

## **Dobutamine Stress Echocardiogram**

### **What Is a Dobutamine Stress Echo?**

A dobutamine stress echocardiogram (or "echo") is a test that combines an ultrasound study of the heart with a stress test. It allows doctors to learn how the heart functions when it is made to work harder.

Generally, a stress test is done while patients walk on a treadmill or ride a stationary bicycle. For patients who are unable to exercise adequately, the test may be done after injection of dobutamine, a drug that has an effect on the heart similar to exercise.

The dobutamine stress echo is especially useful in diagnosing coronary heart disease, the presence of blockages in the coronary arteries (the vessels that supply oxygen-rich blood to the heart muscle).

### **What Does It Show?**

During an echo study, a small microphone-like device, called a transducer, is held against the chest. The transducer sends ultrasound waves that bounce off the various parts of the heart.

These echoes are converted into a moving image of the heart. The image is displayed on a television screen and can be recorded on videotape.

An echo study is first performed while your heart is "at rest." Dobutamine is then infused (injected very slowly, over a period of minutes) into a vein in your arm. The drug causes your heart to pump faster and harder, as if you were exercising.

Additional echo images are then obtained during and after the infusion of dobutamine. Doctors then compare the images side by side.

Normally, all areas of the heart muscle pump more vigorously during stress. If an area of the heart muscle does not pump as it should after dobutamine, this often indicates that it is not receiving enough blood because of a blocked or narrowed artery.

### **Preparing for the Test**

- Do not eat or drink for 4 hours prior to the test. This will help prevent the possibility of nausea which may accompany the infusion of dobutamine. [If you have diabetes and take medication for it, get special instructions].
- If you are currently taking any heart medications, check with your doctor. He or she may ask you to stop certain medications a day or two before the test. This can help get more accurate test results.
- Make sure to wear a two-piece outfit. You may need to undress from the waist up and put on a short hospital gown.
- Before the test, you'll be given a brief explanation of the test and you'll be asked to sign a consent form. Feel free to ask any questions about the procedure.

- An intravenous (IV) line will be inserted into a vein in your arm, to allow the injection of dobutamine and other drugs.
- Electrodes (small sticky patches) will be placed on your chest and shoulders to obtain an electrocardiogram (ECG), a recording of your heart's electrical activity. Men may need to have areas of their chest shaved, to ensure that the electrodes stay in place.

### **What Happens During the Test?**

The dobutamine stress echo is usually performed at a hospital or test center.

The test is divided into two parts. First, a resting echo study is done. Then, dobutamine is given slowly through the IV line, and another echo study is done while your heart is beating rapidly.

### **Resting Echo**

You will be asked to lie on a hospital bed or exam table. To improve the quality of the pictures, a colorless gel is applied to the area of the chest where the transducer will be placed.

A technician moves the transducer to various places over the left side of your chest. Pictures of your heart at rest are recorded on videotape.

### **Dobutamine Infusion**

Dobutamine is infused slowly into the vein, and the dose is increased every few minutes. Additional sets of echo images are obtained during the infusion of dobutamine and afterwards.

As dobutamine is given, it is normal to feel your heart pound for a few minutes. In addition, you may experience chest pressure, headache, dizziness, nausea, and shortness of breath. Let the doctor know how you feel. These symptoms are relieved quickly when the infusion is stopped. [You may be given a second drug to slow your heartbeat to a normal level.]

Your heart and blood pressure are monitored during and after the infusion. The test usually ends when sufficient information has been obtained. It may also be stopped when your heart beats fast enough, when the ECG shows abnormal changes, or when you experience significant symptoms.

Doctors then compare the images (before, during, and after dobutamine) side by side to see how your heart responds to the stress induced by the drug.

You should allow up to an hour and a half for the entire test which includes preparation, dobutamine infusion, and echo imaging.

### **Is the Dobutamine Stress Echo Safe?**

The echo study is very safe. There are no known risks from the ultrasound waves.

The dobutamine test is also safe. A small amount of risk does exist because it stresses the heart. Possible rare complications include abnormal heart rhythms and low blood pressure. Experienced personnel are available to handle any emergency.

### **Your Test Results**

The doctor conducting the test may be able to give you preliminary test results before you leave. Or, your own doctor will discuss the test results with you during a future office visit.

The information gained from the dobutamine stress echo helps your doctor make an accurate diagnosis and develop a treatment plan that's best for you.