

Stress Echocardiography

Cardiology

Introduction

The aim of this booklet is to:

- Tell you more about this procedure which your doctor has already explained to you
- Help you understand what will happen to you
- Explain the possible risks of this procedure
- Explain other alternatives if you do not wish to go ahead with this procedure
- Make sure you know as much as possible about the procedure before you agree to sign the consent form.

What is a Stress Echocardiogram?

A Stress Echocardiogram is an ultrasound scan of your heart which is performed after your heart rate has been increased using either a drug called dobutamine or using exercise (bicycle or treadmill). In some patients who already have a pacemaker implanted, this can be programmed during the test to produce an increase in heart rate but may also require drug (dobutamine) administration. This investigation provides your doctor with information about the performance of your heart muscle and/or valves during exercise or drug-induced stress. The procedure is performed in the cardiac investigations department and takes approximately 40 - 60 minutes to perform and you will normally be able to go home after the procedure.

What are the benefits of having a stress echocardiogram (SE)?

- Shows how well the heart muscle is pumping and how it responds to an increase in work due to the drug dobutamine or to exercise or by programming your pacemaker. From this we can make judgements about the following, although the reason the test has been offered to you, may be only to assess one of these:
 - Whether there are likely to be any significant narrowings in your coronary (heart) arteries that can limit blood flow during increased heart activity
 - Whether any weak areas of heart muscle can potentially improve if a narrowed artery is opened in future
 - Whether there is severe valvular heart disease
 - For patients with a condition called hypertrophic cardiomyopathy, the test can determine if there is any obstruction to the ejection of blood from the heart

The prevention of infection is a major priority in all healthcare and everyone has a part to play.

- Please decontaminate your hands frequently for 20 seconds using soap and water or alcohol gel if available
- If you have symptoms of diarrhoea and/or vomiting, cough or other respiratory symptoms, a temperature or any loss of taste or smell please do not visit the hospital or any other care facility and seek advice from 111
- Keep the environment clean and tidy
- Let's work together to keep infections out of our hospitals and care homes.

- Help your doctor to decide on the best next steps, if any, with regards to treatment and/or further investigations.

What are the risks of having a stress echocardiogram (SE)?

This examination is commonly performed, very safe, generally well tolerated and serious complications are very uncommon, but you should be aware of the following risks:

- Life-threatening complications are rare or uncommon. These include heart attack, serious chest pain not leading to a heart attack, coronary spasm, muscle rupture, stroke, serious heart rhythm abnormality (ventricular arrhythmias; atrioventricular block), pulmonary oedema, serious allergy, atropine intoxication, in rare cases death. With a dobutamine Stress Echocardiogram the risk is between 1 in 500 patients. With an exercise Stress Echocardiogram or Pacemaker Stress the risk is considerably less than 1 in 1000 patients
- Common side effects include: abnormal heart rhythm which is not serious, low blood pressure, high blood pressure
- Extremely rare side effects of less than 1:10000 include: a risk of an adverse allergic reaction
- In addition to the above effects of the drug dobutamine, you may notice a tingling sensation, shortness of breath and/or palpitations
- A drug called atropine may be used to increase the heart rate during the study. This can cause potential risk to vision disturbance for people with the eye condition glaucoma. If you have glaucoma please inform us so that we consider whether to avoid this medication. Atropine may also cause urinary retention (inability to empty the bladder) – if this occurs, please seek prompt attention, from a clinician, either your GP or local Emergency Department (ED). If you are known to have prostate disease we may avoid using this drug
- Bruising, irritation or discomfort at the cannulation site can occur but this should ease within a few days
- Please discuss any concerns you may have before consenting to the procedure.

What happens if I decide not to have this procedure?

- Your doctor has recommended this procedure to obtain more detailed information about your condition, particularly how the heart (muscle and/or valve) responds to increased demands/stress. Your doctor will explain to you the reasons for this procedure and your options if you choose not to have the investigation. Please take this opportunity to ask questions and discuss any concerns you may have and what alternative tests might exist
- The information obtained from this procedure will provide an insight into your heart condition that is likely to help the way your future treatment is planned and delivered
- If you choose not to have this procedure you may continue to have symptoms and it may not be possible to advise you fully on appropriate treatment.

Consent

We must seek your consent for any procedure or treatment beforehand. Your doctor will explain the risks, benefits and alternatives where relevant before they ask for your consent. If you are unsure about any aspect of the procedure or treatment proposed please do not hesitate to ask for more information.

Appointment

You will receive your appointment letter and a patient information leaflet via the post. It is important that you read the patient information leaflet carefully. Once you have done this you will need to telephone the cardiac investigations department on telephone number 01902 694220.

- This telephone call is to confirm you have read the leaflet, understand what the procedure is likely to involve including the risks, benefits and alternatives and whether you will attend for your appointment or not
- Confirmation of consent will be completed on the day you attend for your appointment. You have the right to change your mind including after you have signed the consent form
- In order to inform your decision making, if you require this document in an alternative format. For example: different language, larger print etc, please inform the cardiac investigations department on 01902 694220.

What preparation is needed?

If you take a beta-blocker (such as atenolol, bisoprolol, carvedilol, or one of the other types of beta-blocker), please stop taking this medication for 48 hours before your appointment time.

Contact your Pharmacy if you are not sure which of your tablets the beta-blocker is.

If you take the medication diltiazem or verapamil, stop for 24 hours before the test. Please consult your pharmacist if you are unsure if you take these.

- Continue to take all your other medications
- Bring a list of your medications or your normal medications in their original containers with you to your appointment
- You should bring someone with you to drive you home or arrange transport home, as the medication effects may leave you feeling weak and affect your judgement for driving
- It is advisable to go to the toilet just before the test so you are not distracted by this need during the test
- You will need to be without food for 2 hours prior to the procedure. You may drink water
- Please dress so you can remove all clothing from the waist up. A hospital gown will be provided for you to wear. Please wear comfortable non-slip shoes suitable for riding a bike or walking
- Unless you need someone in the investigation room to interpret or assist with special needs, we request that relatives or friends who bring you wait in our waiting area.

If you have any concerns, please do not hesitate to contact the cardiac investigations department, using telephone number 01902 694220.

On the day of your test notify the team if you have:

- An allergy to or sensitivity to medication, foods or latex
- Glaucoma
- Urinary retention or prostate disease
- Asthma
- Diabetes mellitus
- Suspected or known pregnancy or if you are breastfeeding: no Sonovue contrast is used in such patients.

What happens during the procedure?

The procedure is performed in the cardiac investigations department. The team involved will consist of a consultant cardiologist or consultant echocardiographer and a cardiac physiologist.

As we are a teaching and training hospital so professional observers, trainees or assistants may also be present in the room. If you do not wish observers or trainees to be present during your test then please inform the team looking after you.

- You will be asked to undress above the waist, wear a hospital gown and lie on the couch. A small plastic tube (cannula) will be inserted in your hand or arm, for the infusion of medication. In some cases, this may not be used but will be given in case it is needed
- A blood pressure cuff will be placed on your arm to monitor your blood pressure during the test. ECG pads (small electrodes) will be placed on your chest to monitor your electrocardiogram, (ECG) and heart rate
- You will be asked to lie on a couch on your left side and we will start the echocardiogram scan of your heart. Ultrasound contrast agent called sonovue may be given into your vein to enhance the echocardiogram image quality
- If considered appropriate for you and the nature of the test, you will be asked to use a bicycle or treadmill exercise machine, beginning at a low rate and progressively increasing. A drug called atropine may also be used to increase the heart rate
- Alternatively, it is possible to make the heart work harder by giving you a medicine called dobutamine into your cannula instead of exercising. This will make the heart beat harder and faster whilst pictures are taken of your heart. You will be asked to lie on your left hand side so that the Echocardiogram can be performed. The medicine will be increased every 3 to 5 minutes until you have reached your target heart rate (determined by your age and physical condition) or until the maximum dose of dobutamine has been reached

You can ask to stop the medication, but if you are comfortable, you will be encouraged to continue until your target heart rate is reached or you develop your usual symptoms. A drug called atropine may also be used to increase the heart rate. Once you reach the target heart rate the drug will be stopped

- In some patients who have a pacemaker, this can be programmed during the test to produce an increase in heart rate but may also require drug (dobutamine) to be given.
- When your heart rate achieves a certain level (determined by your age and physical condition) the heart is scanned again
- At the end of the study, if you have received the dobutamine infusion or atropine, a drug may be used to settle the heart rate back towards normal (a beta-blocker or if asthmatic a drug called verapamil). You will be monitored typically for a few minutes until your heart rate, blood pressure and ECG tracings have returned close to the baseline state
- You should notify the team if you feel any chest pain, breathing difficulties, sweating, or heart palpitations at any point during the test
- Once all the echocardiogram images have been taken, the gel can be wiped from your chest and the ECG electrode pads and the tube (cannula) in your hand or arm will be removed
- The procedure usually takes about 40 to 60 minutes to perform. However, factors such as schedule delays, emergencies, and other factors may delay the start of your procedure or prolong the length of it.

After the procedure

- Once the procedure has been completed you will be able to get dressed and leave. You may resume your usual diet, medication and activities unless your consultant advises you differently
- Occasionally a slightly longer recovery time is needed for the effects of the medicines to clear from your body. If this happens you will need to stay in the waiting area for an extra 30 minutes to 1 hour
- Please bring someone with you to drive you home
- If you have received atropine, you may experience blurred vision for a short term but this will settle spontaneously after a short time. You must not drive until this has normalised
- The results of the procedure will be sent to the consultant that referred you for the investigation and they will communicate the result and their relevance to you, typically by letter, or in clinic.

How to contact us:

Cardiac Investigations Department

First floor
Wolverhampton Heart and Lung Centre
New Cross Hospital
Wolverhampton
WV10 0QP

Telephone: 01902 694220

09:00hrs - 12:00hrs

13:00hrs - 16:00hrs

Further information:

British Society of Echocardiography

Docklands Business Centre
10 - 16 Tiller Road
London
E14 8PX

Telephone: 020 7345 5185

Website: www.bsecho.org/education/patient-information/

British Heart Foundation

Website: www.bhf.org.uk/heart-health/tests

NICE guidelines website: www.nice.org.uk

References.

Geleijnse ML, Krenning BJ, Nemes A, van Dalen BM, Soliman OI, Ten Cate FJ, Schinkel AF, Boersma E, Simoons ML. Incidence, pathophysiology, and treatment of complications during dobutamine-atropine stress echocardiography. *Circulation*. 2010 Apr 20;121(15):1756-67.

English

If you need information in another way like easy read or a different language please let us know.

If you need an interpreter or assistance please let us know.

Lithuanian

Jeigu norėtumėte, kad informacija jums būtų pateikta kitu būdu, pavyzdžiui, supaprastinta forma ar kita kalba, prašome mums apie tai pranešti.

Jeigu jums reikia vertėjo ar kitos pagalbos, prašome mums apie tai pranešti.

Polish

Jeżeli chcieliby Państwo otrzymać te informacje w innej postaci, na przykład w wersji łatwej do czytania lub w innym języku, prosimy powiedzieć nam o tym.

Prosimy poinformować nas również, jeżeli potrzebowaliby Państwo usługi tłumaczenia ustnego lub innej pomocy.

Punjabi

ਜੇ ਤੁਹਾਨੂੰ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਰੂਪ ਵਿਚ, ਜਿਵੇਂ ਪੜ੍ਹਨ ਵਿਚ ਆਸਾਨ ਰੂਪ ਜਾਂ ਕਿਸੇ ਦੂਜੀ ਭਾਸ਼ਾ ਵਿਚ, ਚਾਹੀਦੀ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

ਜੇ ਤੁਹਾਨੂੰ ਦੁਭਾਸ਼ੀਏ ਦੀ ਜਾਂ ਸਹਾਇਤਾ ਦੀ ਲੋੜ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

Romanian

Dacă aveți nevoie de informații în alt format, ca de exemplu caractere ușor de citit sau altă limbă, vă rugăm să ne informați.

Dacă aveți nevoie de un interpret sau de asistență, vă rugăm să ne informați.

Traditional Chinese

如果您需要以其他方式了解信息，如易读或其他语种，请告诉我们。

如果您需要口译人员或帮助，请告诉我们。