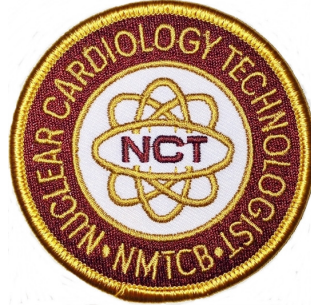


NMTCB
NUCLEAR CARDIOLOGY EXAMINATION



CONTENT SPECIFICATIONS

- I. **Instrumentation/Procedures/Processing (~50%)**
{Procedures: myocardial perfusion , equilibrium radionuclide angiogram, first pass studies, Cardiac PET }
 - 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. Image manipulation techniques

6. Image filtering
 7. Polar plot analysis
 8. Wall motion analysis
 9. 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

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

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

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

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

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
- Strontium-82
- O-15 water
- 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

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