

## **Multigated acquisition scan (MUGA)**

The MUGA angiography is used to evaluate the pumping function of the heart. The MUGA angiography tends to be used to determine if a part of the heart muscle has suffered any damage, for example, during a heart attack. It is also used to evaluate the ejection fraction, which is the amount of blood that is pumped from the heart with each beat. Under normal conditions, the left ventricle (the heart's primary pumping chamber, which pumps blood to the body) pumps approximately 50% or more of the blood that is within the ventricle to the general circulation with each beat. If the heart muscle has any disease or is weakened, the ejection fraction may decrease. The high sensitivity of the MUGA angiography allows for checking the ejection fraction. The doctor may use the MUGA angiography periodically to determine if the ejection fraction has decreased over the course of time, which would indicate that the disease has progressed; or to determine if the ejection fraction has improved in response to medical treatment.

To prepare, wear comfortable clothing that you can take off easily. You may be asked to wear a hospital gown during the MUGA angiography. You can take medications as instructed, unless your doctor tells you otherwise.

- Before the MUGA angiography, a technician will place 10 electrodes (small adhesive patches) on the skin of your chest. Men may have their chest shaved for the electrodes to adhere. The electrodes are connected to an electrocardiography (electrocardiogram) monitor, which records the heart's electrical activity during the exam. The technician will perform a resting electrocardiogram on you, measure the resting heart rate, and take your blood pressure.
- An intravenous line will be inserted in a vein in your hand or arm. A small amount of blood will be drawn, which will be mixed with a radioactive marker. This radioactive marker binds to the blood's red corpuscles, and the mixture is injected back into the intravenous line. The marker remains in the bloodstream for several hours and does not enter the cells of the tissues.
- The technician will ask you to lie down on the examining table underneath a machine. The machine can detect the low levels of radiation that the radioactive marker emits.
- The machine focuses on the heart and analyzes the amount of radioactive red corpuscles pumped from the heart with each beat. This exam calculates the amount of blood that is pumped from the heart with each beat (ejection fraction). The MUGA angiography takes between one to two hours.

Once the exam ends, you will be able to return home. You can resume daily activities immediately. When the doctor receives the results of the exam, he will explain them to you.