

## Left Cardiac Sympathetic Denervation (LCSD)

This is a type of treatment that may be offered to you by your cardiologist and we hope this might help explain the potential benefits, the risks involved, and what the procedure involves so that you can better understand your options.

### Who is suitable for LCSD?

Typically, this procedure is discussed with you if you have Long QT syndrome (LQT), Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT), adrenergically triggered arrhythmia, or if you are in or have survived a ventricular tachycardia storm. It is usually not the first treatment suggested and reserved for patients who are intolerant of the first line medicines given or for patients who are not responding to treatment. The treatment may also be considered for other conditions where there are unresponsive heart rhythm problems. The treatment can be offered to children or adults.

### What are the benefits of LCSD?

Patients offered LCSD are often on, or have tried, beta-blocking medicines to prevent the body's own adrenaline stimulating their heart and causing life-threatening heart rhythm changes. During the procedure the nerves supplying adrenergic (adrenaline) stimulation to your heart are severed. This leads to a permanent disruption of the adrenaline supply to your heart and so this treatment will continue having an effect even when you forget to take your medicine. We believe it may be very effective as an adjunct to medicine taken, so increase the degree of protection you receive.

The usual first step is to perform this on the left side as these nerves are more active in the body's response to fear or excitement. The right sided nerves remain fully working. You will still be able to increase your heart rate as necessary to allow you to exert yourself and run etc. It aims to reduce or completely stop life-threatening heart rhythm problems.

### What does the procedure involve?

The procedure is carried out by a surgeon in an operating theatre. The procedure will require a general anesthetic and you will be asleep. There are different ways of performing a LCSD and your surgeon and cardiologist should discuss with you the exact method they intend to use.

One method is performing it thoracoscopically. This means that once you are asleep the surgery is performed through two or three small (about 5 cm) incisions on the left side of your chest under your arm. One is used to place a thoracoscope (a type of telescope to see inside your chest) and the other's for instruments. The anesthetist collapses your left lung, so the surgeon can see the nerves at the back of your chest wall. A diathermy (a surgical instrument that uses heat to cut tissues, nerves, and blood vessels) is then used to sever these nerves on the left side. Local anesthetic is also used so that the nerves do not stimulate your heart during the procedure and also augments pain relief afterwards. Your left lung is then re-inflated, and the wounds closed with an absorbable stitch.

### What is the recovery like?

You will wake up from the anesthetic in the Recovery Area when your heart rhythm will be monitored and you will be given pain relief if needed. You may then be closely observed for a few hours in an HDU or ICU to ensure your heart rhythm is stable before returning to a ward bed. You usually need to remain in hospital for 2 to 3 days. You may need one to two weeks off work/school to fully recover.

endorsed by



Founder: Trudie Lobban MBE, FRCP (Edin)

Executive Director: Francesca Lobban

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Arrhythmia Alliance  
(843) 415-1886

@ info-us@heartrhythmalliance.org

## What can go wrong?

Although the results of LCSD are good with a low complication rate overall, there are some potential dangers that you need to be aware of and prepared to deal with if they happen to you. The most important of which is that the nerves supplying your heart run very close to those supplying the left side of your face. If this nerve is disrupted or damaged, then you may experience Horner's syndrome. This is the name of a condition where you have a small pupil and drooping eyelid on the left side of your face. It is not dangerous, and your eyesight is unaffected but it affects the way that you look and it can be distressing. Sometimes it is transient and can recover so that it is barely noticeable. This occurs between 1- 10% of the time.

The surgeon is near to some very important veins and arteries and your heart when performing this surgery. It is rare that there is any problem with these, but the procedure should be performed in a place where these problems could be immediately dealt with. You will however notice some bruising at the surgical site, as with any operation.

These nerves also supply the top half of your body, tell it when to sweat, and are involved in flushing and temperature control. As a result of the procedure the top half of your body on the left may be slightly cooler to the touch and dry. You usually don't sweat on the left side after LCSD.

This may be an advantage at first but rarely can become a problem long-term with excessive sweating on the right side. If this happens a similar operation can be performed on the right to address this. When exercising you may be able to see the effect of the surgery as the left side of your face stays pale whereas the right flushes as normal for exercise.

For more information on left cardiac sympathetic denervation, speak to your cardiologist.

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**Founder:** Trudie Lobban MBE, FRCP (Edin)  
**Executive Director:** Francesca Lobban  
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