Fit Heart MD

Two-Day Stress/Rest Protocol

Purpose:
To evaluate regional myocardial perfusion under stress (either physical exercise or pharmacologic stress) and at rest. To identify and localize areas of reversible ischemia or previous infarction in patients with chest pain, shortness of breath, suspected of having coronary artery disease, previous coronary intervention, or previous abnormal ECG examination.

Clinical Indications:
Myocardial perfusion imaging (MPI) is indicated for the detection of coronary artery disease (CAD) and for assessing prognosis in patients with symptoms suggestive of CAD or with risk factors for CAD. Pharmacologic stress MPI is indicated as an adjunct to radionuclide MPI in patients unable to exercise adequately.

Preparation For Procedure:

1. Obtain medical history (cardiovascular) of patient. Attention should be given to medications, symptoms, cardiac risk factors and prior diagnostic/therapeutic procedures.
2. Instruct patient to fast for at least 4 hours prior to examination.
3. Instruct patient to refrain from caffeine for at least 24 hours prior to examination.
4. If exam to be performed to detect coronary artery disease, instruct patient to withhold cardiac medications.
5. Instruct patient to remove any objects in the chest area prior to starting imaging procedure.

Preparation/Precautions for Stress Portion of Exam:

1. Obtain vital signs of patient.
2. Review EKG for evidence of acute ischemia, arrhythmia or disturbances.
3. Establish a secure intravenous (I.V.) access in patient arm.
4. Do not perform chemical stress with adenosine or lexiscan or persantine, on patients with:
    a. History of bronchospasm
    b. Systemic hypotension
    c. Hypersensitivity to chemical stress agents (persantine, adenosine or lexiscan)
    d. Advanced atrioventricular block without pacemaker or AICD.
5. Do not perform exercise stress on patients with:
    a. Unstable angina within last 48 hours
    b. Congestive heart failure
    c. Acute myocardial infarction within 2-4 days of testing
    d. Uncontrolled systemic or pulmonary hypertension
    e. Advanced atrioventricular block without pacemaker
    f. Acute systemic illness
    g. Sustained Ventricular Tachycardia on baseline EKG.

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Exercise Stress Procedure (Option 1 - Day 1):

1. Graded exercise stress performed on treadmill with continuous patient monitoring by qualified healthcare individuals. The AHA/ACC Guidelines must be followed.
2. Prepare patient for ECG and ensure IV access in place prior to start.
3. Perform treadmill exercise using the Bruce Protocol.
4. Inject 25-30 mCi Tc-99m Sestamibi into I.V. access with a saline flush at peak stress.
5. Wait at least 60 minutes post exercise stress for imaging.
6. Inform patient to eat meal during the wait period.
7. Image patient using the *GATED SPECT* preprogrammed protocol, using 25 seconds per stop, with 10 second per stop transmission scan. Use matrix of 64 x 64, a zoom of 1.33 and 36 views.
8. Instruct patient not to move, talk, sleep or deep breath during the imaging procedure.
9. When the SPECT acquisition has completed, check the raw data using the *cine* view for motion or other artifacts.
10. Repeat the scan if necessary.
11. Schedule patient return visit for rest exam to occur within 30 days.

Chemical Stress Procedure (Option 2 – Day 1):

1. Chemical stress performed with continuous patient monitoring by qualified healthcare individuals. The AHA/ACC Guidelines must be followed.
2. Administer 5 ml (0.4 mg Regadenoson) of Lexiscan as a rapid injection, followed by a 5 ml saline flush or adenosine (140mcg/kg/min over 5 minutes or dobutamine starting at 10mcg/kg/min and increase every 3 minutes by 10mcg till a maximum of 50mcg/kg/min.
3. Inject 25-30 mCi Tc-99m Sestamibi into I.V. line with a saline flush 20 seconds post Lexiscan injection or at 2 minutes of adenosine infusion or after reaching 85% of maximal predicted heart rate with dobutamine.
4. Continue to obtain blood pressure and 12 lead EKG for 3 to 6 minutes post injection.
5. Wait at least 60 minutes post pharmacological stress performed for imaging.
6. Inform patient to eat meal during the wait period.
7. Image patient using the *GATED SPECT* preprogrammed protocol, using 25 seconds per stop, with 10 second per stop transmission scan. Use matrix of 64 x 64, a zoom of 1.33 and 36 views.
8. Instruct patient not to move, talk, sleep or deep breath during the imaging procedure.
9. When the SPECT acquisition has completed, check the raw data using the *cine* view for motion or other artifacts.
10. Repeat the scan if necessary.
11. Schedule patient return visit for rest exam to occur within 30 days.

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Resting Procedure (Day 2):

1. Inject 25-30 mCi Tc-99m Sestamibi directly into patient's vein through IV access.
2. Wait at least 60 minutes post injection for imaging process.
3. Inform patient to eat meal during the wait period.
4. Image patient using the *REST SPECT* preprogrammed protocol, using 25 seconds per stop, with 10 second per stop transmission scan. Use matrix of 64 x 64, a zoom of 1.33 and 36 views.
5. Instruct patient not to move, talk, sleep or deep breath during the imaging procedure.
6. When the SPECT acquisition has completed, check the raw data using the *cine* view for motion or other artifacts.
7. Repeat the scan if necessary.

Processing of Imaging Data:

1. Patient images will transfer to the processing workstation when the acquisition has completed.
2. Use the Cardiac Spect processing tool to obtain slices, ejection fraction, wall motion and TID ratio.
3. Exit and save the processing tool and transfer to the PACS system for interpretation.