

General Reference:

Procedure Guideline for Myocardial Perfusion Imaging 3.3

Common Indications:

Evaluation of coronary artery disease

Pre-scan Clinical History:

Determine history related to stated clinical history. Locate any pertinent imaging results which describe related findings.

Patient Preparation:

NPO after midnight; no caffeine, no chocolate for 12 hours Cardiac medications should be withheld if the examination is performed to detect coronary disease, but may be continued as usual when the examination is performed to determine the effectiveness of medical therapy.

Relative Contraindications (if present, consult with nuclear medicine physician prior to scan):

1. Recent nuclear medicine studies
2. Pregnancy
3. **Unstable angina, cardiovascular instability**, chest pain, hypotension, hypertension, S-T depression, S-T elevation, tachycardia, 2nd or 3rd degree heart block, abnormal cardiac labs. **These issues must be excluded by the nurse or exercise physiologist prior to the initiation of the procedure**

Unstable angina is angina pectoris caused by disruption of an atherosclerotic plaque with partial thrombosis and possibly embolization or vasospasm (1,2) It is characterized by at least one of the following:

1. Occurs at rest, or minimal exertion, and usually lasts less than 20 minutes
2. Severe in intensity and of new onset (i.e., within one month)
3. Occurs with a pattern of increasing intensity, i.e., more severe, more prolonged, or of increased frequency since the last similar event.

Cardiovascular Instability is any one or a combination of cardiovascular-related symptoms which create a scenario where death may imminently result. Abnormal blood pressure, EKG, heart rate or percentage of blood oxygen saturation (SPO2).

4. Use of Regadenoson (Lexiscan) in the pediatric population is not established. be administered to patients younger than 18 years of age. Therefore, Lexiscan will not be administered to patients younger than 18 years of age.

Radiopharmaceutical and Route of Administration:

12 mCi (resting) and 32 mCi (stress) Tc99m Myoview. Tc99m Sestamibi may be substituted in the event Myoview is unavailable.

Procedure:

Patients should be advised that they may experience any of the following symptoms: dyspnea, headache, flushing, chest discomfort, dizziness, drop in blood pressure, changes in heart rhythm, nausea.

1. Obtain a signed consent from the patient.
2. Start an IV in a peripheral vein if the patient does not already have patent saline lock.
3. Inject 12 mCi Myoview for resting images. If permissible, administer the patient a cup of ice water.
4. Acquire non-gated resting images after 10-20 minutes, 64x64 matrix, 32 stops, 25 seconds per stop, zoom 1.45
5. Check the resting projection images for excessive motion; lateral (rotational) motion is uncorrectable and will necessitate a repeat acquisition. Process and check the slices for any bowel activity overlapping the heart.
6. Transfer the patient to the stress area. A nurse or exercise physiologist will apply EKG monitor, blood pressure monitor, and pulse oximeter. A resting 12-lead EKG should be obtained.
7. The exercise physiologist or nurse will obtain a set of baseline vital signs. They will then give approval for Regadenoson (Lexiscan) infusion.
 - a. The following personnel ***must be present during the Lexiscan infusion:***
 - i. The exercise physiologist,
 - ii. The nurse,
 - iii. The nuclear medicine technologist.
8. The recommended intravenous dose of Regadenoson (Lexiscan) is 5 ml or 0.4mg Regadenoson (Lexiscan). The Lexiscan is administered by the nurse as an approximately 10 second bolus injection into a peripheral vein using a 22 gauge or larger needle-or cannula. A 12-lead EKG will be obtained at this time.
 - a. **ONLY a registered nurse can administer Regadenoson (Lexiscan).**

For persistent or severe adverse reactions to Lexiscan, Amionophylline may be administered in doses ranging from 25mg to 250mg by slow IV injection (25mg to 100mg over 1 – 2 minutes)

9. A nuclear medicine technologist will immediately flush the line with 5cc saline and inject 32 mCi Myoview within the next 10 – 20 seconds. Flush the IV line with an additional 15cc of saline.
10. The exercise physiologist or nurse will begin the recovery phase and continue to monitor patient for 5 minutes post injection. The patient will be monitored with EKG tracings, a BP immediately in recovery and, if necessary, additional BP readings. All information should be documented in the medical record, including any symptoms which they may experience.
11. The patient may be given a snack if he/she does not need to be kept NPO. Juice, soda, and crackers should be available in the department.
12. Acquire stress imaging 10-20 minutes after the Regadenoson (Lexiscan) infusion.
 - a. Stress images are gated; attach the three EKG leads appropriately.
 - b. 64x64 matrix, 32 stops, 20 seconds per stop, zoom 1.45, R/R interval set to 90%
13. Check the stress images for motion. Process and check the slices for any bowel activity overlapping the heart. Excessive motion (especially lateral/ rotational motion) will require a rescan. Overlapping bowel may require a re-acquisition as well, after clearing activity in the proximal small bowel with water/ snack.

Review:

Prepare images and documents for clinical review as per **Nuclear Imaging Acquisition and Presentation Guidelines.**