

## Cardiac Investigations

# Dobutamine stress echocardiogram (DSE)

A dobutamine stress echocardiogram (DSE) is an ultrasound scan of the heart taken whilst exercising the heart with a drug called dobutamine.

You have been asked to attend to have a Dobutamine Stress Echocardiogram (DSE).

You will **not** need to perform any exercise during this test as the dobutamine drug simulates this. Dobutamine mimics exercise and allows us to see how the heart responds to performing exercise (stress).

## What is a dobutamine stress echocardiogram for

A dobutamine echocardiogram may be performed:

### To assess for narrowing in the heart arteries

When the heart is resting, it does not need much blood flow, so it pumps well. When your heart rate increases and exercises with dobutamine, the heart muscle needs more oxygen and more blood. If the blood flow is good, the heart muscle pumps and contracts more strongly.

If, however, there are significantly narrowed blood vessels known as angina, the heart muscle fails to reach the required blood flow. This can lead to the affected areas of heart muscle becoming tired for a few minutes.



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The DSE allows the doctor to assess the adequacy of blood flow to the heart muscle to guide your treatment.

### **To assess narrowing of the aortic valve**

Valves open and close in the heart which allows blood to flow in the correct direction. Narrowing of a valve is known as 'stenosis.'

In some cases of narrowing of the aortic valve (aortic stenosis) it is not clear whether the narrowing is mild or severe. By exercising the heart with dobutamine and it pump more strongly, a more accurate assessment of the degree of narrowing of the aortic valve can be made. This can then guide your treatment.

### **To assess the heart muscle in patients with heart muscle disorders**

Assessing the ability of the heart muscle to pump more strongly when exercised with dobutamine can be helpful in the assessment and treatment of some heart muscle disorders, known as cardiomyopathies.

### **Eating and drinking before the test**

Do not eat for 2 hours before the test.

Do not consume caffeine for 4 hours before the test.

Drink plenty of water before the test – 500ml or 1 pint within the 3 hours before the time of the test.

### **Medicines**

Some medicines must be stopped for 48 hours before the test. These medicines can hinder exercise.

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### **The drugs that must be stopped for 48 hours are:**

#### **Beta-blockers**

Atenolol, Propranolol, Nebivolol, Bisoprolol, Carvedilol, Metoprolol

#### **Rate limiting calcium-channel blockers**

Diltiazem (also can be called Adizem, Tildiem, Slozem)

Verapamil (also can be called Securon, Vertab, Verapress)

#### **Other heart-slowing drugs**

Ivabradine (Procorolan), Digoxin, Amiodarone (Cordarone)

## **When you arrive at the hospital**

Please report to the reception desk at Clinic 7 in Main Outpatients on the ground floor to book in. This department is also known as the Department of Cardiac Investigations (DCI).

After being called into the scan room, a doctor will see you to explain the test and then will ask you to sign a consent form agreeing to have the test. They will ask you some questions and record your blood pressure and pulse. You will be able to ask any questions.

A small needle will be inserted into the back of your hand or arm to allow the drugs used in the DSE to be given.

Before your procedure, the nurse will bring you a hospital gown. You will be asked by the nurse to remove your shirt or blouse, but underwear may be left on.

## **How DSE is performed**

The DSE is performed lying on your left side.

You will have your blood pressure and heart rate checked and the first pictures of the heart will be taken whilst you are resting. To make the

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pictures clearer, a small amount of dye (contrast) may be injected into the needle in your hand or arm. This is very safe and consists of tiny bubbles in a liquid form.

Once the first pictures are taken, the exercise can start. You'll be connected to a pump delivering a controlled drip of dobutamine into the needle in your hand or arm. The aim is to increase your heart rate to a certain level known as the 'target heart rate.'

Once we are at this point, we can be sure that we are exercising the heart enough to answer the question that the doctor is looking into. If the dobutamine alone does not allow the heart to reach the 'target heart rate,' a second drug called atropine may be given from a needle in your hand or arm to increase the heart rate to the target.

## Risks to the procedure

Most people have no difficulties with the procedure. There are very small risks as heart is being exercised with a drug, but overall, the test is very well-established and very safe.

You may experience symptoms such as chest tightness, shortness of breath, a feeling of the heart pumping strongly, and sometimes a warm feeling. These fully resolve within minutes of stopping the dobutamine drug.

Atropine can in some patients cause blurring of vision and a dry mouth for a short time.

## Transport

You need to have someone bring you to hospital and to take you home. You cannot drive for 24 hours after the procedure if you are given the atropine drug, as it can cause blurring of vision.

You may wish for someone to stay with you on the ward during your admission. We ask you to keep your visitors to a minimum.

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### **Items to bring in**

Bring an overnight bag with toiletries and nightwear just in case you need to stay overnight.

### **After the test**

Once the test is completed, you can change back into your top garments. You will be asked to return to the chair in the waiting area for 15 to 30 minutes for observation and you can then go home.

### **Results**

The doctor who performed the examination will see you after the test to explain the results.

The full report will be sent to your referring specialist who will then contact you and your GP to decide further management.

### **Hospital address**

University Hospitals Coventry and Warwickshire NHS Trust  
Clifford Bridge Road, Coventry, CV2 2DX

### **More information**

If you have any questions or queries about your procedure, contact Cardiac Bookings on 024 7696 5767.

The Trust has access to interpreting and translation services. If you need this information in another language or format, please contact 024 7696 5767 and we will do our best to meet your needs.

The Trust operates a smokefree policy.

## Patient Information

### Did we get it right?

We would like you to tell us what you think about our services. This helps us to make further improvements and to recognise members of staff who provide a good service.

Have your say. Scan the QR code or visit:

[www.uhcw.nhs.uk/feedback](http://www.uhcw.nhs.uk/feedback)



#### Document History

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