What is a nuclear myocardial perfusion scan of the heart?

Nuclear myocardial perfusion scan of the heart allows us to assess if the blood supply to your heart muscle is reduced or normal. Images are taken by a camera after a small dose of a radioactive agent is injected into your blood stream.

Uses of Nuclear Scintigraphy

It is performed to find out if there is any evidence of blockages of the arteries supplying your heart muscle (coronary artery disease). In case of significant narrowing of the coronary arteries, the blood flow to some areas of the heart muscle can be reduced during the exercise performed. If the doctors supervising the test think you may not be able to exercise, they will administer a drug that will mimic a similar effect of doing exercise.

The results of this scan will help your doctor make a plan and discuss the best treatment option(s) for you.

How it is performed and what will happen during the scan?

The scan will be performed over one or 2 appointments.

On your 1st appointment, you will be asked to fill out a safety screening form before your scan. The form will ask if you have any medical procedures and/or devices implanted, pregnant, COPD or asthma and any kidney problems.

Small sticky patches, electrodes, will be put on your chest. The electrodes are connected to a monitor that shows a tracing of your heart rhythm. A blood pressure cuff will also be fitted on your arm. A cannula (small tube) will be inserted into one of your arm veins to administer the radioactive agent

If you are exercising, you will be taken to a room with a treadmill or exercise bike. While you are exercising, your heart rate and blood pressure will be serially monitored during the exercise stress test.

If you are not exercising, you will be administered a medication (dobutamine, dipyridamole or adenosine) to mimic the effect of exercise through the cannula in your arm. This is called a pharmacological stress test. to take images of your heart. While the pharmacological stress test is taking place, your heart rate and blood pressure will be serially monitored.

During your exercise/pharmacological stress test, the team supervising your test will be continuously checking if you have any symptoms. At the peak of exercise/pharmacological stress test, the radioactive agent will be injected. This allows the assessment of how much blood is reaching your heart muscle during stress.

After the radioactive agent is injected, you will be taken for your heart scan to obtain images of your heart after the stress test. You will be asked to lie down on the bed of the scanner. The scanner is called a gamma camera. The gamma camera has 2 detectors that move around your chest. Your head and the area or your body below the chest will be outside the camera.

On your 2nd appointment, this will be the rest portion of your scan. No stress tests will take place. You will have electrodes put on your chest and a cannula inserted again. The radioactive agent will be administered, and images will be taken of your heart like your 1st appointment.

Any preparations needed

- Exercise stress test: Please wear shoes and comfortable clothing that you can exercise in. If you are asthmatic, bring your inhalers with you. No fasting is needed, but do not eat a large meal right before the test. Beta-blockers and calcium-channel blockers should be skipped 2 days before the examination if possible. Your doctor will tell you if there are any other medications to skip before the test.
- Dobutamine stress test: do not eat for at least 4 hours before the test. The use of beta-blockers is generally not recommended for at least 2 days before the test.
- Dipyridamole stress test: fasting for at least 4 hours is recommended. Do not drink tea or coffee for at least 12 hours before the test.
- Adenosine stress test: dipyridamole should be discontinued for at least 24 hours before the test. Do not eat for 4 hours or drink coffee or tea for at least 12 hours before the examination.

Please do not put lotions, creams or powders on your chest on the day of your appointments as this will prevent the electrodes from sticking.