



Understanding Various Cardiology Tests

The Heart Care Group offers an in-house diagnostic center where stress tests, nuclear stress tests, echocardiograms, and stress echocardiograms are performed. We are proud of the fact that we have been recognized for our commitment to high quality patient care and quality diagnostic testing by notable accreditations. Our Echocardiography Lab, Vascular Lab, and Nuclear Lab are all accredited by the Intersocietal Commission for the Accreditation of Echocardiography Laboratories (ICAEL), the Intersocietal Commission for the Accreditation of Vascular Laboratories (ICAVL), and the Intersocietal Commission for the Accreditation of Nuclear Medicine Laboratories (ICANL).

An explanation of the various tests we perform follows:

REGULAR STRESS TEST

A regular stress test is performed by having the patient walk on a treadmill while the heart is monitored. Ten electrodes or “stickers” are placed on the patient’s chest – same as for an electrocardiogram or “EKG”. As the patient walks on the treadmill, the speed and grade are increased every 3 minutes. The patient’s heart rate and rhythm, blood pressure, and general response to exercise are observed and recorded. The time spent on the treadmill is individual to each patient. When enough information has been obtained (usually 4 to 12 minutes), the treadmill is stopped. The patient sits and is observed for 3 to 5 minutes, during the recovery period. A cardiologist reviews the findings, discusses the results with the patient, and dictates a report to be sent to the patient’s primary care physician.

NUCLEAR STRESS TEST

A nuclear stress test is performed by administering nuclear medicine (a radioactive tracer or radioisotope in an amount similar to a chest x-ray) intravenously. First, the patient receives an IV and his/her medical history is reviewed. The nuclear medicine is given through the IV. One hour later pictures are obtained at rest (“resting images”). The camera detects the concentration of radioactivity in heart muscle areas. A stress test is then conducted, either by walking on a treadmill or by giving Adenosine or Dobutamine intravenously. After the stress test, another set of pictures (“stress images”) is obtained. A cardiologist reviews the images the next day and dictates a report to be sent to the patient’s primary care physician.

ADENOSINE NUCLEAR STRESS TEST

An Adenosine stress test is performed for patients who have problems exercising briskly. It is not used for patients with asthma, who are taking certain medications, or who have had caffeine in the past 24 hours. This is always a nuclear stress test; it CANNOT be done without nuclear imaging. The procedure is the same as for a nuclear stress test with resting images obtained first, as described above. The patient may walk slowly on the treadmill or sit on an exam table while Adenosine is given intravenously over a period of 4 minutes. Halfway through the Adenosine infusion, nuclear medicine is given through the IV. When the Adenosine infusion is complete, the patient is observed for 3 to 5 minutes, during the recovery period. The patient then has a 20 to 60 minute wait before stress images are obtained. During this time, the patient is encouraged to eat a fatty food or drink, which enhances the image quality. A cardiologist reviews the images the next day and dictates a report to be sent to the patient's primary care physician.

DOBUTAMINE NUCLEAR STRESS TEST

A Dobutamine stress test is performed for patients who have problems exercising briskly and have asthma, are taking certain medications, or who have had caffeine in the past 24 hours and cannot receive Adenosine. This is always a nuclear stress test; it CANNOT be done without nuclear imaging. The procedure is the same as for a nuclear stress test with resting images obtained first, as described above. Instead of walking on a treadmill, the patient lies on an exam table while Dobutamine is given intravenously. The dose is increased every 3 minutes until a target heart rate is obtained. At that point, nuclear medicine is given through the IV. The Dobutamine infusion is stopped and the patient is observed for 5 to 10 minutes, during the recovery period. The patient then has a 60-minute wait before stress images are obtained. During this time, the patient is encouraged to eat a fatty food or drink, which enhances the image quality. A cardiologist reviews the images the next day and dictates a report to be sent to the patient's primary care physician.

ECHOCARDIOGRAM

An echocardiogram is an ultrasound or sonogram test of the heart, which takes approximately 40 minutes. Electrodes or "stickers" are applied to the chest. The wires are connected to the electrodes to show and electrocardiogram (EKG). The patient lies on his/her left side with the left arm raised near the pillow. Ultrasound gel is placed on a transducer, which is then placed on the chest in specific areas. Sound waves are emitted from the transducer to the heart. The sound waves are then "echoed" back to the machine by way of the transducer and an image of the heart is seen on the monitor. These images are recorded for the physician to review. The echocardiogram allows us to more clearly see the inside structure of the heart, which includes the valves, chambers, and walls. A cardiologist reviews the images and dictates a report to be sent to the patient's primary care physician.

ECHOCARDIOGRAM WITH OPTISON

An echocardiogram with Optison is performed on patients who are extremely overweight or whose images are difficult to see. Pregnant women or those allergic to eggs are excluded from this test. An echocardiogram is done. The patient then receives an IV. Optison is administered through the IV and it fills the chambers of the heart. Optison is a contrast liquid composed of tiny bubbles containing gas. This gas is visible during an echocardiogram. The echocardiogram is repeated. The echocardiographer and physician can more clearly see the inside structure of the heart.

STRESS ECHOCARDIOGRAM

A stress echocardiogram is a stress test and an echocardiogram combined. This test evaluates the patient's left ventricular (main pumping chamber) function. The patient is prepped in the same manner as a regular stress test. An echocardiogram is done. Four views of the heart are taken or "captured". These "captured" images are called "resting images". The physician reviews the resting images and conducts a stress test. When the desired heart rate is achieved, the physician will stop the treadmill abruptly. The patient immediately lies on the echocardiogram table. The echocardiographer captures 4 images again, at peak heart rate. These images are recorded and the cardiologist compares the "resting" and "peak" images, discusses the results with the patient, and dictates a report to the patient's primary care physician.

DOBUTAMINE STRESS ECHOCARDIOGRAM

A Dobutamine stress echocardiogram is the same as the stress echocardiogram, but Dobutamine is given instead of having the patient walk on a treadmill. This test is performed for patients who have problems walking. Adenosine is NEVER used with echocardiography. The procedure is the same as for the stress echo, with resting images being obtained first. The physician reviews the resting images and conducts a stress test. The patient lies on an exam table while Dobutamine is given intravenously. The dose is increased every 3 minutes until a target heart rate is obtained. Once the target heart rate is reached, the Dobutamine infusion is stopped. The echocardiographer captures another 4 images, at peak heart rate. The patient is observed for 5 to 10 minutes, during the recovery period. These images are recorded and the cardiologist compares the "resting" and "peak" images, discusses the results with the patient, and dictates a report to the patient's primary care physician. Additionally, Options may be used with this study.

