What is VNS Therapy?

- VNS is an **adjunct** therapy for treatment of medically refractory seizures
- Day surgery
- Programmed transcutaneously
- Can be activated by caregiver
- First approved by FDA in 1997
Benefits

- About 1/3 of patients experience a major reduction in the number of seizures, another 1/3 experience moderate improvement, and the final third experience no change or even an increase in seizures
- Fewer and less severe seizures
- Shorter recovery time from seizures

Long-term benefits include:
- Improved mood
- Increased alertness
- Better memory and concentration
- Decrease in dose or number of epilepsy medications

Internal components

A pacemaker-like device (called a generator) sends stimulation through a flexible wire (called a lead)
How does it work?

• The stimulator in the chest sends small electric impulses to the brain by stimulating the vagus nerve in the neck.

• This stimulation happens automatically at set times all day and all night.

• Stimulation settings can be individualized and adjusted to alter the treatment’s effect on seizure activity
  o Power of stimulus or current
  o Duration of stimulus, programmed for on time (seconds) and off time (minutes)

External components

Magnet

Handheld computer and wand
When to use the magnet

• When the student feels a warning or sense that a seizure may be coming (aura)

• At the start of a seizure

• When someone notices that the student is having seizure activity, or anytime during a seizure

Using the magnet

• If the student has an aura before a seizure, you can use the magnet to give an extra impulse which may shorten or stop the seizure. Magnet-activated stimulation may be expected to stop seizures 1/4 to 2/3 of the time when used during seizure auras.

• Using the magnet may also help to shorten or stop a seizure in process, and/or reduce the postictal phase.

• The Epilepsy Foundation of America recognizes the use of the VNS magnet as a first aid intervention that can be administered by the patient, school nurse, or trained school personnel.
Who can use the magnet?

Board of Registration in Nursing Advisory 2008

“...Collaborating and communicating in the development, implementation, monitoring and evaluation of the training and performance of unlicensed persons who may use the hand-held magnet to activate the generator transcutaneously. Such training, monitoring, and performance evaluation does not constitute delegation or supervision by the licensed nurse because the use of the VNS magnet is not the practice of nursing...”

How to swipe

The first way is to hold it in your hand, place it on the student’s chest just below the neck and bring it slowly down into the left armpit while you count 1001-1002-1003.
How to swipe

The second way is to hold the magnet in your hand and “brush” it down and up (like a paintbrush) starting in the center of the student’s chest and moving to the left armpit.

Using the magnet (cont.)

• The magnet swipe will provide a higher current than the routine current setting for 60 seconds

• The magnet can be reswiped in intervals of 60 seconds until the seizure stops or other emergency treatment is necessary

• The magnet is powerful enough to be swiped over clothing layers
Side effects
Side effects are typically related to stimulation, are usually temporary, and may improve over time.

- Hoarseness/change in voice
- Coughing
- Throat tickling
- Feeling of shortness of breath

Continuous hoarseness or throat pain, choking, or difficulty breathing or swallowing would be an emergency – call 911

Turning off device

- If the student has voice changes during stimulation and would like to avoid this during public speaking or singing, the device can be “turned off” using the magnet.

- When you want to control side effects by temporarily stopping stimulation, hold or tape the magnet over the generator. When the magnet is removed, stimulation will restart.
Device precautions

• The VNS magnet can damage credit cards, bankcards, computer disks or televisions. Keep the magnet at least 10 inches away from these items.

• Devices with strong electromagnetic fields can act as a magnet and activate the Pulse Generator.

• Properly operating microwave ovens and other small appliances such as toasters, hair dryers, and electric shavers should not affect the Pulse Generator.

• Cell phones do not affect the Pulse Generator.

Resources

• Cyberonics website:
  us.cyberonics.com

• Epilepsy Foundation website:
  epilepsy.com

• Epilepsy Foundation New England:
  epilepsynewengland.org
References


