GUNDERSEN LUTHERAN NUCLEAR MEDICINE DEPARTMENT
PROTOCOL MANUAL

PROCEDURE: **Tc-99m SESTAMIBI MYOCARDIAL PERFUSION IMAGING**

SECTION: **CARDIOVASCULAR 2.1**

ORIGINAL DATE: **9 - 30 - 99**

DATE REVISED: **9 – 27 – 18**

REVIEWED: **ANNUAL**

Indications	Detection of coronary artery disease. Classification of left ventricular myocardium as normal, infarcted, and reversibly ischemic. Documentation of myocardial perfusion abnormalities before and after interventional therapy.
Exam time length	**Rest study**: 1. Initially: 15 minutes for injection. 2. 1 hour later: 20 minutes for image acquisition. **Stress study** 1. Initially: 30 minutes for stress and injection. 2. 30 – 60 minutes later: 20 minutes for stress acquisition.
Patient Preparation	-Patients may not have caffeine 12 hours prior to exam. -Patients may not have any solids 4 hours prior to stress test, may have liquids up to 2 hours before stress. -NTG for Cardiolite patients- Stress study: **stop** NTG 2 hrs. prior to start of test. Rest study: standard RD/ST, no need to stop NTG Rest study: acute chest pain, **stop** NTG 1/2 hr prior to injection. - Female patients should be imaged with their bras removed
Radiopharmaceutical & Dose	Radiopharmaceutical: Tc-99m-Sestamibi Dose: Adjusted according to patient weight <u>One day protocol</u>: For all patient weights. **REST:** minimum 7 mCi, maximum 10 mCi (0.093 mCi/Kg) **STRESS/PAIN INJ:** minimum 21 mCi, maximum 30 mCi (0.28 mCi/Kg)
Administration Technique	Technique of administration: Rest: IV placement on one day exam, injection of sestamibi. Stress: IV placement and injection of sestamibi under direction of stress test provider or according to pharmaceutical utilized.

CARDIOLITE REST/STRESS PROCESSING

	Rest Study	Stress Study (Pain Inj)
Minimum time interval between rest and stress studies: ***90 minutes; 60 minutes for inpt ASAP***		
Time interval between tracer injection and imaging	45-60 minutes	15-60 minutes (Pain Inj-60 min)
Camera/Collimator	LEHR	LEHR
Patient position	Supine	Supine
Energy	140 keV 10%	140 keV 10%
Matrix	64 x 64 Zoom of 1.33	64 x 64 Zoom of 1.33
Pixel size	6.91 mm	6.91 mm
Number of projections	60	60
Orbit CW or CCW	180 CCW	180 CCW
Orbit type	Circular	Circular
Start Angle	L-mode 0 degrees	L-mode 0 degrees
End Angle	L-mode 90 degrees	L-mode 90 degrees
Time per view	20 sec : low dose/high dose (1-day) 35 sec : =>110 (1-day)	15 sec : low dose/high dose (1-day) 20 sec : =>110 (1-day)
Gating (Y/N)	No	Yes
Gating frames	NA	8
R to R window	NA	+/- 20% (adjust for a –fib)
Uniformity and COR	Yes	Yes
Prefilter Type	BUTTERWORTH	BUTTERWORTH
Filter cutoff/power	0.4/10 : low dose (1-day) 0.5/5 : =>110 (1-day)	0.5/5
Motion correction	Repeat study if motion	Repeat study if motion
Attenuation correction	Yes - CT	Yes - CT
Normal database used Y/N	Yes	Yes
Reconstruction filter	Ramp	Ramp
Name of Quant program used	Cedars' Sinai	Cedars' Sinai
Screen Caps to make	Myometrix: FBP (These are done for a REST ONLY TEST)	Quantitative Gated SPECT Quantitative Perfusion SPECT Myometrix: FBP
Send to FUJI	The 2 screen caps	The 4 screen caps
Send to Dr Cardio	The Whole Patient Study	The Whole Patient Study

Myovation Evolution Updated 12/11/14

Highlight Cardiolite Study
Click Myovation Evolution
Click Attn. Corr QC
Proceed
Click on adjust registration, click on organ.
Check, adjust registration
Make any adjustments to CT position starting with sagittals. If sagittals line up, look at coronals and adjust as needed, the axials should line up.
Scroll thru images
Proceed
Line up heart for slicing; adjust ROI to mask bowel, if needed.
Hit review page
Screen cap slices review pages for Cardiolite and Cardiolite AC
File, Save and Exit.
Take entire study and run QGSQPS
Screen cap polar map review pages only
When done exit and save.
Use QGS/QPS for review.

Pain Inj
1st set of images. Aquire images using Stress Gating.
Process per normal protocol.

Page reading Cardiologist. Ask if there will need to be any REST images acquired the next morning. If yes, order high dose Cardiolite…

Next day, change Stress label to REST. Then acquire new images as STRESS.
For processing change study name to TWO DAY>

Cardiac Doses – ACR guidelines

Weight	Rest dose (0.093mCi/kg	Stress Dose (.28mCi/kg)	Total (mCi)
75	7.0 – min	21.0 - min	28
80	7.4	22.4	29.8
85	7.9	23.8	31.7
90	8.4	25.2	33.6
95	8.8	26.6	35.4
100	9.3	28.0	37.3
105	9.8	29.4	39.2
110	10.0- max	30.0 (max)	40.0