

Treatment of Epilepsy The neurology team will design a treatment plan according to medical condition, state of health and individual needs. They may also refer to additional doctors or other medical professionals. Most medical treatments can involve some risks or complications. The neurologist will explain any possible risks or complications involved. Don't be afraid to ask the doctors, nurses or therapists about your treatment.

Drug Therapy Medication

In many cases, seizures can be successfully prevented with medications. The type of medication you will receive depends on many factors. Your neurologist will explain how the medication should be taken and the side effects that may occur. Over a period of time medication regimen may be changed. It is very important that you take the medication exactly as directed. Call your neurologist if you have any questions about the medications or you experience some unexpected side effects. Some patients do not respond to medications and continue having seizures. In these cases, other treatments may be recommended.

The standard treatment for epilepsy is the regular use of one or more chemical substances called anti-epileptic or anti-convulsant drugs. The ideal situation is when a person takes as little medication as possible while maintaining seizure control.

Anti-epileptic drugs like phenytoin sodium, phenobarbitone, benzodiazepines are commonly used to control epilepsy. However the blood levels of these medicines need to be closely monitored so that adequate levels are constantly maintained. The most commonly used treatments are probably Dilantin, or Eptoin, Carbamazepine or Tegreto, and Phenobarbital, an older medication. The 1st two drugs are, in general well tolerated. Dilantin, is very effective as it is long acting and needs to be taken only once a day, the side effects are mostly cognitive and can cause problems with thought and memory, can lead people to tire easily and cause a kind of rash. Since it has been around for a long time it has been well researched and we are aware of its uses and limitations. The most common medication worldwide for seizures is Tegreto or carbamazepine. Chemically, it is very similarly to Dilantin but taken twice a day. But it is a different drug. The side effects are a bit different. If the dose is too high it can cause sedation and double vision.

Drug options

Over the past decade there have been a number of developments, with new more specific drugs becoming available. This is not to say that the older drugs have become obsolete. In fact, the newer preparations may not be at all suitable for some people. Each drug has two names, the generic, or chemical name (for example carbamazepine) and the trade name (for example Tegretol), given by the manufacturer. It is helpful for a person to know the generic names of his/her drugs, especially when travelling abroad.

Team work

Co-operation between you and your doctor is essential in establishing optimum control of your epilepsy. The more accurately you, or a family member, can describe your seizures and the effects of the medication, the more precise the doctor's prescription can be. It is important that drugs are taken exactly as prescribed. Compliance is a major factor in the overall results that

can be achieved. Your pharmacist is also able to assist with information and advice about your medication.

Side-effects

Like all drugs, anti-convulsants may have some side-effects. The appearance of these depends on each person's individual response to the drug as well as how much of it he or she is taking. With only a few exceptions, side-effects associated with anti-convulsants drugs are mild and usually occur at the beginning of therapy, usually disappearing as the person becomes used to the drug. If side-effects do occur, they should be reported. Depending on the type of drug involved, the most frequent side-effects are drowsiness, irritability, nausea, rash, thickening of facial features, increase in body hair, physical clumsiness, overgrowth of gum tissue, and hyperactivity in children. Some drugs may produce emotional changes; occasionally a drug will actually increase rather than decrease the number of seizures a person experiences. However, many people are able to take the medication for years without experiencing any of these effects.

Ketogenic Diet

Special high-fat, low-protein, no-carbohydrate diet has been recommended for people with epilepsy who do not respond to medications. The diet mimics certain effects of starvation, which helps to prevent seizures. Dietician can help you to incorporate this diet into your family's lifestyle. Strict adherence to the diet is essential for the treatment to be successful.

Surgery for Epilepsy

If seizures are confined to a part of the brain or if they are due to growths, surgical resection may cure the condition. Surgery helps lessen seizures after they've been on a couple of medications. Medications just suppress epilepsy, while surgery can be a cure. The best cases for surgery are patients with temporal lobe epilepsy. The temporal lobe lies next to the ear and can be removed without any effects that we are aware of. Conclusive testing is required before the person goes for surgery, as to define the exact area in the brain that is causing the seizures and that area is not important for other functions. Many of the patients don't need to take anti-epileptic medications after surgery.

What are the surgical treatments for Epilepsy?

Standard surgical procedures

If drug therapy fails to control seizures, particularly partial, over a two or three year period, surgery may be appropriate. Children and young adults are the preferred candidates, because older people have more difficulty with rehabilitation. Tests for Surgical Decision Making. Advances in imaging and monitoring, new surgical techniques, and a better understanding of the brain and epilepsy in infants as well as in older individuals have made surgery a more viable option than in previous decades. The general approach is first to locate the brain tissue that triggers the epileptic event using long term EEG monitoring, usually with added information from imaging techniques, such as MRI or PET scans.

If such tests detect a specific area in the brain as the location for the seizure, then surgery is possible. The physician then tries to determine if the offending nerve cells perform vital functions usually with the use of advanced MRI techniques. The surgeon's goal is to remove

just enough damaged tissue and no more in order to prevent seizures and limit brain injury. If the diagnostic tests indicate that more than one site is involved or they have conflicting results, then more invasive monitoring of the brain is required.

Surgical procedures may be considered to prevent seizures.

These procedures include:

Disconnection procedures – These procedures disrupt abnormal electrical activity that occurs in the brain and triggers epileptic seizures. Two types of disconnection operations are:

Corpus callostomy – Used to stop atonic and tonic seizures.

Multiple subpial transections – Used when seizures are caused by parts of the brain that can't be removed.

Focal resections – Focal resections are the most common surgical approach for treating epilepsy and provide the best chance for patients to gain complete seizure control. These procedures involve the removal of a small area of the brain where seizures originate. New brain monitoring techniques allow doctors to better pinpoint brain tissue causing seizures.

Types of resections include

- **Temporal lobectomy** – A portion of the temporal lobe is removed to control seizures.
- **Lobar resection** – A portion of a seizure, producing lobe, frontal, parietal or occipital lobe – is removed, if it can be done without damaging vital functions.
- **Hemispherectomy** – One sphere of the brain is removed or disabled. The remaining half of the brain takes over many of the functions of the half that was removed. This procedure is used to treat severe conditions that have not responded to other treatments.

- **Gamma Knife radiosurgery** – The Gamma Knife delivers a finely focused, high dose of radiation to remove tissue without damaging surrounding tissue. Some types of seizures, such as gelastic seizures which are accompanied by brief, sudden bursts of emotion, can be treated with this technology.
- **Vagus nerve stimulation** – This procedure involves minor surgery and is a relatively new treatment that helps prevent or lessen the severity of seizures. An electrical stimulator is implanted that sends regular electrical pulses through the vagus nerve to the brain to reduce the onset or frequency of seizures.

If a seizure occurs between doses of current, you or your child can pass a magnet over the device to trigger an additional dose. A child with a vagus nerve stimulator continues to take medication but sometimes can reduce the amount or number of medications. This procedure can treat a wide variety of seizure disorders when surgery isn't an option.

Prevention and Follow-Up

To help cope with epilepsy and reduce your chance of injury from seizures, doctors recommend the following

- Patient should carry identification, that indicates he or she has epilepsy. In an emergency, this information can ensure that you receive the right care.
- Explain to your family, friends, teachers, relatives and sports coaches how to care for you if he or she has a seizure.
- If you get regular or even occasional seizures, make sure he or she avoids dangerous

situations and activities. Eg. Be careful when playing sports and should not swim unattended.

- Should never stop taking seizure medication or change the amount taken without discussing it with a doctor first.
- Always consult your doctor or pharmacist before taking other medications in addition to seizure drugs.