

## The adrenaline challenge for Long QT Syndrome (LQTS)

Your doctor has recommended that you have an adrenaline challenge. The purpose of this test is to see if you are likely to have long QT syndrome (LQTS), particularly type 1. This is a disorder that affects the heart. Some people with LQTS may be at risk of developing fast heart rhythms (arrhythmia). If the heart starts beating at an abnormally fast rate then it does not work as efficiently. This can cause symptoms such as weakness, dizziness, chest pain, shortness of breath, collapse, or even death in very rare cases. If you have a close family member who has either been diagnosed with the condition or who has died young from a suspected heart condition, it is very important that all remaining relatives are screened for LQTS.

It is important to remember that the majority of patients who have a long QT appearance on an electrocardiogram (ECG) do not experience arrhythmia and feel perfectly well. If your doctor suspects that you may have LQTS he or she will have advised you to have this well-established, simple clinical test known as an adrenaline challenge to confirm the diagnosis.

Adrenaline is a natural substance in our bodies, but is also used as a drug for a number of reasons, one of which is to test for ECG changes in patients with LQTS. In patients with normal cardiac cells, adrenaline will not have any abnormal effect on the ECG.

### What happens during the adrenaline challenge?

When you arrive on the ward you will be introduced to your nurse who will explain what will happen and answer any questions you may have. Before the procedure you will have blood taken and an ECG recorded. A doctor will also see you, explain the procedure to you, and then ask you to sign a consent form; this is to confirm that you understand the procedure and its associated risks. If you have any worries or questions, please do not be afraid to ask. It is important to tell your nurse or doctor if you have any allergies or have had a previous reaction to any drugs or other test.

Just before the procedure a nurse will help you to get ready. The doctor or nurse will insert a small needle (cannula) into a vein in your hand or arm to allow the doctor to give you the adrenaline during the procedure. You will then be given a hospital gown to wear, making it easier to record the ECG. We encourage a member of your family to stay with you during the test to help you relax.

The adrenaline will be injected through the cannula by a special pump to make sure it is given at the correct speed. During the infusion your ECG will be recorded every 3-5 minutes for up to 30 minutes. By this time the adrenaline should be out of your system and even if you have been shown to have the changes associated with LQTS, your ECG will rapidly return to normal. You will then be given a drink and something to eat and the cannula will be removed before you go home.

### Benefits

Making a diagnosis of LQTS is important as it may mean that you need other tests and treatment to prevent the problems associated with it. Also, because there is a hereditary factor, other family members may need to be tested. However, if the test is negative then this will provide re-assurance that it is unlikely that you have LQTS.

### Side effects and risks

The adrenaline challenge is safe. However, as with any procedure, there are potential risks that may occur either during or after the procedure. Complications associated with this procedure are very rare, can be treated, and are rarely life threatening.

It is common (and harmless) to experience some or all of the sensations of a rush of

adrenaline. These include feeling your heart racing and beating more forcefully, and sometimes feeling a bit sweaty. Such side effects usually resolve quickly once the infusion is completed.

Very rarely, the adrenaline may cause your heart to go into a very fast heart rhythm. When this happens it often needs no treatment other than monitoring you while the drug wears off. Rarely this heart rhythm can require urgent treatment with cardioversion (a controlled electrical shock to restore normal heart rhythm). Cardioversion is a well-established and effective treatment for fast heart rhythms. Before the cardioversion you may be given a sedative to make you sleepy. Once you are asleep a machine called a defibrillator is used to send electrical energy to the heart muscle to restore its normal rhythm and rate. In very rare cases the heart may stop briefly and need cardioversion and other treatment to restart it as the drug wears off. No cases of death have ever been reported as a result of an adrenaline challenge worldwide.

**Your doctor will only recommend that you have an adrenaline challenge if he/she feels that the benefits clearly outweigh the risks.**

## Alternatives

Some people use an exercise treadmill test as well but the adrenaline challenge has been shown to be most accurate for specific types of LQTS.

## After the adrenaline challenge

You should be able to go home 2-3 hours after the test. You are allowed to drive yourself to and from the hospital.

In the rare cases where you have had to be cardioverted, you will need to be monitored for a longer period of time but if you remain stable you should be able to go home later that day (but you would not be able to drive in this case).

The ECGs will often need to be reviewed after the test by a specialist doctor known as an Electrophysiologist to determine the result, so it may be that the doctor giving you the drug will not be able to tell you the result of the test immediately. However, you will normally be told the result of the test the same day, before you leave the hospital.

## How to contact us

If you require any further information please contact either:

Cardiac Angiography Suite: 01865 572616 (Monday-Friday, 7.30am - 9pm)  
Arrhythmia Nurse Specialists, Angela Griffiths or Tara Meredith: 01865 228994  
or the Consultant that referred you for the test.

## Further information

More information can be found at the following websites:

SADS UK at [www.sadsuk.org](http://www.sadsuk.org)

Cardiac Risk in the Young (CRY) at [www.c-r-y.org.uk](http://www.c-r-y.org.uk)

### **Please note:**

The department where your procedure will take place regularly has professional observers. The majority of these observers are health care professionals, qualified or in training, and on occasions, specialist company representatives. If you do not wish observers to be present during your procedure please tell a doctor or nurse.