

Myocardial Perfusion Imaging (MPI)

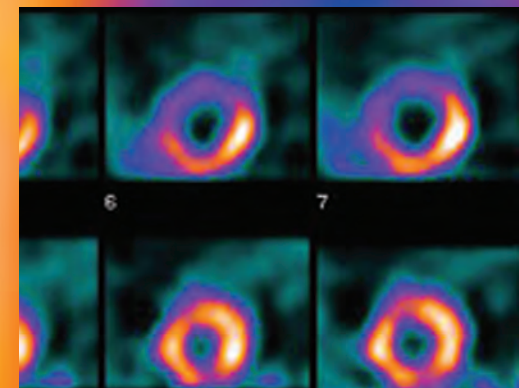
Myocardial perfusion imaging (MPI) is a non-invasive procedure used to test for significant coronary stenosis. MPI represents 94 percent of all cardiovascular procedures performed using nuclear imaging. With improved diagnostic accuracy over regular stress tests, abnormal perfusion scans are highly indicative of coronary artery disease.

PURPOSE OF MPI

This diagnostic and prognostic study determines the degree and location of compromised blood flow to the heart as well as pumping function and existence of scarred heart tissue. Healthy heart muscle, receiving normal blood flow, will accumulate more imaging agent than cardiac muscle supplied by diseased coronary arteries. MPI is used to determine need for invasive procedures, to avoid unwarranted hospital admissions or discharges, and to assess for long-term prognosis.

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Myocardial Perfusion Imaging (MPI)



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PATIENT AWARENESS INITIATIVE

CANDIDATES FOR MPI

MPI is indicated for patients with known or suspected coronary artery disease, including those who have had cardiac events or may be at risk. Examples of higher risk populations include diabetics and menopausal women. In addition to the more commonly known symptoms of chest pain and shortness of breath, several of the lesser-known symptoms of heart disease may include nausea, fatigue, and pain in the arm, back, or neck.

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PROCEDURE DESCRIPTION

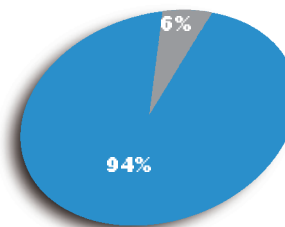
MPI is performed during stress and again at rest while monitoring for blood pressure and heart rhythm via electrocardiogram. The procedure is generally performed by walking on a treadmill but when patients cannot exercise, a pharmacological test is performed by using adenosine, regadenoson, dobutamine, or dipyridamole. The choice of agent depends upon several factors, most important of

which include pre-existing lung disease like asthma or emphysema, or left bundle branch block. A small dose of a radiopharmaceutical is injected into the bloodstream at maximum exercise. Patients then wait approximately 20-60 minutes prior to a subsequent scan using a gamma camera (SPECT technology), which produces images representing blood flow to the heart during stress. Injection and scanning are also performed at rest, sometimes on a separate day, with no significant changes appearing in healthy hearts during either study.

TECHNOLOGICAL CAPABILITIES

The radioactive tracer distributes in proportion to blood flow, with greater concentration where there is better blood flow. These sophisticated imaging agents significantly increase accuracy of nuclear cardiac testing. The gamma camera further improves diagnostic accuracy because SPECT images are reformatted to identify affected areas of the heart.

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Instructing your patients

To ensure accurate results, patients should not ingest caffeine, drinks labeled “caffeine-free”, chocolate, theophylline, or dipyridamole for 24 hours prior to testing. The patient may be instructed to avoid additional food and drink by the nuclear cardiologist. Diabetic and insulin-dependent patients will require consultation on dietary restrictions and insulin use.

To prepare patients for testing, please provide them with the additional information below:

- Myocardial perfusion imaging determines if patients have coronary artery disease.
- The test may be performed in two phases: after exercise and again during rest. Completing both phases may take two to five hours and can be completed in one or two days.
- Patients are injected with a small amount of a radioactive substance that accumulates in the heart muscle. They lie on their backs while a blood pressure cuff is placed around the arm and an IV is inserted into the arm or hand to ease the flow of the injection. Pads are attached to the chest so the physician can monitor heart rhythm with an electrocardiograph.
- The patient exercises and then is scanned with a special camera to determine which areas of the heart are receiving enough blood.
- For patients who can't exercise, there are alternative ways to perform the test.
- Patients should wear loose-fitting, comfortable clothing suitable for exercise.
- Women who suspect they may be pregnant should tell their doctors.
- Depending on the purpose of the test, one or more cardiac medications (Ex. nitrates, beta blockers like metoprolol, carvedilol, atenolol, calcium channel blockers like diltiazem or verapamil) may need to be stopped for 24-48 hours before the test. Please check with your cardiologist before the test.

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