AAN Guideline Summary for **PATIENTS** and **THEIR FAMILIES**

TREATMENTS FOR ESSENTIAL TREMOR

If your doctor tells you that you have *essential tremor,* this fact sheet will help you talk about the treatments that may help.

Neurologists from the American Academy of Neurology (AAN) are doctors who treat diseases of the brain and central nervous system. They believe you should know about the safe and effective treatments for essential tremor. These treatments can improve your quality of life, but they do have side effects.

Neurologists reviewed all of the studies for treatment of essential tremor. They made suggestions that will help doctors treat people with essential tremor more successfully. In some cases, they found there is not enough information to decide whether a treatment works and is safe. In some cases, they found there are treatments that should not be used for tremor.

What is essential tremor?

Essential tremor is a common neurological disorder. It is caused by a poorly understood disturbance of brain function. People with essential tremor experience shaking they cannot control.

Essential tremor can affect:

- The limbs, causing tremor in the hands and arms
- The head
- The vocal cords, making the voice sound shaky

Essential tremor occurs when the muscles are used. Unlike Parkinson tremor, essential tremor is usually not present when the limbs are relaxed.

Tremor often begins in early adulthood. It may become more noticeable as people get older. Since tremor occurs during movement—such as while writing or eating—people may find it bothersome and embarrassing.

What are the treatments for essential tremor?

There is no cure for essential tremor, but there are treatments that give relief and improve quality of life. These include drug therapies and surgical procedures. The treatment chosen will depend on the severity of tremor and the side effects of each treatment.

DRUG THERAPY

If the tremor interferes with your work or other daily activities, drugs may help. Neurologists looked at data for several drugs. Many people with tremor benefit from drug therapy.

A decision to use drugs will depend on other medical conditions you have and potential side effects. Your doctor should discuss any serious side effects with you.

Limb tremor

If you have tremor in your hands and arms, there is strong* evidence supporting the use of *propranolol, primidone,* or *long acting propranolol.* These drugs should be offered to people with hand and arm tremor. If taking one of these drugs alone does not sufficiently reduce your tremor, your doctor may prescribe a combination of drugs. Your doctor will monitor how well these drugs are working; your dosage may need to be adjusted.

There is also good* evidence that the following medications are probably effective and may be helpful. They should be considered when propranolol and primidone are not adequate:

- *Sotalol* and *atenolol*—these drugs are typically used to regulate blood pressure; however they can be used as substitutes to propranolol and primidone.
- *Gabapentin* and *topiramate*—these drugs are typically used to treat seizures.
- *Alprazolam*—this drug is typically used to slow down the nervous system. This medication may be habit-forming or have other serious side effects and should be taken with caution.

Botulinum toxin A injections are possibly* effective for limb tremor, but may cause non-permanent weakness of the limb muscles. They may be considered for hard-to-manage tremor of the hand and arm.

Neurologists found that there are several drugs not recommended for treating essential tremor. There are also some drugs where there was not enough data to make a decision about their effectiveness and safety. If you have questions, discuss these drugs with your doctor.

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Head tremor or voice tremor

If you have head tremor, there is good* evidence supporting the use of propranolol.

Moderate* evidence shows that botulinum toxin A injections are possibly effective and may be considered for hard-to-manage head tremor and voice tremor.

SURGICAL THERAPY

If your tremor is severely disabling and drugs do not relieve your symptoms, surgery may be an option. Two types of surgery are used to treat essential tremor. They are *deep brain stimulation* (DBS) and *thalamotomy*. Both treatments affect the *thalamus*. This is a cluster of nerve cells deep in the brain.

Your doctor should discuss potential side effects of these treatments with you. The decision to use these procedures depends on your condition and the risk for complications compared to potential successful outcomes.

Deep brain stimulation (DBS)

In DBS, an electric probe (electrode) is placed in the thalamus. A wire from the electrode is routed beneath the skin to a pacemaker device implanted near your collarbone. The pacemaker and electrode stimulate the thalamus with pulses of electricity. This blocks the brain activity that causes tremor. Only special centers perform this procedure.

Evidence shows that DBS is effective and may used to treat people who experience hard-to-manage limb tremor. The experts did not find enough data to make recommendations for the use of DBS to treat head or voice tremor. DBS has fewer side effects than thalamotomy.

Thalamotomy

During this surgery, a lesion is placed on a small part of the thalamus. This interferes with the abnormal brain activity that causes the tremor. This is typically done on only one side of the brain.

Evidence shows that thalamotomy surgery on one side of the brain may be effective and used to treat a limb tremor that cannot be controlled by medication. Thalamotomy on both sides of the brain is not recommended because of high risk of disabling side effects.

Readers should be aware that it is difficult to study surgical therapies in the same way as other medical therapies. It is difficult to design a study where neither the physician nor the patient knows if the patient went through the real surgical procedure or a comparison (sham) procedure. Therefore, the evidence that DBS or thalamotomy successfully treats limb tremor is weakened by the research methods involved.

Gamma knife surgery

Because there was not enough data available, the panel could not make recommendations for the use of a non-invasive procedure called *gamma knife thalamotomy*, which uses radiation.

Talk to your neurologist

It is best to see a doctor who has experience with tremor and movement disorders for diagnosis. You should have a thorough evaluation by a neurologist. He or she will examine the parts of your body that are shaking and determine if essential tremor or some another condition is the cause.

Not every treatment works for every patient. Your doctor will recommend an individualized treatment plan, including lifestyle changes that may reduce your tremor. A treatment decision will depend on other medical conditions you have and potential side effects. Your doctor should discuss serious side effects, if any. All treatments have some side effects; the choice of which side effects can be tolerated depends on the individual.

*After the experts review all of the studies, they describe how strong or weak the data are.
Strong evidence = research studies with high-quality data collection, this shows that the treatment is either effective, ineffective, or harmful.
Good evidence = data collection using a combination of high-and low-quality methods, this shows that the treatment is *probably* either effective, ineffective, or harmful.
Moderate evidence = research studies with low-quality data collection, this shows that the treatment is *possibly* either effective, ineffective, or harmful.

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