

The Information Standard 

Information

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Defibrillation Threshold Test (DFT Test)

Introduction

You have an Implantable Cardioverter Defibrillator (ICD) or Cardiac Re-synchronisation Therapy ICD (CRT-D). Your doctor has recommended that you have a Defibrillator Threshold Test. This leaflet will help you to understand what this test involves and how to prepare for the procedure.

What is a Defibrillation Threshold (DFT) Test?

A Defibrillator Threshold (DFT) test is where we check that your ICD/CRT-D will work properly if your heart goes out of rhythm. It is a controlled test performed under sedation and it usually only takes a few minutes. Once you are fully sedated we will use the ICD to induce a fast abnormal heart rhythm (ventricular fibrillation) and check that the ICD recognises it is able to deliver a shock to stop the rhythm correctly.

Why do I need a DFT Test?

Your consultant has recommended that it would be good to test that the device can see and treat abnormal heart rhythms correctly. When this test is needed, it is usually performed as part of the ICD implant procedure. However, in some cases we are unable to do it as part of the procedure. One of the common reasons for delaying the test is due the presence of an irregular heart rhythm such as atrial fibrillation. The other reason your doctor may have recommended this test could be because you have started on new medication that can influence how much energy is needed to terminate a fast heart rhythm.

What are the benefits?

Although the test itself can seem a bit daunting, it will give us and you confidence that the device is able to deliver life-saving treatment if you develop a life-threatening heart rhythm in the future. If it's not working properly, steps can be taken to make changes so that it is able to deliver therapy when you really need it.

What are the chances of success?

In most cases the test will be successful but we quote the chance of it failing to be less than 1% or 1 in 100. If the test were to fail we would need to proceed to external resuscitation (uncommon).

What are the alternatives?

There isn't a test that is equivalent to the DFT test, so it would be a case of you deciding not to have the test at all. We do perform general tests of the ICD at each pacemaker check, which helps us to know if there are any concerns like a low battery or problems with the leads. Your consultant and arrhythmia nurse specialists will provide as much information and support to help you to come to a decision that is right for you.

What are the risks?

We must by law obtain your written consent to this procedure beforehand. Staff will explain all the risks, benefits and alternatives before asking you to sign a consent form. If you are unsure about any aspect of the treatment proposed, please do not hesitate to speak with a senior member of staff.

This is a safe procedure; complications are uncommon and serious complications are very rare. You will be drowsy and forgetful initially because of the sedative injection.

For patients in an irregular heart rhythm there can be a small risk of a stroke occurring (1 in 100 or less). The risk of this occurring is minimised by ensuring that your blood is adequately "thinned", with anticoagulation (explained later) before the procedure.

If the external defibrillation pads are required, some people experience skin soreness/burns.

Failure of the device to successfully shock the fast heart rhythm is possible but uncommon (less than 1 in 100 or 1%). The external defibrillator would be used if this were to occur with the risk of prolonged resuscitation being needed.

Before Scheduling the Procedure

You will have had a 'Heart Tracing' (ECG), an echocardiogram scan (heart ultrasound scan) and been reviewed by the arrhythmia nurse specialist. You will have had a chance to discuss any questions you may have about your heart condition and the test. You will be given a date when the DFT test will be performed and be advised how to prepare for it.

Do I have to be anti-coagulated for the procedure?

Your nurse will advise you whether this is an issue for you when you come to the pre-assessment clinic. The most common reason for it being needed is the presence of a heart rhythm called atrial fibrillation or atrial flutter (AF). If you have AF we will need to make sure that you have anticoagulation (blood thinners) before and after the procedure (probably long-term). Anticoagulation reduces the risk of stroke and we need to ensure that you have been taking anti-coagulant medication (warfarin, apixaban, rivaroxaban or dabigatran) without having missed any doses, for a minimum of three full weeks. It is important to take your medication as prescribed and not miss any doses. If a dose has been missed prior to the DFT test being undertaken it is important to inform the arrhythmia nurse specialists via telephone on 01305 254920 (voicemail available). A missed dose before the DFT test will increase your risk of a stroke during the procedure so the test may need to be postponed; this is for your safety. On the day of the procedure you will be asked to confirm that you have taken your medication correctly and that you have not missed any doses. If you use warfarin, your INR clinic will measure how thin your blood is by taking a blood test for "INR" on a weekly basis.

Planning ahead

- DFT tests are carried out under sedation in the cardiology department at Dorset County Hospital. You will need to come in as a day case (overnight stay is rarely needed).
- You will need to arrange for a responsible adult to escort you home and stay with you for 24 hours after the DFT test.
- A blood request form will be given to you along with a letter confirming your procedure date. Please arrange an appointment at your GP surgery for this blood test to be obtained on the Monday of the week that you're due to have the DFT test.
- You will receive a telephone call from the arrhythmia nurse specialist in the week leading up to the procedure. This will be to confirm that your blood tests are satisfactory and to answer any lingering questions that you may have.

On the day of the procedure (DFT)

- **Do not** apply lotions or ointments to your chest or back. If you have a hairy chest or back we may need to clip the hair beforehand.
- **Do not** eat any food (including chewing gum) for six hours before the procedure time. You can drink clear fluids up to 2 hours before admission time (e.g. only water, squash or black tea coffee/tea).
- **Take** your medication as usual (unless instructed otherwise at your pre-clerking appointment).
- If you use inhalers for a respiratory condition please take these at the usual time.
- Bring all medication (including inhalers) and your warfarin book (if you take warfarin) in with you on the day.

If you are diabetic:

The arrhythmia nurse specialist will give you specific instructions about your diabetic tablets and/or insulin and what you should do with these on the day you come in. This will depend on what you take and whether the procedure is taking place in the morning or afternoon.

Arriving in the cardiology department

You will be asked some questions about your health. You will also be able to discuss any worries that you may have with the nurse. You will be asked to prepare for the test by putting on a hospital gown.

Your blood pressure, pulse and heart tracing (ECG) will be recorded.

We will put a needle into a vein in your hand (cannula) that we to use later in order to give you the sedative injection, when required.

The Procedure

The procedure will be done in a special room that looks like an operating theatre. You will be taken into the room and greeted by the team looking after you, (doctors, a cardiac physiologist, radiographer and nurses). Sometimes there may be other people in the room observing for teaching purposes. Please inform the staff if you have any objection to this.

External defibrillator pads will be placed on your chest and you will be given medication to make you feel very sleepy (sedated).

Once you are fully sedated the Cardiac Physiologist will check that the ICD is working properly. A fast heart rhythm (ventricular fibrillation) will be induced in order to check that the ICD device recognises it and delivers a shock to terminate the rhythm. Back-up measures are in place if the device does fail this test, which is very uncommon. As you will have had sedation you will not feel the ICD shock.

What happens afterwards?

When the test is over you will be taken back to the recovery area and allowed to rest. We will monitor your blood pressure and pulse every 15-30 minutes until you are more awake and ready to go home.

The doctor will speak to you about the results of your test. You may like to have a relative or friend with you for this as the sedative injection makes you a bit forgetful and that effect lasts for a while (24 hours).

After about an hour or when you are awake enough you can have a cool drink and something to eat.

What do I need to know before going home?

You will usually be allowed to go home within 1 ½ -2 hours of the procedure. You will need to make arrangements for someone to drive you home and stay with you for 24 hours.

For the next 24 hours you should not drive a car, operate heavy machinery, make any important decisions or sign any documents. We strongly advise you to spend the remainder of the day quietly at home.

What about 'Follow-Up' arrangements?

We will make a follow-up appointment for you to be seen in the ICD clinic, as recommended by your consultant.

Who do I contact for further information?

Arrhythmia nurse specialists: 01305 254920 (voicemail) or 01305 251150 bleep 498
ArrhythmiaNurseSpeci@dchft.nhs.uk