Queensland Cardiovascular Group

About Exercise Stress Echocardiography

An exercise stress echocardiogram (stress echo) is a test which involves the examination of your heart before and after exercise. It is different to an exercise stress test in that it gives the Cardiologist more information about your heart function by assessing both ultrasound images as well as the electrocardiogram (ECG).

Preparation

You will be required to fast for 2 hours prior to the test and wear comfortable walking shoes. A gown will be available but it may be advisable to wear comfortable clothing to walk in. You may have a shower following the test if you wish.

What should I expect?

First Stage

The Cardiac Sonographer will begin first by explaining the test and performing an ECG which will remain in place throughout the test. They will then perform a resting echocardiogram which is a non-invasive, ultrasound examination of your heart. This will assess the heart function at rest. You will be asked to lie on your left hand side for the majority of the test and a transducer will be placed on your chest to take the first set of ultrasound images. Ultrasound gel is used to improve contact and imaging quality. The transducer may need to be applied firmly against the chest wall. If this is uncomfortable, please inform your Sonographer. A number of sites are utilised: the left side of the chest adjacent to the sternum (breast bone), the area under the left breast, the upper abdomen and sometimes the base of the neck. You may hear loud noises which represent the magnified ultrasound signal of blood flowing through the heart chambers and valves. This is completely normal and should not alarm you.

Second Stage

Once the Cardiologist is present, you will be required to walk on a treadmill according to a protocol. The speed and slope of the treadmill will increase every 1-3 minutes according to your fitness level and the heart rate response. During the test your blood pressure and ECG will be monitored regularly and noted by the Cardiologist and Cardiac Sonographer. You will be asked to advise them should you have any symptoms such as chest pain, marked breathlessness and to let them know when you wish to stop.

There are 3 different exercise protocols that can be used depending on your abilities - Naughton protocol: which is slower and flatter; Bruce protocol: for people of average fitness; and Accelerated protocol: for fit people. The Cardiac

Sonographer and Cardiologist will assess which is most suited to you at the time of your procedure.

Once the exercise phase is complete, you will be quickly guided back to the bed by the Cardiologist for a second set of ultrasound images to be taken. It is important that these images are acquired quickly while your heart rate remains elevated. This will give the Cardiologist more information about your heart function under stress. You are given a few minutes to recover, then a final set of ultrasound images are taken once you have done so.

For patients who have difficulty with walking, there is an alternative test called a Dobutamine Stress Echocardiogram.

Results

A report will be generated by the Cardiologist and the Sonographer, which will then be sent electronically to your referring Doctor on the same day. You should contact your referring Doctor for your results and to discuss if any follow up is required.

Accuracy of Stress Echo Results

The Accuracy of Stress Echocardiography is approximately 85-90%. For a variety of technical and physical reasons there can be false positives (meaning the test suggests a severe artery blockage but subsequent angiography shows only a mild to moderate blockage) or false negatives (meaning to test appears normal and does not pick up a severely blocked artery). Depending on your symptoms the reporting doctor or your referring doctor may recommend further testing using a different technique for example CT coronary angiography, Nuclear scanning or Invasive angiography.

Risks

This is a very low risk procedure and the risks of this test are no different to those of a standard stress test. There is no radiation exposure with this test.

The most common occur only occur in 3:1,000 people and include:

- Chest pain which can be treated by stopping the test and administering medication.
- Development of fluid in the lungs which will result in the cessation of the test and administration of medication.
- An abnormal heart beat or “arrhythmia” which may be treated by stopping the test and may also be treated with or without medication.

There is a risk of heart attack in 1:2,500 people and a risk of death in 1:10,000 people.

Please advise our staff prior to the test if you have a history of previous/recent heart attack, aortic dissection, recent fluid or clots in the lungs, severe heart valve disease, heart arrhythmias, palpitations, or recent increase in chest pain you should advise the staff before you commence the test. You will also be asked to provide a list of your medications so that these can be noted prior to the test.