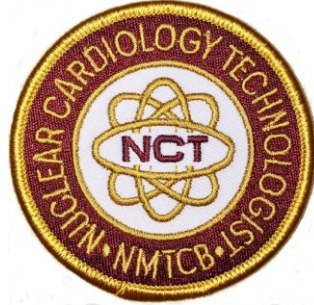


NMTCB
NUCLEAR CARDIOLOGY EXAMINATION



CONTENT SPECIFICATIONS

- I. **Instrumentation/Procedures/Processing (~50%)**
 - A. Acquisition
 1. Patient preparation, indications/contraindications, sequencing of procedures
 2. Injection techniques and imaging times
 3. Acquisition protocols
 - a. Patient positioning
 - b. Stopping parameters
 - c. Matrix size
 - d. SPECT parameters
 - e. Gating parameters
 - i. Framing rate
 - ii. Acceptance window
 - f. Collimator
 - B. Processing
 1. Cineangiograms
 2. Ejection fraction determination
 3. Functional images
 4. Heart-lung ratio
 5. Transient ischemic dilation (TID)
 6. Image manipulation techniques
 7. Image filtering

8. Polar plot analysis
9. Wall motion analysis
10. Time-activity curves
- C. Quality control/Quality Assurance
 1. Camera/system performance
 2. Image assessment
 3. Assessment of filtering techniques
 4. Outcomes
- D. Artifacts
 1. Radiopharmaceutical distribution
 2. Artifacts created by acquisition parameters
 - a. Uniformity
 - b. Energy window
 - c. Gating
 - d. Motion
 - e. COR
 - f. Attenuation
 3. Artifacts created by processing techniques

PROCEDURES LIST

- Myocardial perfusion study
 - Treadmill exercise
 - Pharmacologic stress
- Equilibrium radionuclide angiogram (MUGA/RVG)
 - Resting
 - Bicycle exercise
- Left-to-right cardiac shunt study
- Right-to-left cardiac shunt study
- First pass study for ejection fractions
- Heart Failure Imaging
- Cardiac Sarcoidosis
- Amyloidosis
- Calcium Scoring
- Viability imaging

II. Anatomy/Physiology/Pathology (~10%)

- A. Heart chambers
- B. Cardiac electrophysiology
 - 1. Conduction pathways
 - 2. Normal electrocardiogram
- C. Coronary artery distribution
- D. Heart valves and great vessels
- E. Cardiac function
- F. Normal and abnormal physiologic responses to stress
- G. Cardiac pathologies
 - 1. Coronary artery disease
 - 2. Cardiomyopathies
 - 3. Myocardial ischemia, infarction, hibernation, stunning
 - 4. Valvular diseases and effects on the heart
 - 5. Congenital cardiac anomalies
 - 6. Heart Failure
 - 7. Cardiac Sarcoidosis
 - 8. Amyloidosis

III. Radiopharmaceuticals and Interventional Drugs (~15%)

- A. Radiopharmaceuticals
 - 1. Indications
 - 2. Dosages
 - 3. Biodistribution and localization
 - 4. Radiopharmaceutical problems
- B. Interventional drugs
 - 1. Types and dosages
 - 2. Indications
 - 3. Pharmacologic stress protocols
 - 4. Contraindications, adverse effects and medication interactions

PHARMACEUTICALS LIST

- I-123 MIBG
- Tc-99m sestamibi
- Tc-99m tetrofosmin
- Tl-201 thallous chloride
- Tc-99m labeled RBC's
 - In-vivo labeling
 - Modified in-vivo/in-vitro labeling
 - Ultratag labeling
- F-18 fluorodeoxyglucose (FDG)
- N-13 ammonia
- In-111 Antimyosin
- Rubidium-82 chloride
- Strontium-82
- O-15 water
- F-18 Flurpiridaz for MPI
- Adenosine
- Regadenoson
- Dipyridamole
- Aminophylline
- Dobutamine
- Esmolol
- Acetylsalicylic acid
- Anticoagulants
- Antiarrhythmics
- Calcium Channel Blockers
- ACE Inhibitors
- Nitrates (including but not limited to nitroglycerin)
- Cholesterol-lowering drugs
- Diuretics
- Digoxin

IV. Non-Pharmacologic (Exercise) Stress Testing (~15%)

- A. Contraindications to exercise stress testing
- B. Physiologic measures of exercise capacity/performance
- C. ECG acquisition
- D. Treadmill tower operation
- E. Patient monitoring
- F. Bicycle and isometric exercise protocols
- G. Patient assessment and monitoring
- H. Endpoints

V. Patient Care (~10%)

- A. Answering patient questions
 - 1. Risks of nuclear medicine procedures
 - 2. Comparison to correlative imaging techniques
- B. ECG's
 - 1. Patient preparation, electrode placement and leads
 - 2. Rate calculation
 - 3. Normal and abnormal rhythms
 - 4. Heart blocks
 - 5. Indicators of ischemia and infarction
- C. Emergency care
 - 1. CPR
 - 2. Emergency medications
 - 3. Diabetic complications
 - 4. ACLS

Revised: August 2018