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## **Vagal Nerve Stimulator**

### **Article written by Sinead Murphy Community Epilepsy Specialist Nurse**

The vagal nerve stimulator (VNS) is a device used for the treatment of intractable partial or generalised epilepsy i.e. those people not suitable for epilepsy surgery and for those who fail to respond to 3 or more different anti-epileptic medications (AEDs). Mechanistically, the VNS is unlike any other previous treatment for epilepsy. After appropriate evaluation, a patient may undergo surgical implantation of a VNS, usually performed at a specialised epilepsy centre.

The first patient was treated with a VNS in 1988 as part of a clinical trial of patients with refractory partial seizures and who were not candidates for surgery (1).

The VNS is a NeuroCybernetic Prosthesis (NCP) system is somewhat similar to a cardiac pacemaker. It contains a pulse generator that is inserted under the skin of the chest wall or under the arm on the left side, with a wire attached to the left vagus nerve, delivering intermittent electrical stimulation to the brain to reduce the frequency and duration of seizures. The device also includes a magnet for manually controlling activation and a device known as a telemetry wand, which, the doctor uses to, interrogate and programme the device. Unfortunately, there is no way of knowing if the device will work for you prior to insertion, however research has suggested that it will not make your epilepsy worse.

The operation itself usually takes no more than 2 hours and is usually preformed under general anaesthesia. The patient will have 2 incisions one on the chest wall below the collarbone and another on the neck.

After the device has been successfully implanted provided that the patient is well enough he or she is discharged home with instructions about caring for their wound and is brought back 2 weeks later to the out patient clinic to have the device switched on and to be educated on the use of the magnet. Then and during each visit afterward, your doctor will check the device to make sure it is working for you and that the treatment is comfortable for you.

You will continue to take your AEDs as prescribed and your doctor should only ever alter them.

The patient uses the magnet when they get an aura/warning or by the family member or caregiver if the person is unaware they are having a seizure. Each person has different results from using the magnet. Some people say that the magnet stops all or most seizures, shortens them, or lessens their intensity or their recovery period afterward.

For other people the magnet has little or no effect. The magnet can damage computer discs, credit cards and other items affected by strong magnetic fields. The magnet should be kept at

least 25 centimetres away from any of these items.

Some of the reported complications from getting the device inserted include:

- Infection
- Pain at the incision site
- Skin irritation
- Hoarseness
- Coughing

The battery is expected to last between 6 and 10 years and must be replaced by your doctor.

If you require any further information about the VNS please talk to your Neurologist/Epilepsy Specialist Nurse about this.

1. Pentry JK, Dean JC : Prevention of intractable partial seizures by intermittent vagal stimulation in humans: preliminary results. *Epilepsia* 1990; 31(Suppl 2) S40-S3.