



EPILEPSY SURGERY EVALUATION (PHASE 1)

WHEN IS EPILEPSY SURGERY CONSIDERED?

Your doctor usually begins to consider epilepsy surgery when three or more antiepileptic drugs (AEDs) have not controlled your seizure activity.

WHAT KIND OF EPILEPSY SURGERY IS MOST FREQUENTLY PERFORMED?

Temporal lobectomy is the most frequent type of surgery performed for seizures. Temporal lobectomies are usually performed on patients who have complex partial seizures or secondarily generalized seizures. "Extra temporal" surgery means removing a part of the brain outside of the temporal lobe.

WHAT ARE SOME STATISTICS ABOUT PATIENTS WHO GO THROUGH WITH A TEMPORAL LOBECTOMY?

- Patients who have temporal lobectomies have a 70% chance of being essentially seizure free.
- Patients who have extratemporal surgery have a 50% chance of being essentially seizure free.
- If you experience one year of seizure-freedom after surgery, you may be able to decrease the number of AEDs you take
- Some people (about 50%) are able to stop taking their AEDs completely after surgery.

WHAT ARE THE RISKS ASSOCIATED WITH EPILEPSY SURGERY

With any surgery there are risks that the physician will discuss with you if is determined that you are a candidate for surgery. The list of risks may include the following:

- Less than 1% of patients have a serious unexpected complication (like stroke or death).
- About 15% of patients have a temporary or mild complication
- Examples of temporary complications are headaches or depression for 6 months after surgery.
- Examples of mild permanent complications include mild memory difficulties or a change in peripheral vision.

WHAT ARE SOME QUESTIONS TO CONSIDER BEFORE TALKING TO MY DOCTOR ABOUT EPILEPSY SURGERY

- What are my goals for surgery?
- What is my risk for injury with seizures?
- How do seizures affect my quality of life?
- How do I think my life would be different if my seizures were controlled?

WHAT KIND OF TESTS MAY BE DONE TO DETERMINE WHETHER I AM A CANDIDATE FOR SURGERY OR NOT?

There are several different tests that your doctor may order as part of the epilepsy surgery work-up. Most of these tests are done to determine what kind of seizures you have and to find the seizure focus:

1. MRI (magnetic resonance imaging): Provides a visual image of your brain, is a painless procedure during which you will lie flat on a narrow table inside the opening of a large magnet. You will need to lie still while the scan is completed. You will hear loud humming/whirring sounds.
2. Routine EEG: An EEG, or electroencephalogram, is a recording of electrical brain wave activity from leads and wires placed on the scalp. A routine EEG, in between your seizure activity, may give your doctor clues about the type of seizures you have and where the seizure focus is.
3. Video/EEG Intensive Monitoring: You will be continuously monitored with video and EEG in the hospital. The purpose of the admission is to capture your typical seizures and correlate them with your brain waves. The doctors may try to provoke your events by decreasing your antiepileptic drugs (AEDs).
4. Neuropsychological Testing: Neuropsychological testing conducted as part of a Phase I epilepsy evaluation typically measures general intellect, reasoning and/or problem solving skills, multi-tasking, attention and concentration, learning and memory, language skills, and sensory and motor skills. These tests can help locate your seizure focus because sometimes the area where the seizure starts doesn't work as well as the rest of the brain. Everyone has areas of the brain that are stronger or weaker than others, but in people with epilepsy, the weaker area often corresponds with the seizure focus.
5. SPECT Scans: SPECT is an abbreviation for single photon emission computed tomography. It is similar to a CT scan (which is an abbreviation for "computed tomography"). SPECT measures blood flow in your brain. During a seizure, the blood flow increases in the area of the brain where the seizure begins. In between seizures the blood flow can be less than normal at the site where the seizure begins. Therefore, the blood flow measured by SPECT can assist in determining where your seizures begin.
6. PET Scan: Similar to A SPECT scan, but a PET scan measures brain sugar metabolism or activity rather than blood flow. This test also requires a radioactive tracer. Between seizures the seizure focus usually uses less blood sugar than the rest of the brain, indicated by decreased radioactivity in that area. PET scans are only performed in between seizures, not during seizure activity, because the radioactive tracer only lasts a few minutes and it would not be possible to wait for a seizure to occur. To prepare, you have to be NPO (nothing by mouth), including no caffeine, no sugar, and no chewing gum for four hours before the injection of the tracer. After the injection, you need to sit quietly for an hour.
7. Wada Test (also known as an intracarotid sodium amobarbital test): The Wada test is a procedure done to determine which side of your brain controls language function and to measure memory function of each side of the brain separately. To prepare for the test, you will be seen in the Epilepsy Clinic for a clinic visit and blood work one day and then have the Wada test the next day. On the day of your Wada test, you will come to the EEG laboratory in the main hospital to have EEG electrodes placed on your scalp in the early morning and typically be done with the test by noon. However, you will be required to lay flat for between 3-6 hours after the test. Most likely, you will be able to go home in the evening.

ONCE ALL THESE TESTS ARE DONE, WHO DETERMINES IF I AM A CANDIDATE FOR EPILEPSY SURGERY?

All of your test results are reviewed by the Epilepsy Surgery Committee, which is a committee consisting of epileptologists (neurologists who specialize in epilepsy), neuropsychologists, and neurosurgeons. The committee helps your primary epileptologist determine whether or not you are a candidate for epilepsy surgery.