

## **2018 SAE-P: Update in Concussion**

### **Atul T. Patel, MD MHSA, Chair**

Fred Bagares, DO; Scott Campea, MD; Hans L. Carlson, MD; Carol Y. Crooks, MD; Maria Aurora Dajoyag-Mejia, MD; Colby Hansen, MD; David J. Haustein, MD; Matthew P. Mayer, MD; Michelle McFarlane, MD; Virtaj Singh, MD; Kate Temme, MD

- 1) This clinical variable has been associated with increased risk of Post-Concussion Syndrome (PCS):
  - a. History of 2 concussions
  - b. Older athletes (>18 years old)
  - c. Male sex
  - d. Pre-existing depression and/or anxiety
  
- 2) Fluctuation in time between heartbeats in concussed athletes describes:
  - a. Heart Rate Variability (HRV)
  - b. Exercise intolerance
  - c. A positive cardiac tilt-table test
  - d. Postural orthostatic tachycardia
  
- 3) When performing baseline exercise testing in a concussed athlete, the clinician should
  - a. begin recording symptoms once 70% age-predicted heart rate has been achieved.
  - b. monitor for objective and subjective signs or symptoms.
  - c. conclude that a concussion has resolved if athlete can compete test without symptoms.
  - d. not assign a subthreshold exercise program if they have any symptoms.
  
- 4) Which of the following clinical findings is most consistent with mild traumatic brain injury?
  - a. Altered mental status for 12 hours
  - b. Glasgow Coma Scale score of 12
  - c. Loss of consciousness for 3 hours
  - d. Posttraumatic amnesia for 3 days
  
- 5) Which of the following is most important when establishing a diagnosis of mild traumatic brain injury in the setting of post-deployment screening?
  - a. Electroencephalogram
  - b. History and physical exam
  - c. Neuroimaging
  - d. Serum biomarkers
  
- 6) What is the best medication to help improve sleep disturbance following mild traumatic brain injury in someone who experiences nightmares associated with PTSD?
  - a. Amitriptyline
  - b. Prazosin
  - c. Trazadone
  - d. Zolpidem

- 7) What is the traumatic brain injury severity of a patient with a Glasgow Coma Score of 13-15, with loss of consciousness less than 30 minutes, and post traumatic amnesia lasting less than 24 hours?
  - a. No traumatic brain injury
  - b. Mild traumatic brain injury
  - c. Moderate traumatic brain injury
  - d. Severe traumatic brain injury
  
- 8) What is a non-invasive electrocardiographic measure of the fluctuations in the time interval between heartbeats?
  - a. Eyeball pressure stimulation
  - b. Arterial pulse wave morphology
  - c. Graded exercise testing
  - d. Heart rate variability
  
- 9) What is the recommended treatment for mild traumatic brain injury?
  - a. No restriction, activity as tolerated
  - b. Physical and cognitive rest
  - c. Hypothermia to 32 degrees centigrade
  - d. Hyperbaric oxygen therapy
  
- 10) For children (18 years of age and younger) with mild TBI, which non-injury related factor is the poorest at predicting ongoing impairment and delayed recovery (< 1 year post-injury)?
  - a. Pre-injury psychiatric problems
  - b. Parental socioeconomic status
  - c. Pre-injury family functioning
  - d. Prior history of mild TBI
  
- 11) Which of the following is an independent risk factor to decide if a child is at risk of significant intracranial injury and therefore appropriate to consider a CT scan?
  - a. Vertigo
  - b. Blurry vision
  - c. Photophobia
  - d. Vomiting
  
- 12) When counseling a child who has sustained a concussion on returning to school, which of the following should be emphasized?
  - a. Every child should receive a 504 or IEP plan.
  - b. No child should return to school until he or she is 100% symptom free.
  - c. The return to school plan should be customized and adjusted based on the child's progress through the recovery period.
  - d. The medical team should defer to the school system to decide on any accommodations to put in place.

- 13) Which of the following is a risk factor for sports-related postconcussive impairment?
- Older age
  - History of concussions
  - Training greater than 3 hours weekly
  - Depression
- 14) For male collegiate athletes, what sport has the highest rate of concussions after football?
- Ice hockey
  - Soccer
  - Basketball
  - Baseball
- 15) For females, the greatest incidence of concussion occurs with which sporting event?
- High school soccer
  - College soccer
  - High school basketball
  - College basketball
- 16) What is the minimum age at which you can use the SCAT5 (Sport Concussion Assessment Tool 5th Edition)?
- 11
  - 12
  - 13
  - 14
- 17) Which of the following is a Maddocks question?
- Which team started with the ball?
  - Which half is it now?
  - What position do you play?
  - What is the score of the game?
- 18) According to the SCAT5, how many minute(s) should elapse between testing immediate and delayed recall?
- 1
  - 3
  - 5
  - 10
- 19) The 2016 Berlin Consensus on sports-related concussion (SRC) defines persistent symptoms as those lasting more than:
- 7-10 days in adults
  - 10-14 days in adults
  - 10-14 days in children
  - 14-21 days in children

- 20) After a SRC, the Berlin Consensus statement advises:
- Complete rest until all symptoms resolve
  - Brief rest for 48-72 hours, followed by resumption of normal school-based activities
  - Exact amounts/duration of rest based upon type of SRC
  - Brief rest for 24-48 hours followed by gradual resumption of activities below their symptom-exacerbation threshold
- 21) For SRC prevention, the strongest evidence supports:
- Helmet use in football
  - Prohibiting body checking in youth ice hockey
  - Limiting contact in youth football practice
  - Mouthguard use in collision sports
- 22) What feature of the Glasgow Coma Scale (GCS) limits its potential to adequately classify concussion?
- It poorly predicts outcomes.
  - It is based on arousal.
  - It evaluates changes in normal daily activity.
  - It is a nominal scale.
- 23) What is the primary advantage to using a systems approach, as opposed to a reductionist one, when attempting to understand the complexity of concussion?
- Reducing complex interactions to the sum of their parts
  - Answering well defined empirical problems
  - Incorporating interrelated components as properties of the system
  - Controlling aspects of complexity in the system
- 24) Which aspect of concussion is correctly paired with an associated system scale level?
- Headache -- Cellular Answering well defined empirical problems
  - Low Social Reserve -- Experiential
  - Vestibular-Ocular Dysfunction -- Network
  - Hypometabolism -- Social
- 25) A 37-year-old male is discharged from the emergency department with a concussion. Which of the following should be included in his discharge instructions?
- Refrain from driving for at least 24 hours
  - Call primary care provider immediately if you experience ringing in the ears
  - Do not drink alcohol until approved by primary care provider
  - Adhere to bed rest for one week
- 26) What is the distinguishing feature for the pathological diagnosis of chronic traumatic encephalopathy (CTE)?
- Perivascular accumulation of tau aggregates in an irregular pattern at the depths of the cortical sulci
  - CA1 predominant neurofibrillary degeneration in the hippocampus in association with amyloid plaques

- c. Cerebellar dentate cell loss, prominent coiled bodies in oligodendroglia, and tufted astrocytes
  - d. Severe involvement of striatum and pallidum with astrocytic plaques in cortical and subcortical structures
- 27) What is required for diagnosis of CTE?
- a. Post-mortem neuropathological findings
  - b. History of multiple concussions
  - c. Dementia or cognitive difficulties
  - d. Motor control issues