

PRE/POST TEST
ANSWER KEY

ADVANCES IN CROSS SECTIONAL IMAGING 2008: THE CUTTING EDGE
The Westin Hilton Head Resort and Spa, Hilton Head Island, SC
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1. Two primary patient safety concerns regarding radiofrequency (RF) pulses in MRI are:
 - a. RF induced cancer and peripheral nerve stimulation.
 - b. Induced oscillatory motion and heating of poorly anchored metallic implants.
 - c. Body/organ heating and potential burns from wire leads on the patient.**
 - d. Dislocation of poorly anchored ferromagnetic implants and cardiac arrhythmias.
 - e. Only the static magnetic field and the magnetic field gradients pose safety concerns.

2. Radiation dose from multi-detector CT (MDCT) helical scanning can generally be reduced by:
 - a. Using a narrow total x-ray beam collimation.
 - b. Using automatic mA (tube current) modulation.
 - c. Using a wide total x-ray beam collimation for long scan lengths.
 - d. Keeping image noise as low as possible.
 - e. B and C**

3. Which breast MRI Indications are approved by the ACS?
 - a. Indeterminate Calcifications
 - b. Indeterminate Masses
 - c. Screening
 - d. Limited Mammogram because of dense breast tissue
 - e. Extent of Disease following the diagnosis of breast cancer**

4. Which of the following is true?
 - a. Residual patchy enhancement with persistent kinetics represents post chemotherapy change
 - b. Complete absence of enhancement excludes residual invasive cancer
 - c. MRI appearance of DCIS does not change with chemotherapy**
 - d. This patient had a strong partial response to chemotherapy

5. Regarding evaluation of positive surgical margins which is false?
 - a. MRI can help triage patients to re-excision or mastectomy
 - b. Post surgical change can be difficult to distinguish from residual cancer
 - c. An irregularly shaped cavity frequently represents residual cancer**

6. Which statement regarding Breast MRI is true?
 - a. Kinetics are more important than morphology in diagnosing breast cancer
 - b. CAD looks primarily at speed of initial contrast enhancement**
 - c. The first post contrast scan has the most important kinetic information in evaluating breast lesions
 - d. Most cancers are vascular and hold on to contrast material.

7. Regarding MRI-guided Biopsies: Which is True?
- Most MRI detected lesions are amenable to US biopsy
 - MRI biopsies are more likely to result in benign pathology than US or Stereotactic-guided biopsies
 - MRI biopsies are technically much more difficult to perform than US or Stereotactic-guided biopsies
 - MRI scans result in biopsy most often when being performed for extent of disease in pts with known Ca**
8. MDCT has application in combat imaging in all the following roles EXCEPT:
- Evaluating organ damage
 - Guiding re-triage of pending surgeries
 - Avoiding malpractice for not obtaining MDCT**
 - Determining missile path in select ballistic injuries
 - Guiding trauma surgeons as to surgery needed
9. Reformatting MDCT in combat imaging has the following advantages:
- Helps more accurately guide trauma surgeons in penetrating trauma
 - Expeditious reformatting allows traumatologists to be more efficient in dealing with combat casualties in general
 - Reformatting helps ENT surgeons reconstruct facial injuries more effectively
 - Reformatting is well accepted by physicians on the battlefield
 - All of the above**
10. Which of the following is TRUE concerning penetrating and perforating injuries?
- Perforating ballistic injuries enter the body without exiting
 - Penetrating ballistic injuries enter the body without exiting
 - Perforating ballistic injuries penetrate body and exit
 - B and C from above**
 - None of the above are true
11. Venography should be the first imaging test ordered in patients with suspected central venous disease?
- True
 - False**
12. Flat detector CT (rotational CT) is very helpful due to its high spatial and contrast resolution.
- True
 - False**
13. The most common cause of death and disability in children is:
- Cancer
 - Renal disease
 - Trauma**
 - Boredom
 - Pneumonia
14. Advantages of CT over fluoroscopy for image guided pain interventions include
- Soft tissue targeting
 - Difficult to visualize boney landmarks
 - Critical targeting (e.g., near the lung, vertebral artery)
 - All of the above**
 - None of the above

15. Situations where transaxial image guidance for image guided pain interventions would be disadvantageous to fluoroscopy would include
- identification of flow such as vascular runoff or flowing cement
 - steep cranial or caudally angled approaches
 - situations requiring speed
 - d. all of the above**
 - none of the above
16. Concerning a ring enhancing brain lesion, the differential diagnosis could include brain abscess as well as brain neoplasm. Spectroscopy may help in differentiation by the findings of
- brain abscess will have elevated choline and creatinine, while brain neoplasm remains unchanged
 - b. brain abscess will have elevated lactate while a brain neoplasm will have elevated choline**
 - both brain abscess and brain neoplasm will have diminished lactate but brain neoplasm will have decreased choline
 - all of the above
 - none of the above
17. Tuberculosis may involve the CNS with
- pachymeningitis
 - brain abscess
 - polyradiculitis
 - d. all of the above**
 - none of the above
18. Concerning skull base Meningioma
- They may become extracranial via intraosseous transmigration
 - They may become extracranial via skull base foramina transmigration
 - They are the most common neoplasm to pass through the foramen magnum
 - d. All of the above**
 - None of the above
19. An erosive mass at the jugular foramen that on T2 weighted imaging has a salt and pepper presentation should be
- biopsied and resected immediately since it likely represents a highly contagious abnormality
 - biopsied and resected immediately since it likely represents a highly aggressive metastasis
 - c. embolized prior to any interventional or surgical therapy since it likely represents a hyper vascular neoplasm**
 - resected on a non emergent basis since it likely represents a common schwannoma of the vagus nerve
 - resected on a non emergent basis since it likely represents a common meningioma of the jugular foramen
20. Which of the following is true regarding sonographic characteristics of papillary carcinoma?
- a. Microcalcifications**
 - Macrocalcifications
 - c. Taller than wide**
 - d. Very hypoechoic**
 - e. Irregular contour**
 - All of the above

21. Which of the following is true about cervical lymph nodes?
- a. Size greater than 1.5 cm warrants biopsy
 - b. Cystic components suggest benign disease
 - c. **AP diameter ½ of sagittal diameter suggests benign disease**
 - d. **Fatty hila suggest benign disease**
 - e. **Round lymph nodes warrant biopsy**

22. Which of the following are credentialed by ICAVL?
- a. Lower extremity venous insufficiency
 - b. Lower extremity graft monitoring
 - c. Extracranial Carotid Ultrasound
 - d. Upper extremity venous imaging
 - e. **All of the above**

FOR QUESTIONS 23-29: In an adult, the following are usual areas to find red marrow:

23. Frontal bone

- a. True
- b. **False**

24. Sternum

- a. **True**
- b. False

25. Distal humeral metaphysis

- a. True
- b. **False**

26. Iliac Bones

- a. **True**
- b. False

27. Cervical Spine

- a. **True**
- b. False

28. Tibial Epiphysis

- a. True
- b. **False**

29. Sacral ala

- a. **True**
- b. False

30. A patient presents with slowed gait, and bowel/bladder systems, with a history of “negative thoracolumbar myelography”. On T2-weighted MRI, there is increased signal intensity involving the distal spinal cord, and prominent flow voids along the posterior surface of the spinal cord. On contrast-enhanced MRI, these flow voids enhance, but the distal cord does not. How should this patient be further evaluated?

- a. **Refer the patient to a neurosurgeon, suggesting that spinal cord angiography be performed.**
- b. Refer the patient to a neurosurgeon, expecting that surgeon to operate on the patient’s spinal cord tumor.
- c. Refer the patient to a neurologist, suggesting the need of a work-up for “transverse myelitis”.
- d. Suggest that follow-up imaging be performed in 3 months to look for changes.