

Portal: Questions for Examination of Nuclear Medicine

Basic Science of Nuclear Medicine

1. Basic physics - radioactive decay, interaction of radiation with matter
2. Radiation biology - biological effects of ionising radiation, mechanisms, deterministic and stochastic effects
3. Radiation safety and protection - principles, guidelines for patients and for personnel
4. Radiopharmaceuticals - definition, production, quality control, examples of clinical applications
5. Nuclear medicine instrumentation - scintillation detector, scintillation (gamma) camera, non-imaging instruments
6. Recording and processing of scintigraphic images - analogue and digital images, data acquisition, image processing in nuclear medicine
7. Principles of emission tomography - SPECT - basic principles, radiopharmaceuticals, reconstruction techniques, examples of clinical applications
8. Principles of emission tomography - PET - basic principles, radiopharmaceuticals, reconstruction techniques, examples of clinical applications
9. Diagnostic accuracy - sensitivity, specificity, predictive values, ROC curves, applications in clinical practice

Clinical Nuclear Medicine

10. Nuclear cardiology - myocardial perfusion imaging, radionuclide ventriculography, examination of shunts
11. Pulmonary system - lung perfusion scintigraphy, lung ventilation scintigraphy, intrathoracic infections and tumours
12. Central nervous system - brain perfusion study, receptor systems, cisternography, metabolic studies
13. Gastrointestinal system - gastric emptying study, gastrointestinal bleeding study, gastroesophageal reflux, detection of Meckel's diverticulum, hepatobiliary study
14. Genitourinary system - examination of renal function (clearance studies), renal scintigraphy, radionuclide cystography
15. Skeletal system - bone scan (planar, SPECT), three (multiple) - phase bone imaging
16. Lymphatic and vascular system - lymphoscintigraphy, detection of sentinel nodes, radionuclide phlebography
17. Endocrine system - thyroid imaging, parathyroid imaging
18. Emergency nuclear medicine - cardiovascular system, urogenital system, gastrointestinal system, hepatobiliary system, central nervous system, musculoskeletal system, transplants
19. Imaging of inflammation - gallium scintigraphy, leukocyte scintigraphy, labelled antibodies, F-fluorodeoxyglucose (FDG), inflammation processes in the bones
20. Tumour imaging - scintigraphy, tumour markers
21. Radionuclide therapy - malignant and benign thyroid diseases, palliative therapy of skeletal metastases, radionuclide synovectomy, tumour therapy