

Spect Myocardial Perfusion Imaging

Indications

- Detection of obstructive coronary artery disease (CAD) in the following:
- Patients with an indeterminate pretest probability of CAD based on age, gender and symptoms (diabetes mellitus, peripheral or cerebral vascular disease)
- Patients with high risk factors for CAD (e.g. diabetes mellitus, peripheral cerebral vascular disease)

Exam Time

2-3 hours. Inject nuclear agent then wait 30 -40 min before imaging post rest and stress. If patient walks on treadmill, they image about 15 minutes post stress.

Patient Preparation

- No caffeine or decaffeinated products for 12-24 hours before the test.
- Nothing to eat or drink 2-4 hours before test if exercising on treadmill.
- Nothing to eat or drink for 4-6 hours if receiving Lexiscan or Dobutamine.
- Wear comfortable pants and shoes if walking on treadmill
- An IV will be started to administer the medication

Conflicting examinations and medications

Discontinue Calcium antagonists, Beta Blockers, and nitrates, if possible.

With thallium, increased myocardial uptake has been reported with dipyridamole, furosemide, isoproterenol sodium bicarbonate (IV), and dexamethasone; decreased myocardial uptake with propranolol, digitalis, doxorubicin, phenytoin (Dilantin), lidocaine and minoxidil.

Radiopharmaceutical and Dose

^{99m}Tc-sestamibi (Rest 8-15 mCi , Stress (27-40 mCi)/ ²⁰¹Tl-chloride/
^{99m}Tc-teboroxime / ^{99m}Tc-**tetrafosamin (Radiopharmaceutical-Site and Radiologist Preference) IV – Route of Administration**

Imaging Device

SPECT Camera

Acquisition Protocol

- Step and shoot/continuous
- 32 no. of projections
- 180-degree circular orbit
- 25 sec/frame
- 64 x 64 matrix
- 16 frames/cycle

VARIATION TO THE PROTOCOL: physicians sometimes do the stress portion of the exam first, rather than after the resting portion. This results in the larger dose being given for the resting portion rather than for the stress portion

RADIOLOGISTS PREFERENCES: Please submit the semiquantitative segmental scoring map. It shows areas of perfusion deficits in a way that can be quantified consistently and uniformly reported in terms of size and location

Lexiscan Protocol

- Indication:** Patients that cannot walk the treadmill.
- Contraindication:** Patients with a second- or third-degree AV block or sinus node dysfunction unless these patients have a functioning pacemaker.
- Route of Administration:** Use 22 gauge or larger, Rapid injection (Approximately 10 sec)
5 ML Saline flush immediately after the injection of Lexiscan
Administer the myocardial perfusion imaging agent at least 10-20 seconds after the saline flush.

Adenosine Protocol

- Indication:** Patients that cannot walk the treadmill.
- Route of Administration:** IV
Formula for converting patient's weight from lbs to kg:
 $\text{Patient's weight in lbs.} / 2.2 = \text{kg}$
 $.140 \text{ mg/kg/min (Patient's weight in kg) (minutes of infusion) (3mg/min) = ml}$
- Comments:** **Patient weight < 210 lbs. use 60mg/20ml vial**
Patient weight > 210 lbs. use 90 mg/20ml vial

*****6 min infusion protocol will be used to chemically stress the patient. At 3 min, administer the radiopharmaceutical.**