

# EACVI NC examination syllabus

1. Radionuclide physics
  - 1.1. Atoms and nuclei
  - 1.2. Isotope decay
  - 1.3. Interaction of radiation with matter
2. Instrumentation
  - 2.1. Anger gamma camera
  - 2.2. Solid state camera
  - 2.3. PET camera
  - 2.4. CT and hybrid imaging
  - 2.5. Dose calibrators
  - 2.6. Quality control
3. Radiopharmaceuticals
  - 3.1. Single photon emitting (thallium, MIBI, tetrofosmin, mIBG, labelled red and white cells, others)
    - 3.1.1. Physical and biological properties
    - 3.1.2. Common activities
    - 3.1.3. Production
    - 3.1.4. Quality control
    - 3.1.5. Dispensing
    - 3.1.6. Transport
  - 3.2. Positron emitting (FDG, ammonia, rubidium, oxygen, hydroxyephedrine, others)
    - 3.2.1. Physical and biological properties
    - 3.2.2. Common activities
    - 3.2.3. Production
    - 3.2.4. Quality control
    - 3.2.5. Dispensing
    - 3.2.6. Transport
4. Radiation safety
  - 4.1. Potential adverse effects of radiation
  - 4.2. Effective dose
  - 4.3. Radiation protection
  - 4.4. Contamination and waste management
  - 4.5. Legislation
5. Cardiovascular stress
  - 5.1. Stress physiology and pharmacology
  - 5.2. Dynamic exercise
  - 5.3. Pharmacological stress
  - 5.4. Life support
  - 5.5. Contraindications
6. Methodology
  - 6.1. Imaging protocols
    - 6.1.1. Myocardial imaging
    - 6.1.2. Blood pool imaging
    - 6.1.3. Hybrid imaging

- 6.2. ECG gating
- 6.3. Image processing
- 6.4. Assessment of myocardial ischaemic and scar burden
- 6.5. Parametric imaging
- 6.6. Attenuation and other corrections
- 7. Image interpretation
  - 7.1. Myocardial perfusion
  - 7.2. Myocardial viability
  - 7.3. Myocardial innervation
  - 7.4. Blood pool imaging
  - 7.5. Other radionuclide imaging
  - 7.6. Artefact
  - 7.7. Basic interpretation of other forms of imaging
- 8. Radionuclide imaging in clinical cardiology
  - 8.1. Indications and contraindications
  - 8.2. Guidelines and appropriate use criteria
  - 8.3. Comparison with other imaging techniques
- 9. Radionuclide imaging in ischaemic heart disease
  - 9.1. Stable coronary artery disease
    - 9.1.1. Diagnosis
    - 9.1.2. Prognosis
  - 9.2. Myocardial infarction and unstable coronary artery disease
    - 9.2.1. Diagnosis
    - 9.2.2. Prognosis
    - 9.2.3. Imaging in the emergency department
- 10. Radionuclide imaging in heart failure
  - 10.1. Assessment of systolic and diastolic left ventricular function
  - 10.2. Assessment of right ventricular function
  - 10.3. Myocardial viability, stunning and hibernation
  - 10.4. Myocardial innervation
  - 10.5. Ventricular resynchronisation therapy
- 11. Radionuclide imaging in arrhythmias
  - 11.1. Effect of arrhythmia on image acquisition and interpretation
  - 11.2. Assessment for defibrillator implantation
  - 11.3. Assessment before atrial and ventricular ablations
- 12. Radionuclide imaging in myocardial and other disorders
  - 12.1. Primary myocardial disorders
    - 12.1.1. Dilated cardiomyopathy
    - 12.1.2. Hypertrophic cardiomyopathy
    - 12.1.3. Restrictive cardiomyopathy
    - 12.1.4. Constrictive disorders
  - 12.2. Secondary myocardial disorders
    - 12.2.1. Hypertrophy
    - 12.2.2. Myocarditis
    - 12.2.3. Sarcoidosis
    - 12.2.4. Amyloidosis

- 12.2.5. Other infiltrative disorders
    - 12.2.6. Oncology and myocardial toxicity
  - 12.3. Imaging of Infection and other forms of inflammation
  - 12.4. Imaging of metabolism and other molecular processes
  - 12.5. Heart transplantation
  - 12.6. Cardiac neoplasms
- 13. Radionuclide imaging in congenital heart disease
  - 13.1. Coronary anomalies
  - 13.2. Myocardial bridging
  - 13.3. Shunts
  - 13.4. Complex anomalies
- 14. Radionuclide imaging of the heart in lung disease
  - 14.1. Pulmonary embolism
  - 14.2. Chronic obstructive pulmonary disease
  - 14.3. Pulmonary hypertension