What are the vagus nerves?
The vagus nerves are a pair of nerves that start in the brain and run through the body. The vagus nerves are the longest of the autonomic nervous system. They send and receive messages between the brain and the body and help regulate organs like the lungs, heart and digestive tract.

What is VNS therapy and how does it work?
Vagal nerve stimulation therapy (commonly called 'VNS') is a type of specialized therapy which was originally approved by FDA in 1997 for use in patients with refractory partial epilepsy.

Epileptic seizures are like an electrical storm in the brain. VNS tries to reduce the tendency of the brain to develop epileptic seizures, but with an approach different than anti-seizure medications. The VNS is a hockey-puck sized device with an inbuilt battery (some models are smaller). The device is placed under the skin on (usually) the left side of the chest. A thin wire is tunneled under the skin the device to the vagus nerve on the same side. When the device is switched on, it sends mild pulses of electrical stimulation to the vagus nerve which helps calm the electrical irritability in the brain.

What is the aim of VNS therapy?
VNS therapy aims to reduce the number, length and severity of seizures. VNS therapy may reduce the length, intensity or frequency of seizures but this does not happen for everyone. It may also reduce the time it takes to recover after a seizure. It is unlikely to completely stop seizures and it does not ‘cure’ epilepsy.

VNS and its utility in epilepsy has been widely studied all over the world. Through trials, VNS was found to be effective in significantly reducing the occurrence or intensity of seizures in some participants. Participants reported an average of nearly 25% reduction in seizures in the first 3 months of device placement. The benefit may improve with time and nearly 60% patients reported reduction of seizures by at least half by 3 years of device placement. Studies also show that response to VNS therapy occurs in patients of different ages, different types and causes of refractory epilepsy.

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Vagal Nerve Stimulation (VNS)

Can I be considered for VNS therapy?

VNS therapy is usually considered if you have tried a number of AEDs which have not fully controlled your seizures, and if you are not a candidate for surgical resection/ablation.

VNS is approved as a treatment option for adult and pediatric patients with medically refractory focal epilepsy. This means patients who have been having frequent seizures starting from a small part of the brain, who have not responded even after taking at least 2 anti-seizure medicines. Many patients may have tried more than 2 medicines. When surgery to remove the area of the brain is not an option, the VNS may provide a benefit.

How does the stimulator work?

The stimulator is usually switched on within four weeks of it being implanted. The neurologist or nurse will programme the stimulator and set the amount (strength and length) of the electrical stimulation given. The amount of stimulation varies from person to person, but is usually started at a low level and slowly increased to a suitable level for each person. Usually it is set at 30 seconds of stimulation every five minutes through the day and night.

The stimulator has a battery inside which can last up to ten years. When the battery is low, the stimulator needs to be replaced. Replacement is done during an operation similar to the one when it was put in.

Can I use VNS instead of anti-epileptic medication?

Anti-seizure medicines try to achieve the same goal, but with different strategies. As the result they are considered complementary. VNS has been used and proven effective in patients who are not controlled despite taking medicines. VNS is not considered a replacement of medicines. Most patients will need to continue some anti-seizure medicines.

Learn more:

Does VNS therapy have any risks or side effects?

The risk and complications during VNS placement are rare. They may include infection around the surgical site, vocal cord paralysis, need to reposition or replacement. Other risks can also include implant site infection which may require system removal.

The surgeon who will place your VNS may be able to help you understand your risks better.

When the device is delivering therapy, patients may notice some symptoms. They usually include mild voice change, cough. Other even less common symptoms can include local pain, shortness of breath, headache etc. These symptoms are usually mild and can be minimized by optimal programming of the device is a physician. In many situations, patients become accustomed to them and over time do not notice them or are bothered by them.

What about any other positive effects?

Some people feel that VNS therapy improves their mood, memory or alertness, and may also help reduce depression or have a positive effect on their quality of life (overall wellbeing).

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