

## Vagus nerve stimulation therapy in epilepsy

### Contents

- Introduction
- About vagus nerve stimulation (VNS) therapy
- About the operation
- Living with vagus nerve stimulation (VNS) therapy
- Availability of vagus nerve stimulation
- Support organisation

### Introduction

This fact sheet explains what vagus nerve stimulation therapy is (commonly known as vagus nerve stimulation or VNS) and how it can help some people with epilepsy.

### About vagus nerve stimulation (VNS) therapy

#### What the vagus nerve stimulation therapy is

Vagus nerve stimulation (VNS) therapy uses a small generator that is implanted under the skin below the collar bone. This is connected to a lead with two coils at one end. These coils are wrapped around the vagus nerve at the side of the neck, under the skin, during a small operation. The generator sends electrical impulses, at intervals, to the vagus nerve and then to the brain. This helps to lessen how often the seizures happen and how severe the seizures are.

#### How vagus nerve stimulation works

The generator is programmed (during the operation) to send electrical impulses, at intervals throughout the day. The electrical impulses are sent through the lead, to the vagus nerve in the neck and then to the brain. This will help to prevent electrical activity that causes seizures.

If necessary, the generator can be adjusted after the operation, or at an outpatient appointment, by the doctor, or epilepsy nurse specialist.

While in hospital the person will be given a magnet that can also be used to activate the generator to send extra impulses through to the brain. The magnet works by passing it over the implanted generator. This would be used if the person feels a seizure starting, or during a seizure. This can stop the seizure, shorten the seizure or lessen the severity of the seizure, in some people. The magnet can also be used by a carer, or family members, if they witness a seizure.

#### Seizure control with vagus nerve stimulation

After the VNS is implanted, it can take from a couple of months to up to two years to notice a difference in seizure control. Reported benefits include fewer seizures, occasionally seizure freedom, shorter seizures, quicker recovery after a seizure, feeling more alert and improved mood.

#### People who could benefit from vagus nerve stimulation

Vagus nerve stimulation is for people, of all ages, with difficult to control epilepsy. It's suitable for any type of epileptic seizures. Around 55,000 people worldwide have been implanted with vagus nerve stimulators.

### About the operation

#### What the operation involves

Two small cuts are made, one to implant the generator and another for the lead. This involves:

- an operation that lasts about one to two hours
- a cut in a natural crease on the left side of the neck for the lead
- a cut on the left upper chest near to the armpit for the generator
- a stay in hospital of around one or two days.

### **The risks of having a vagus nerve stimulation operation**

The vagus nerve stimulation (VNS) operation is straightforward and is now commonly done. However, there are risks for anyone who has any type of operation.

The VNS operation is usually done under a general anaesthetic. As with any type of operation, there is a slight risk of reaction to the anaesthetic. There is also a small risk of bleeding and infection with any type of operation. There can be other rare complications and the surgeon would give more information about the risks, before the operation takes place.

There may be some pain after VNS surgery, from the area of the implant. The doctor can prescribe something for this.

### **Living with vagus nerve stimulation (VNS) therapy**

#### **The side-effects**

The most common side-effects reported from the vagus nerve stimulation (VNS) implant are:

- temporary hoarseness/change in the voice tone
- sore/tickling throat
- shortness of breath
- coughing
- prickling feeling in the skin.

#### **Anti-epileptic drugs after the implant**

Anti-epileptic drugs (AEDs) should be taken as normal, for several months after the operation. The doctor will then give advice on any possible changes to the AEDs.

### **Replacing the generator**

There is a tiny battery in the generator that can last for around six to 11 years. At some point, the battery will need replacing. The higher the frequency and output of the stimulation, the faster the battery will run down. Your doctor or nurse can tell when the battery is running down by reading the VNS therapy device. They will then arrange for a new battery in the generator to be implanted. This involves a small operation, which lasts less than an hour. It doesn't usually mean an overnight stay in hospital.

### **Availability of vagus nerve stimulation**

Vagus nerve stimulation is available to patients who are referred on the NHS, or privately. Details of implant centres and programming can be found on the following website [www.vnstherapy.co.uk](http://www.vnstherapy.co.uk), email [website-info@cyberonics](mailto:website-info@cyberonics) or from your GP or specialist.

### **Support organisation**

F.A.B.L.E.

305 Glossop Road

Sheffield

S10 2HL

Telephone 0114 2755 335

Freephone Advice Line 0800 521 629

Email [fable@btconnect.com](mailto:fable@btconnect.com)

Website [www.fable.org.uk](http://www.fable.org.uk)

## About this fact sheet

This publication is written by Epilepsy Action's advice and information team, with guidance and input from people living with epilepsy and Lynn Greenhill, Epilepsy Nurse Specialist, Lecturer, Birmingham.

## Disclosure

Lynn Greenhill has declared that she has received sponsorship from Cyberonics in the past. She attended the International League Against Epilepsy Congress representing Cyberonics in 2010.

Epilepsy Action makes every effort to ensure the accuracy of information in its publications. However, we cannot be held liable for any actions taken based on this information.

## Feedback

If you have any comments about this fact sheet, we would love to hear from you. You can also contact us if you would like to know where we got our information from.

The fact sheet number is F016.01

Fact sheet written: July 2010

To be reviewed: July 2012

## About Epilepsy Action

For more information on epilepsy, please contact us in any of the ways described below.

### Epilepsy Helpline

freephone 0808 800 5050

text 07797 805 390

helpline@epilepsy.org.uk

www.epilepsy.org.uk

Epilepsy Action, New Anstey House,  
Gate Way Drive, Yeadon, Leeds LS19 7XY  
tel. 0113 210 8800 fax 0113 391 0300

A company limited by guarantee  
(registered in England No. 797997)

Registered charity in England (No. 234343)

© Copyright Epilepsy Action 2010

