

### **Brain Death Determination Quiz**

1. Brain death is defined as a catastrophic brain injury leading to:
  - A. Irreversible loss of all function of the entire brain, including brainstem
  - B. Irreversible loss of function of the cerebral cortex, but maintenance of brainstem reflexes
  - C. Irreversible loss of brainstem reflexes
  - D. None of the above
2. Fill in the blanks:

Patients' core body temperatures must be maintained  $\geq$  \_\_\_\_ °C before brain death evaluation. In those whose core body temperature has been  $\leq$  \_\_\_\_ °C, clinicians should wait a minimum of 24 hours after the patient has been rewarmed to  $\geq$  \_\_\_\_ °C before brain death evaluation.
3. Fill in the blank:

At the University of Michigan, \_\_\_\_ formal clinical examination(s) must be performed for brain death determination.
4. Patients can be evaluated for brain death when the etiology of their brain injury is unknown, as long as their brainstem reflexes are absent.
  - A. True
  - B. False
5. You check for a motor response to noxious stimuli during brain death evaluation. Which of the following responses does NOT necessitate ending the clinical exam?
  - A. Facial grimace
  - B. Ipsilateral withdrawal of the limb
  - C. Triple flexion
  - D. Vocal response to pain
6. Cold caloric stimulation is performed by irrigating ice cold water into the external ear canal. If the brainstem is intact, this normally elicits which of the following responses?
  - A. Conjugate slow eye movement towards the stimulated ear
  - B. Conjugate slow eye movement away from the stimulated ear
  - C. Unilateral pupillary constriction in the stimulated ear
  - D. Absence of any eye movement or response
7. What FiO<sub>2</sub> and for how long should the patient be pre-oxygenated for the apnea test?
  - A. 21% for 10 mins
  - B. 80% for 20 mins
  - C. 100% for 10 mins
  - D. 60% for 20 mins

8. A 45-year-old male presents to the ED after a motor vehicle accident. He is ultimately found to have multicompartamental hemorrhages and diffuse cerebral edema. The primary team inquires about eventual brain death testing. For which of the following features is ancillary testing warranted?
- A. Deep sedation
  - B. Cervical spine trauma
  - C. Thoracic cord injury
  - D. None; ancillary testing is not needed.
9. Which of the following is NOT an appropriate ancillary test?
- A. Cerebral angiogram
  - B. SSEPs
  - C. Nuclear medicine perfusion scan
  - D. MRI
10. Brain death testing is pursued for a patient, with the initial neurologic exam consistent with a diagnosis of brain death. You proceed with apnea testing. An ABG is obtained at the start of the test after preoxygenation, and another is obtained after 10 minutes. Which of the following ABG sets is consistent with a diagnosis of brain death?
- A. Initial pH 7.39/ $\text{PaCO}_2$  38/ $\text{PaO}_2$  205; Repeat pH 7.23/ $\text{PaCO}_2$  58/ $\text{PaO}_2$  184
  - B. Initial pH 7.37/ $\text{PaCO}_2$  45/ $\text{PaO}_2$  215; Repeat pH 7.21/ $\text{PaCO}_2$  61/ $\text{PaO}_2$  190
  - C. Initial pH 7.40/ $\text{PaCO}_2$  41/ $\text{PaO}_2$  230; Repeat pH 7.22/ $\text{PaCO}_2$  64/ $\text{PaO}_2$  172
  - D. Initial pH 7.41/ $\text{PaCO}_2$  37/ $\text{PaO}_2$  220; Repeat pH 7.32/ $\text{PaCO}_2$  48/ $\text{PaO}_2$  195