

What are the vagus nerves?

The vagus nerves are a pair of nerves that start in the brain and run through the body. They carry messages between the brain and the body.

What is VNS therapy and how does it work?

Vagus nerve stimulation (VNS) therapy is a treatment for epilepsy that involves a stimulator (or 'pulse generator') which is connected, inside the body, to the left vagus nerve in the neck. The stimulator sends regular, mild electrical stimulations through this nerve to help calm down the irregular electrical brain activity that leads to seizures.

What is the aim of VNS therapy?

VNS therapy aims to reduce the number, length, and severity of seizures. For some people, their seizures become much less frequent, for some it may reduce their seizures a little, and for others it has no effect. VNS therapy may reduce the length or intensity 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.

The effect of VNS therapy may not happen straightaway; it can take up to two years for it to have an effect on someone's seizures. It is used alongside anti-epileptic drugs (AEDs) not instead of them. However, if VNS therapy works, it may be possible to reduce a person's AEDs over time.

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 suitable for, or do not want to have, brain surgery.

People who are considering VNS therapy will usually be given more information about it from their neurologist or epilepsy specialist nurse.

What is the stimulator like?

The stimulator is a bit like a heart pacemaker. It is implanted (placed) under the skin in the upper chest (under the left collar bone) during a small operation under general anaesthetic.

Because of the size of the stimulator there will be a small lump where it lies, and a small scar where it is put in. A lead connects the stimulator in the chest to the vagus nerve in the left side of the neck. Because the electrodes are coiled around the nerve in the neck, there will also be a small scar where they are inserted, usually in the fold of the neck.

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 it, which can last up to ten years. When the battery is low, the stimulator needs to be replaced during an operation similar to when it was put in.

What can VNS therapy do during a seizure?

Some people have a warning or aura, which is a focal aware seizure that tells them that they are going to have a further seizure. When this happens, a special magnet can be passed over the stimulator to give stronger stimulation for a slightly longer period of time. This may stop the aura from developing into another seizure, or may reduce how long it takes the person to recover after a seizure.

The magnet can be worn on the wrist like a watch, or on a belt, or attached to a wheelchair. For people who have no warning before a seizure, someone else could use the magnet for them when a seizure happens.

Vagus nerve stimulation (VNS) therapy is a form of treatment for people with epilepsy whose seizures are not controlled with medication.

Epilepsy Society Helpline
01494 601400
helpline@epilepsysociety.org.uk
Confidential, national call rate.
Information and emotional support.

Some people may experience an increase in heart rate during their seizures. The Aspire SR® and SenTiva® devices can pick up these changes and give automatic stimulation in a similar way to magnet stimulation.

Does VNS therapy have any side effects?

VNS therapy can cause side effects but usually only during the time that the nerve is being stimulated. Side effects may not happen for everyone but can include discomfort in the throat, a cough, difficulty swallowing, and a hoarse voice.

Side effects may reduce over time and do not usually mean that the stimulator has to be switched off. If side effects are a problem, the neurologist or nurse can adjust the settings, or the magnet can be held over the stimulator for a few seconds to briefly stop the stimulation.

VNS therapy does not affect, and is not affected by, anti-epileptic drugs.

What about any other positive effects?

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

What happens if it does not work?

VNS therapy does not work for everyone. If there is no benefit from VNS therapy, you and your specialist may consider having it switched off or removed. Even if VNS therapy has no effect on the seizures, it might have other positive effects (see previous question).

Can I have an MRI scan if I have VNS therapy?

If you have VNS therapy and need an MRI, it is important that everyone involved with the scan is aware, so that they can decide if the scan can be done.

The MRI's magnetic fields can cause the leads to overheat, which may cause burns to the skin near to the electrodes or leads. Risks depend on the MRI machine used and the type of scan you need. It may be possible to scan the brain with an MRI scanner that has a very specific strength setting.

X-rays and CT scans do not affect, and are not affected by, VNS therapy. This is because they do not produce enough radiation to cause damage to the stimulator. However, extra care may be needed, or the

stimulator may need to be switched off for the scan, and turned back on again afterwards.

Can I go through airport security?

At the airport, you can provide security officers with your VNS Therapy ID card, which explains that you have an implanted medical device. You can request a pat-down check instead.

Other organisations

LivaNova (makers of the VNS therapy system)
vnstherapy.co.uk
Information about VNS therapy.

For a printed copy of this information contact our helpline.

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