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