

## EPILEPSY AND SEIZURES – GENERAL

# EEG (Electroencephalogram)

Cells in the brain use low levels of electricity to communicate. Electrophysiological tests use special equipment to measure the patterns and locations of electrical activity in the brain. An electroencephalogram (EEG) is one type of electrophysiological test.

### ■ What is an electroencephalogram?

An EEG is a test that looks at the patterns and location of electrical activity in the brain. During the test these patterns of electricity are recorded as wavy lines on a computer or on paper. This test usually takes about one hour and does not hurt.

### ■ Why is an electroencephalogram done?

Doctors use the EEG to see where you have problems with the electricity made in the brain cells. The wavy lines that the electricity patterns make change when there is a problem, such as a seizure. The pattern of wavy lines helps the doctor see what and where the problem is, and how to best treat the problem.

An EEG can give the doctor information about the type of seizures you are having and the seizure focus, if any. In many cases, a person with epilepsy will have a normal EEG between seizures. In other cases, a person will have an abnormal EEG between seizures as well as during seizures.

### ■ How can you prepare for an electroencephalogram?

- Wash your hair before going to the hospital.
- Do not use any conditioner or gel on your hair.
- If your child is getting an EEG and cannot lie still for the test, she may have to have a mild sedative.

- A sedative is a medicine that will calm your child so that she can lie still.
- Before having any sedation, your child will have to be careful about what she eats or drinks.
- The treatment team will tell you when your child needs to stop eating and drinking before the EEG.
- You may have to wear hospital clothing or a gown during the EEG.

If your child does not have a sedative, she will have no side effects (problems) from the EEG. If your child has a sedative, she may be sleepy, grumpy, and unsteady for four to six hours. Please check on your child carefully for about six hours after the test.

Give your child only small sips of clear liquids such as water or apple juice. When she is fully awake, your child can have a regular meal if she feels like eating, and she can go back to her usual activities.

### ■ What is a sleep-deprived EEG?

The treatment team may ask that you be sleep-deprived before an EEG so you will be drowsy and can fall asleep more easily during the EEG.

- The treatment team is more likely to see abnormalities on the EEG while you are asleep.

### ■ How is the electroencephalogram done?

- You will generally lie comfortably on your back on a bed. In some cases, EEGs are done while you are seated.

## EEG (Electroencephalogram) *continued*

- Your head will be measured and marked with a wax pencil so that the EEG technologist knows where to put the small gold circles called electrodes.
- The marked areas on your head will be cleaned with a special gel, which is a thick soap.
- Then electrodes will be put on your head with cream and gauze.
- The electrodes are hooked up to the computer with long wires.
- Sometimes the electrodes are in a rubber cap like a bathing cap.
- The computer records the patterns of electricity of your brain.
- Throughout the test, the machine makes a continuous record of your brain activity, or brainwaves, on a long strip of recording paper or on a computer screen.

### **During the test, the technologist may ask you to:**

- breathe deeply for three minutes
- open and close your eyes
- watch a flashing bright light for a few minutes

These exercises are done to stimulate certain types of brain activity. They do not mean, for example, that flashing lights will always trigger seizures.

You may have the test while you are asleep and awake. This is done to see the differences in the brain when your child is awake and asleep.

### ■ **Are there any side effects?**

Your hair may be a little sticky from the cream. You can easily wash out the cream with shampoo.

*Reprinted from Sick Kids, Elizabeth J. Donner, MD, FRCPC, 2/4/2010*

<http://www.aboutkidshealth.ca/En/ResourceCentres/Epilepsy/UnderstandingEpilepsyDiagnosis/DiagnosticProcedures/Pages/EEG-Electroencephalogram.aspx>

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