

Nuclear Cardiology Objectives

Knowledge

- Understand the principles of myocardial perfusion and blood flow, factors determining flow, coronary flow regulation, vasoreactivity, coronary flow reserve, regional flow differences, and flow variability.
- Understand the principles of radioactivity, radioactive decay, radionuclide production, radionuclide generators, photon interactions with matter, and spectrum radiating detectors
- Have a basic understanding of the instrumentation, techniques, and principles involved in nuclear imaging, including collimation, resolution, contrast, localization, noise, ECT, SPECT, PET, image reconstitution methods, and attenuation and scatter correction
- Know the various methods of stress testing (treadmill, upright and reclining bicycle, pharmacologic), including indications, exclusions, safety, and technique
- Understand the difference between a direct and indirect test of coronary flow reserve
- Understand the advantages, disadvantages, and differences between various protocols for image acquisition.
- Know the differences between the various radioisotopes used in nuclear cardiology, including their energy, half lives, and organs of elimination.
- Know the value of perfusion imaging in the diagnosis, prognosis, and management of patients with coronary artery disease.

Skills

- The trainee should be able to independently interpret the results of a stress or viability myocardial perfusion study.
- The trainee should be able to interpret the results of a blood pool imaging study.
- The trainee should be able to recognize potential attenuation artifacts.

Teaching Methods

- Interactive reading sessions with the attending physician.
- Participation in monthly Nuclear Cardiology Tutorial.
- Independent reading of Nuclear Cardiology Review books provided by Dr. Segal at the beginning of the rotation.

Methods of Evaluation

- Direct interaction with the attending physician during the supervision and interpretation of nuclear myocardial imaging studies
- Review of individual fellow projects by the attending physician at the end of the rotation.