

Great Lakes Heart Center of Alpena

Patient Education Handout

STRESS ECHOCARDIOGRAPHY

Stress testing can also be performed in conjunction with echocardiography. Echocardiography uses ultrasound to image different parts of the left ventricle and observes their movement and thickening in real time.

When the heart is relaxed it may get enough blood even in the presence of obstructed coronary arteries. However, during physical activity the heart rate and contractility (or strength of contraction) increases, and the heart muscle or myocardium may thus require more blood and oxygen than these narrowed arteries are able to supply.

A reduction in blood flow to part of the heart muscle may impair the myocardium's ability to thicken or contract. However these abnormalities are not often seen on an echocardiogram taken at rest, but can be made to appear during exercise.

Two sets of images are obtained as part of a stress echocardiogram. The first set is taken before exercise while the other set is taken immediately after exercise. Both sets of images are then compared with one another.

This test is frequently performed to determine whether CAD maybe causing chest pain.

HOW IT IS DONE

The test is done by a doctor and cardiac sonographer. The scanning itself is painless.

Resting study

- Wear loose clothing.
- Electrodes are attached to continuously monitor your ECG during exercise.
- The patient then lies on a table while an ultrasound probe is positioned over the chest.
- The patient has to remain very still during each scan.
- The entire test takes about 30 minutes, after which you can resume your normal activities.

Stress scan

- Exercise is performed on a treadmill (more commonly) or on a stationary bicycle.
- At the start, the patient starts walking or pedaling slowly. The speed and incline of the treadmill is gradually increased every three minutes. With the stationary bicycle, the resistance to pedaling is gradually increased while the patient maintains a set number of revolutions per minute.
- The patients blood pressure and symptoms during exercise are carefully recorded.
- Exercise is continued until the patient feels the need to stop, the maximum heart rate is achieved or blood pressure or ECG abnormalities develop.
- When exercise is stopped the patient has to immediately return to the bed or stretcher and lie on their left side.
- The second or post exercise set of images must be obtained within 70 seconds of stopping exercise.
- The patient is then given time to rest and recover.

STRESS TESTING MAY BE DANGEROUS UNDER THE FOLLOWING CIRCUMSTANCES:

- A recent or ongoing heart attack,
- Unstable angina,
- Uncontrolled or untreated arrhythmias,
- Uncontrolled high blood pressure,
- Severe aortic valve stenosis,
- Active myocarditis (an infection of the heart muscle), or endocarditis (an infection of the heart valves),
- Have severe anemia.
- If you have joint problems that limit your physical exercise.

HOW TO PREPARE

- Do not eat or drink for at least 4 hours before a stress scan.
- Avoid alcohol, tobacco, caffeinated beverages, and nonprescription medicines for at least 24 hours before the test.
- Drugs for erectile dysfunction such as Viagra must be stopped within the previous 48 hours.
- Ask your doctor whether you need to stop taking any of your other medicines before the test.
- Wear comfortable shoes and loose shorts or pants suitable for exercise.
- Remove all jewelry before the test.
- Talk to your doctor about any concerns you have regarding the need for the test, its risks, how it will be done, or what the results may indicate.
- Inform the doctor, nurse or technician if you are allergic to any medicines or anesthetics.
- Inform the doctor, nurse or technician if you are or might be pregnant.
- Inform the doctor, nurse or technician of any joint problems that may limit your ability to exercise.

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