



Arrhythmia Alliance  
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## Left Cardiac Sympathetic Denervation (LCSD)

LCSD is a surgical procedure aimed at reducing the overstimulation of the heart by the sympathetic nervous system. The sympathetic nervous system controls the “fight or flight” response, and in certain conditions, its overactivity can lead to dangerous arrhythmias (irregular heart rhythm).

LCSD involves removing (ablating) specific nerves on the left side of the spine to reduce the risk of sudden cardiac death, particularly in individuals with long QT syndrome or other conditions where sympathetic nervous system activity is excessive.

done either through an incision at the base of the neck (supraclavicular approach), or via Video-assisted thoracoscopic surgery (VATS) - a minimally invasive approach using a small camera and surgical tools to access the nerves through small incisions in the chest. It is done under a general anesthetic and requires a couple of days stay in hospital.

The right-sided nerves remain fully working and you will still be able to increase your heart rate as necessary e.g. during exercise. The procedure aims to reduce or completely stop the life-threatening heart rhythm.

### Who it might be suitable for:

- **Long QT Syndrome (LQTS):**  
LQTS is a genetic disorder that can cause a prolonged QT interval on an ECG, increasing the risk of dangerous arrhythmias.
- **Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT):**  
CPVT is another inherited arrhythmia disorder where sympathetic stimulation can trigger life-threatening heart beats.
- **Medically refractory arrhythmias:**  
In some cases, LCSD may be used as a last resort for patients with arrhythmias that do not respond to other treatments.

### Procedure:

LCSD typically involves removing or ablating the lower part of the left stellate ganglion (a nerve knot) and the thoracic ganglia (nerves in the chest) from T2 to T4 or T5. This can be

### Benefits:

- **Reduced risk of sudden cardiac death:**  
By reducing sympathetic stimulation, LCSD can help prevent dangerous arrhythmias and sudden cardiac death.
- **Minimally invasive:**  
VATS-LCSD is a minimally invasive procedure with a lower risk profile compared to open chest surgery.
- **Effective for LQTS:**  
LCSD has been shown to be an effective treatment for LQTS, particularly in patients who don't respond well to beta-blocker medications.

### Side effects:

- **Horner's syndrome:**  
This can occur if the upper portion of the stellate ganglion is damaged, causing a drooping eyelid, constricted pupil, and decreased sweating on the affected side.

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- **Other potential side effects**  
These include unilateral hand dryness, changes in facial color or temperature, and pain.

### Who it might be suitable for:

LCSD is suitable for individuals with long QT syndrome (LQTS) or catecholaminergic polymorphic ventricular tachycardia (CPVT) who experience recurrent, life-threatening arrhythmias despite appropriate medical management. It is particularly considered when beta-blockers are ineffective, not tolerated, or contraindicated, or when implantable cardioverter-defibrillators (ICDs) are not an option or have failed.

For further information, always consult with your cardiologist.

To view our patient resources, scan the QR code below:



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