensations, emotions, behavior, convulsions, muscle spasms, or loss of consciousness. Only when a person has had two or more seizures is he or she considered to have epilepsy.

Epilepsy is a common disease that affects about 1% of people. Epilepsy is not contagious and does not cause mental illness or mental retardation. While epilepsy cannot currently be cured, for some people it does eventually go away, but it is nonetheless possible that seizures may decrease or even stop over time if the epilepsy has been well-controlled by medication or if the person has had epileptic surgery.

What causes epilepsy?

There are many causes which lead to epilepsy: brain tumors, head injury, brain stroke, hypoxia at birth, encephalitis and meningitis, alcohol, drugs, exposure to toxins and medications and congenital brain deformities. However, about half of all seizure cases are of unknown cause where genetics perhaps play only a partial role in increasing a person's susceptibility to seizures.

What are the different kinds of seizures?

Seizures are divided into two major categories—partial seizures and generalized seizures. However, there are many different types of seizures in each of these categories.

Focal seizures

Focal seizures, also called partial seizures, occur in just one part of the brain. About 60 percent of people with epilepsy have focal seizures. These seizures constantly point to the abnormal area of the brain in which they originate such as absence seizures with or without convulsions e.g. partial frontal lobe seizures.

Generalized seizures

Generalized seizures are a result of abnormal neuronal activity in many parts of the brain. These seizures may cause loss of consciousness, falls, or massive muscle spasms such as febrile seizures and absence seizures.

When are seizures not epilepsy?

First seizures, febrile seizures, nonepileptic events, and eclampsia are examples of seizures that may not be associated with epilepsy.

First seizures

Many people have a single seizure at some point in their lives as a reaction to anesthesia or some drugs, but they also may be unprovoked, meaning that they occur without any obvious triggering factor. When someone has experienced a first seizure, the doctor will usually order an electroencephalogram (EEG). These tests may help the doctor decide whether or not to treat the person with antiepileptic drugs.

Febrile seizures

Sometimes a child will have a seizure during the course a febrile illness. These seizures are called febrile seizures, and can be very alarming to the parents and other caregivers. Preventive treatment after a febrile seizure is generally not recommended unless certain other conditions are present: a family history of epilepsy, signs of nervous system impairment prior to the seizure, or a relatively prolonged or complicated seizure. The risk of subsequent non-febrile seizures is only 2 to 3 percent unless one of these factors is present.

Nonepileptic events

Sometimes people appear to have seizures, even though their brains show no seizure activity. Nonepileptic events that are psychological in origin. Psychogenic seizures may indicate dependence, a need for attention, avoidance of stressful situations, or specific psychiatric conditions. They are often treated by mental health specialists.

How is epilepsy diagnosed?

EEG monitoring

An EEG records brain waves detected by electrodes placed on the scalp. An EEG should be performed within 24 hours of a patient's first seizure as soon as it can. Video monitoring is often used in conjunction with EEG to determine the nature of a person's seizures.

Brain scans

The most commonly used brain scans include CT (computed tomography), and MRI (magnetic resonance imaging).

Medical history

Taking a detailed medical history, including symptoms and duration of the seizures, is still one of the best methods available to determine if a person has epilepsy and what kind of seizures he or she has. Since people who have suffered a seizure often do not remember what happened, caregivers' accounts of the seizure are vital to this evaluation.

Blood tests

Doctors often order blood test in order to check for underlying problems such as infections, lead poisoning, and diabetes that may be causing or triggering the seizures.

How can epilepsy be treated?

Medications

Currently available treatments can control seizures at least some of the time in about 80 percent of people with epilepsy. Once epilepsy is diagnosed, it is important to begin treatment as soon as possible.

Tailoring the dosage of antiepileptic drugs

When a person starts a new epilepsy drug, it is important to tailor the dosage to achieve the best results. Doctors will usually prescribe a low dose of the new drug initially and monitor blood levels of the drug to determine when the best possible dose has been reached, so it may take some time to find the right drug at the right dose to provide optimal control of seizures while minimizing side effects.

Discontinuing medication

Doctors will advise some patients with epilepsy to discontinue their antiepileptic drugs after 2 years have passed without a seizure (sometimes 4 to 5 years) depending on the person's age and his or her type of epilepsy. Discontinuing medication should always be done with a doctor's advice and supervision.

Surgery

When seizures cannot be adequately controlled by medications, doctors may recommend that the person be evaluated for surgery, depending on seizures type and the affected area of the brain. They also take into account the brain region involved and how important that region is for everyday activities. Surgery should always be performed with support from rehabilitation specialists who can help the person deal with the many psychological, social, and employment issues he or she may face.

Surgery for epilepsy does not always successfully reduce seizures and it can result in cognitive or personality changes, even when surgery completely ends a person's seizures, it is important to continue taking seizure medication for some time to give the brain time to re-adapt. Doctors generally recommend medication for 2 years after a successful operation to avoid new seizures.

Other treatment strategies

Children may experience fewer seizures if they maintain a strict ketogenic diet (rich in fats and low in carbohydrates) or using vagual nerve stimulation.

How does epilepsy affect daily life?

Most people with epilepsy lead outwardly normal lives helped by modern therapies, and some may go months or years between seizures. However, epilepsy can and does affect daily life for people with epilepsy, their families, and their friends. People with severe seizures that resist treatment have, on average, a shorter life expectancy and an increased risk of cognitive impairment, particularly if the seizures developed in early childhood. These impairments may be related to the underlying conditions or to epilepsy treatment.

Behavior and emotions

Sometimes these problems are caused by embarrassment or frustration associated with epilepsy. Other problems may result from bullying, teasing, or avoidance in school and other social settings, which lead low self-esteem, depression and suicide. In children, these problems can be minimized if parents encourage a positive outlook and independence, do not reward negative behavior with unusual amounts of attention. Families must learn to accept and live with the seizures without blaming or resenting the affected person. Counseling services can help families cope with epilepsy in a positive manner.

Driving and activities

it is preferred at least 1 year after the last seizure before driving, according the most regulations in the developed counties. Also people with epilepsy should not participate in sports such as skydiving or motor racing where a moment's inattention could lead to injury. Other activities, such as swimming and sailing, should be done only with precautions and/or supervision. However, jogging, football, and many other sports are reasonably safe for a person

with epilepsy. It is important to take steps to avoid potential sports-related problems such as dehydration and hypoglycemia.

Education and employment

only about 50 percent of people with epilepsy finish high school, few finish college, and about 25 percent of working-age people with epilepsy are unemployed, because they find it difficult to face the misunderstandings and social pressures they encounter in public situations. Antiepileptic drugs also may cause side effects that interfere with concentration and memory.

Are there special risks associated with epilepsy?

Although most people with epilepsy lead full, active lives, they are at special risk for two life-threatening conditions: status epilepticus and sudden unexplained death.

Status epilepticus

Status epilepticus is a potential life-threatening condition in which a person either has prolonged seizures or does not fully regain consciousness between seizures. It is important that the developed person by status epilepticus should be treated as soon as possible in special medical centers, and taking the immediate procedures for saving his life and avoiding the danger complications.

Sudden unexplained death

People with epilepsy have an increased risk of dying suddenly for no discernible reason. This condition, called sudden unexplained death, which may be related to the severe of the disease and its medications to control it.

What to do if you see someone having a seizure

If you see someone having a seizure with convulsions and/or loss of consciousness, here's how you can help:

- Roll the person on his or her side to prevent choking on any fluids or vomit.
- Cushion the person's head.
- Loosen any tight clothing around the neck.
- Keep the person's airway open. If necessary, grip the person's jaw gently and tilt his or her head back.
- Do NOT restrict the person from moving unless he or she is in danger.
- Do NOT put anything into the person's mouth, not even medicine or liquid. These can cause choking or damage to the person's jaw, tongue, or teeth. Contrary to widespread belief, people cannot swallow their tongues during a seizure or any other time.
- Remove any sharp or solid objects that the person might hit during the seizure.
- Note how long the seizure lasts and what symptoms occurred so you can tell a doctor or emergency personnel if necessary.
- Stay with the person until the seizure ends.

Focal seizures

- The person is pregnant or has diabetes.
- The seizure happened in water.
- The seizure lasts longer than 5 minutes.
- The person does not begin breathing again or does not return to consciousness after the seizure stops.
- Another seizure starts before the person regains consciousness.
- The person injures himself or herself during the seizure.
- This is a first seizure or you think it might be. If in doubt, check to see if the person has a medical identification card or jewelry stating that they have epilepsy or a seizure disorder.

After the seizure ends, the person will probably be groggy and tired. He or she also may have a headache and be confused or embarrassed. Be patient with the person and try to help him or her find a place to rest if he or she is tired or doesn't feel well. If necessary, offer to call a taxi, a friend, or a relative to help the person get home safely.

If you see someone having a non-convulsive seizure, remember that the person's behavior is not intentional. The person may wander aimlessly or make alarming or unusual gestures. You can help by following these guidelines:

- Remove any dangerous objects from the area around the person or in his or her path.
- Don't try to stop the person from wandering unless he or she is in danger.
- Don't shake the person or shout.
- Stay with the person until he or she is completely alert.