Module I

Radiation therapy. General questions of diagnostic radiology

1. The nature and properties of ionizing radiations: α-, β-, γ- and x-rays, neutrons and protons.
2. Methods and means of protection when working with sources of ionizing radiation.
3. Biological effect of ionizing radiation on all levels of the organization.
4. Direct and indirect effect of ionizing radiation on living organisms.
5. Specific, individual and age-related types of radiosensitivity.
7. The influence of external factors on radiosensitivity organisms.
8. Radioactivity and units of radioactivity. Types of radioactive decay.
9. The RPC: receiving and basic requirements.
10. The RPC Metabolism in the body. Critical organs.
11. Maximum allowable radiation dose for human and different categories of staff.
15. Scanning, principle of the method and interpretation of the results.
16. Gamma scintigraphy, principles of method and processing results.
17. Research iodine accumulation function of the thyroid gland.
18. How do X-rays are formed, their basic properties?
20. Basic methods of X-ray, radioscopy and radiography, their advantages and disadvantages.
22. The principle and application of X-ray imaging.
23. Protection of personnel and patients from exposure to ionizing radiation during X-ray studies.
24. Classification radiocontrast substances, their use in radial diagnostics. Complications arising from the application radiocontrast substances.
25. Physical and technical basics of computer tomography, diagnostic possibilities of the method.
26. Physical and technical basics of magnetic resonance imaging, diagnostic possibilities of the method.
27. Positron emission tomography.
34. Radial semiotics of lung diseases.
35. Round shadows in the lungs, their differential diagnosis.
36. Ring-shaped shadows in the lungs, their differential diagnosis.
37. Urgent radial diagnostics of pathology of chest: pneumothorax.
38. Urgent radial diagnostics of pathology of chest: hydropneumothorax.
40. Urgent radial diagnostics of pathology of chest: atelectasis.
41. Methods of radial diagnostics of heart and blood vessels.
42. The normal radiographic anatomy of the heart and vessels. The arcs of heart in front projection.
43. The basic configuration of X-ray signs of aortic heart.
44. Radial classification configurations heart.
45. Basic x-ray signs of mitral configuration of the heart
46. Basic x-ray signs of trapezoidal configuration heart
47. General principles of radiological examination gastrointestinal tract.
48. Methods of radiological research of the esophagus and its normal radial image.
49. X-ray research of the diverticula of esophagus and their complications
50. Methods of radiological research of the stomach and its normal radial image.
51. Radial diagnostics of intestinal obstruction, causes, differential diagnostics.
52. Methods of radial diagnostics of diseases of the liver, gallbladder, bile ducts and pancreas.
53. Methods of X-ray research of the colon, normal X-ray anatomy of the colon.
54. Radiographic signs of perforation of a hollow organ.
55. Scanning and thyroid scintigraphy.
56. The value of radio immunoassay (RIA) in complex radial diagnostics of diseases of the thyroid gland.
57. Radionuclide methods of research of salivary glands.
58. Radionuclide methods of research of hepatobiliary system.
59. Complex radial diagnostics cholelithiasis.
60. Radionuclide methods of research of reticulo-endothelial system of the liver.
61. Complex radial diagnostics of diffuse and focal liver lesions.
62. Methods of radial diagnostics of diseases of the kidneys, ureters, bladder.
63. Methods of radial diagnostics of diseases of genitals.
64. Radionuclide methods of examination kidneys.
65. Radionuclide renography and renal dynamic scintigraphy.
66. Characteristics tubulotrophic and glomerulotrophic RPC.
68. Complex radial diagnostics of urolithiasis.
69. Methods of radial diagnostics of diseases of bones and joints.
70. Radial sings of diseases of musculoskeletal system: changes in shape, size, position of bones.
72. Radial signs of diseases of musculoskeletal system: changes in structure (osteoporosis).
73. Radial signs of diseases of musculoskeletal system: destruction, osteonecrosis, osteolysis, atrophy.
74. Radial sings of diseases of musculoskeletal system: joint space changes.
75. Changes joint space, ankylosis.
76. Age-related changes in bones and joints, bone age.
77. Age-related changes in bones and joints, bones and joints features in the elderly.
79. Radial sings of diseases of musculoskeletal system: changes in soft tissues.
80. Features of the X-ray image of bones in children.
81. Radiological research methods skull and brain (skull radiography, ventriculography, tsysternohrafiya).
82. Opportunities ultrasound, CT, MRI in the study of the musculoskeletal system, indications for their use.
83. Radiographic methods research bone and joint, radiography, tomography densitometry.
84. X-ray methods research bone and joints: fistulography, pneumoartrography, angiography.
85. Normal X-ray anatomy and physiology of bones.
86. Normal X-ray anatomy and physiology of joints.
87. Methods and X-ray anatomy of the spine and spinal cord.
88. Selecting the most informative methods of radial investigation for diagnosis of emergency conditions.
89. The criteria for selecting methods of radial investigation in pathology of different organs and systems.
90. Physical and biological bases of radiotherapy.
91. The mechanism of radiation damage of tumor cells.
92. Interval radiotherapy and radio modifying factors.
93. Classification of methods of radiation therapy.
94. Basic principles of radiation therapy.
95. General and local reactions and complications during radiation therapy.
98. Indications for radiotherapy in non-tumor diseases (inflammatory, degenerative).
100. Radiation treatment of skin cancer.
104. Preventive radiation reactions and injuries.
105. At what level spend two horizontal lines that share the lung field into sections or zones?
106. What parts of the lung fields and indicate their limits.
107. What are the areas of the lung fields, located above the collarbone?
108. What are conditional zone, which share the lung fields and indicate their limits.
109. Enter roots level placement on chest radiographs of the lungs, chest cavity in front of the direct projection normal.
110. What is the post-mortem lung pattern substrate?
111. At what level is the border between the upper and middle lobes of the right lung in the front?
112. At what level is the border between the upper and lower portions of the left lung in the front?
113. At what level is the border between the middle and lower lobe of the right lung in the front?
114. At what level are the boundaries between the upper and lower parts of both lungs behind?
115. What are the segments on the right upper lobe?
116. What are the segments on the right middle lobe?
117. What are the segments of the lower lobes right and left lungs.
118. What are the segments of the upper lobe of the left lung.
119. What is the post-mortem substrate eclipse in the pulmonary field?
120. What are the radiological syndromes of lung diseases?
121. What are the variants of opacity in lung field?
122. Write the classification of focal shadows and specify their size.
123. Which anatomical structure is the standard of the intensity of opacity?
124. As divided by the intensity of the eclipse?
125. What are the types of pathological changes of lung pattern?
126. What is the width of the root of the lung on chest radiograph adult normal?
127. What are the stages of violations of bronchial patency.
128. Which methods of radiodiagnostic can exclude the presence of pulmonary embolism? What are the X-ray symptoms of total exudative pleuritis.
129. What are the symptoms of X-exudative of total pericarditis