

American Heart Association

**Advanced Cardiovascular
Life Support**

**Precourse Written
Examination**

May 2001

ACLS Provider Course Precourse Written Examination

This is a single-answer multiple-choice examination. There is only one correct answer to each question. Do not write on this question sheet. Circle the correct answer on your answer sheet.

1. **Which of the following actions is done first to restore oxygenation and ventilation to an unresponsive, breathless, near-drowning victim?**
 - a. force water from the victim's lungs by performing the Heimlich maneuver
 - b. force water from the victim's lungs by starting chest compressions
 - c. stabilize cervical spine with c-collar and spine board, then start the ABCs
 - d. open the airway with a jaw-thrust maneuver, provide in-line cervical stabilization, start the ABCs

2. **Tracheal intubation has just been attempted for a victim of respiratory arrest. During hand ventilation with a bag, you hear stomach gurgling over the epigastrium, and oxygen saturation (per pulse oximetry) fails to rise. Which of the following is the most likely explanation for these findings?**
 - a. intubation of the hypopharyngeal area
 - b. intubation of the left main bronchus
 - c. intubation of the right main bronchus
 - d. bilateral tension pneumothorax

3. **Which of the following patients needs immediate intubation?**
 - a. an elderly woman with severe chest pain and shallow respirations at 30 breaths/min
 - b. a 55-year-old insulin-dependent diabetic with ST-segment elevation and runs of VT
 - c. an apneic patient whose chest does not rise with bag-mask ventilations
 - d. a subdued, alcohol-intoxicated college student with a reduced gag reflex

4. **When treating a trauma victim who is in shock and deeply comatose, which of the following is the airway of choice?**
 - a. a tracheal tube
 - b. the patient's own airway
 - c. a nasopharyngeal airway
 - d. an oropharyngeal airway

5. Which of these lists of CPR performance and AED operation is correct and in the right sequence?
- send someone to call 911, attach AED electrode pads, open the airway, turn on the AED, provide 2 breaths, check for a pulse
 - wait for the AED and barrier device to arrive, open the airway, provide 2 breaths, check for a pulse, if no pulse attach AED electrode pads, follow AED prompts
 - send someone to call 911, open the airway, provide 2 breaths, check for a pulse, if no pulse attach the AED, follow AED prompts
 - provide 2 breaths, check for a pulse, if no pulse perform chest compressions for 1 minute, call for the AED, when the AED arrives attach electrode pads
6. You are operating an AED in an attempted resuscitation of a man who collapsed in the airport. After delivery of 3 successive shocks, your pulse check indicates he still lacks a pulse. What is the next thing you do?
- reanalyze the victim's rhythm
 - perform CPR until EMS personnel arrive
 - perform CPR for 1 minute, then reanalyze the victim's rhythm
 - leave the AED attached and start transport to the nearest ED, stopping every 3 minutes for the AED to reanalyze
7. A patient remains in VF cardiac arrest after 3 stacked shocks, tracheal intubation, epinephrine 1 mg IV, and a 4th shock. Which of the following drug-dose combinations should this patient receive next?
- amiodarone 150 mg IV given over 10 minutes
 - lidocaine 1 to 1.5 mg/kg IV push
 - procainamide 50 mg/min, up to a total dose of 17 mg/kg
 - magnesium 1 to 2 g, appropriately diluted, IV push
8. A patient in VF cardiac arrest has failed to respond to 3 shocks, epinephrine 1 mg IV, and a 4th shock. You give the medication nurse a "standing order" to administer epinephrine every 3 minutes as long as the resuscitation continues. Which of the following dose regimens is recommended?
- epinephrine 1 mg, 3 mg, 5 mg, and 7 mg (escalating regimen)
 - epinephrine 0.2 mg/kg per dose (high-dose regimen)
 - epinephrine 1 mg IV push, repeated every 3 minutes
 - epinephrine 1 mg IV push, followed in 3 minutes by vasopressin 40 U IV

9. EMTs arrive at the side of a 55-year-old man in cardiac arrest. The first AED analysis registers “shock indicated.” But before the shock can be delivered, the EMTs learn that the man has gone 12 minutes without any bystander CPR. What actions should the EMTs take next?
- resume CPR, supplement with 100% O₂, continue until paramedics arrive
 - allow the AED to charge and shock
 - resume CPR, supplement with 100% O₂ for 3 minutes, reanalyze, shock if indicated
 - resume CPR, contact medical control, request permission to stop resuscitative efforts
10. While treating a patient in persistent VF arrest after 3 shocks, you consider using vasopressin. Which of the following guidelines for use of vasopressin is true?
- give vasopressin 40 U every 3 to 5 minutes
 - give vasopressin for better vasoconstriction and β -adrenergic stimulation than provided by epinephrine
 - give vasopressin as an alternative to epinephrine in shock-refractory VF
 - give vasopressin as the first-line pressor agent for clinical shock caused by hypovolemia
11. A patient arrives in the ED. CPR continues with ventilations provided through a tracheal tube inserted in the field. Chest compressions produce a femoral pulse that disappears during a “stop compressions” pause. During the pause the cardiac monitor shows narrow QRS complexes at a rate of 65 bpm. At this point what is the next action you should take?
- check for tracheal tube dislodgment and improper tube placement
 - start an IV, administer atropine 1 mg IV push
 - start an IV, send blood samples for measurement of serum electrolytes and a toxic drug screen
 - analyze arterial blood gases to check for acidosis, hypoxia, and hypoventilation
12. You have intubated a patient with PEA. You hear good bilateral breath sounds, and you see obvious bilateral chest rise. Two minutes after epinephrine 1 mg IV is given, PEA continues at 30 bpm. Which of the following actions should be done next?
- administer atropine 1 mg IV
 - initiate transcutaneous pacing at a rate of 60 bpm
 - start a dopamine IV infusion at 15 to 20 μ g/kg per minute
 - give epinephrine (1 mL of 1:10 000 solution) IV bolus

13. For which of the following PEA patients is sodium bicarbonate therapy (1 mEq/kg) likely to be most effective?
- a. a patient with hypercarbic acidosis due to a tension pneumothorax
 - b. a patient with a brief arrest interval
 - c. a patient with documented severe hyperkalemia
 - d. a patient with documented severe hypokalemia
14. A cardiac arrest patient arrives in the ED in PEA at 30 bpm. CPR continues, proper tube placement is confirmed, and IV access is established. Which of the following medications is most appropriate to give next?
- a. calcium chloride 5 mL of 10% solution IV
 - b. epinephrine 1 mg IV
 - c. synchronized cardioversion at 200 J
 - d. sodium bicarbonate 1 mEq/kg IV
15. Which of the following drug-dose combinations is recommended as the initial medication to give to a patient in documented asystole?
- a. epinephrine 3 mg IV
 - b. atropine 3 mg IV
 - c. epinephrine 10 mL of a 1:10 000 solution IV
 - d. atropine 0.5 mg IV
16. When a monitor attached to a person in cardiac arrest displays a “flat line,” you should execute the “flat line protocol.” Which of the following actions is included in this protocol?
- a. check monitor display for sensitivity or “gain”
 - b. obtain a right-sided 12-lead ECG
 - c. change LEAD SELECT control from *lead II* to *paddles* and back
 - d. administer a lower energy (100 J) defibrillatory shock to “bring out” possible occult VF

17. An 88-year-old man in normothermic cardiac arrest arrives in the ED after 15 minutes of continuous asystole. Paramedics intubated him, confirmed proper tube placement, gained IV access, and gave epinephrine 1 mg IV \times 3 and atropine 1 mg IV \times 2. Which of the following actions is most likely to have a positive therapeutic effect and is most consistent with the recommendations in *ECC Guidelines 2000*?
- ask the nurse to bring members of the immediate family to a private area, where you discuss code termination and family presence at the resuscitation
 - stop efforts at 10 minutes if there is no response to epinephrine 3 mg IV every 3 minutes
 - stop efforts at 10 minutes if there is no response to transcutaneous pacing given with CPR
 - stop efforts if there is no response to 3 empiric defibrillatory shocks of 360 J given 3 minutes apart
18. A 50-year-old man has a 3-mm ST-elevation in leads V₂ to V₄. Severe chest pain continues despite oxygen, aspirin, nitroglycerin SL \times 6, and morphine 10 mg IV. BP = 170/110 mm Hg; HR = 120 bpm. Which of the following treatment combinations is most appropriate for this patient at this time (assume no contraindications to any medication)?
- calcium channel blocker IV + heparin bolus IV
 - ACE inhibitor IV + lidocaine infusion
 - magnesium sulfate IV + enoxaparin (Lovenox) SQ
 - reteplase, recombinant (Retavase) + heparin bolus IV
19. Which of the following includes the major components of definitive therapy for a 60-year-old patient with >2mm ST-segment elevation within 30 minutes of the onset of symptoms of acute ischemic chest pain?
- fibrinolytics or PCI, aspirin, β -blockers, heparin
 - heparin, aspirin, glycoprotein IIb/IIIa inhibitors, IV β -blockers, nitrates
 - serum cardiac markers, serial ECGs, perfusion scan or stress test
 - prophylactic lidocaine, fluid bolus, vasopressor infusion
20. Within 45 minutes of ED arrival, which of the following evaluation sequences should be performed for a 70-year-old woman with rapid onset of headache, garbled speech, and right arm and leg weakness?
- history, physical and neurologic exams, *noncontrast* head CT with radiologist interpretation
 - history, physical and neurologic exams, *noncontrast* head CT, start of fibrinolytic treatment if scan is positive for stroke
 - history, physical and neurologic exams, lumbar puncture, *contrast* head CT if LP is negative for blood
 - history, physical and neurologic exams, *contrast* head CT, start of fibrinolytic treatment when improvement in neurologic signs is noted

21. Which of the following conditions most closely mimics the signs and symptoms of an acute stroke?

- a. acute insulin-induced hypoglycemia
- b. acute hypoxia
- c. isotonic dehydration and hypovolemia
- d. acute vasovagal or orthostatic hypotension

22. Which of the following rhythms is an appropriate indication for transcutaneous cardiac pacing?

- a. sinus bradycardia with no symptoms
- b. normal sinus rhythm with hypotension and shock
- c. complete heart block with pulmonary edema
- d. asystole that follows 6 or more defibrillation shocks

23. A patient with a HR of 30 to 40 bpm complains of dizziness, cool, clammy extremities, and dyspnea with minimal exercise. What is the first drug to give to this patient?

- a. atropine 0.5 to 1 mg
- b. epinephrine 1 mg IV push
- c. isoproterenol infusion 2 to 10 $\mu\text{g}/\text{min}$
- d. adenosine 6 mg rapid IV push

24. Which one of the following patients needs immediate synchronized cardioversion?

- a. a 78-year-old woman with fever, pneumonia, chronic congestive heart failure, and sinus tachycardia at 125 bpm
- b. a 55-year-old man with multifocal atrial tachycardia at 125 bpm, respiratory rate of 12 breaths/minute, and BP of 134/86 mm Hg
- c. a 69-year-old woman with a history of coronary artery disease, chest pain, a 2-mm ST elevation, and sinus tachycardia at 130 bpm
- d. a 62-year-old man with a history of rheumatic mitral valve disease, obvious shortness of breath, HR of 160 bpm, and BP of 88/70 mm Hg

25. Which one of the following patients is most likely presenting with stable tachycardia that you should not cardiovert?
- a 25-year-old wheezing asthmatic woman who has pneumonia on chest x-ray, who is taking albuterol, and who has the following vital signs: temp = 101.2°F, HR = 140 bpm, resp = 20 breaths/min
 - a 55-year-old man with diaphoresis, bilateral rales, and the following vital signs: HR = 140 bpm, BP = 90/55 mm Hg, resp = 18 breaths/min, rhythm = rapid atrial flutter
 - a 62-year-old man with a wide-complex tachycardia at a rate of 140 bpm, chest pain, shortness of breath, and palpitations
 - a 55-year-old woman with chest pain, shortness of breath, extreme weakness and dizziness, BP of 88/54 mm Hg, and a narrow-complex tachycardia at a rate of 145 bpm
26. You prepare to cardiovert an unstable 48-year-old tachycardic woman with the monitor/defibrillator in “synchronization” mode. She suddenly becomes unresponsive and pulseless right when the rhythm changes to an irregular, chaotic, VF-like pattern. You charge to 200 J and press the SHOCK button, but the defibrillator fails to deliver a shock. Why?
- the defibrillator/monitor battery failed
 - the “sync” switch failed
 - you cannot shock VF in “sync” mode
 - a monitor lead has lost contact, producing the “pseudo-VF” rhythm
27. An 80-year-old woman complains of palpitations and mild lightheadedness, but the findings of her physical exam are unremarkable. The 1st ECG shows a regular, narrow-complex tachycardia at 150 bpm. The Valsalva maneuver slows the ventricular rate to reveal classic atrial flutter waves, but it does not convert the atrial flutter. Which of the following interventions should you try next?
- IV adenosine to slow ventricular rate
 - IV diltiazem to slow ventricular rate
 - urgent DC cardioversion
 - IV dopamine to strengthen cardiac contractions
28. A previously healthy 50-year-old man complains of chest tightness, palpitations, and dizziness. HR is 170 bpm, BP is 90/60 mm Hg, and the ECG shows a narrow-complex tachycardia. You decide that the rhythm is multifocal atrial tachycardia. He failed to respond to initial vagal maneuvers and 2 rounds of adenosine. As your next action, which of the following treatments is inappropriate ?
- IV amiodarone
 - IV metoprolol
 - IV diltiazem
 - DC cardioversion

29. A 75-year-old man presents to the ED with 1 week of lightheadedness, irregular palpitations, and mild exercise intolerance. The initial 12-lead ECG displays atrial fibrillation, which continues to show on the monitor at a HR of 120 to 150 bpm and BP = 100/70 mm Hg. Which of the following therapies is the most appropriate next intervention?
- sedation, analgesia, then immediate cardioversion
 - oxygen via nasal cannula at 2 to 6 L/min, normal saline at 60 to 120 mL/h
 - amiodarone 300 mg IV bolus
 - metoprolol 5 mg IV; repeat every 5 minutes to a total dose of 15 mg
30. A 66-year-old, malnourished, chronic alcoholic presents with polymorphic ventricular tachycardia that resembles torsades de pointes. His HR is irregular at 120 to 160 bpm, and his BP is 95/65 mm Hg. He has no related symptoms and no signs of impaired heart function. Which of the following treatments is most appropriate at this time?
- IV amiodarone
 - IV magnesium
 - IV lidocaine
 - IV procainamide
31. You are performing CPR on a man in cardiac arrest when a technician arrives and attaches an AED. With the first rhythm analysis a shock is "indicated" and delivered, but the next rhythm analysis signals "no shock advised." What is the most appropriate next action?
- check for a pulse
 - press the manual OVERRIDE button and operate the AED as a manual defibrillator
 - insert an oropharyngeal airway and start 100% oxygen at 6 L/min
 - support breathing and place the patient in the recovery position until the hospital code team arrives
32. Which of the following patients is most likely to present with vague signs and unusual symptoms of an atypical AMI?
- a 65-year-old woman with moderate coronary artery disease recently confirmed by angiography
 - a 56-year-old man who smokes 3 packs per day but has no history of heart disease
 - a 45-year-old woman diagnosed with type I diabetes 22 years ago
 - a 48-year-old man in the ICU after coronary artery bypass surgery

33. A 60-year-old man (weight = 50 kg) with a history of recurrent VF has converted from VF to a wide-complex perfusing rhythm after epinephrine 1 mg IV and a 4th shock (HR = 60 bpm, BP = 90/60 mm Hg). Which of the following drug regimens is most appropriate to give next?
- a. amiodarone 300 mg IV push
 - b. adenosine 6 mg rapid IV push
 - c. magnesium 3 g IV push, diluted in 10 mL of D₅W
 - d. procainamide 20 to 50 mg/min, up to a maximum dose of 17 mg/kg