1. You are teaching a class on cardiovascular disease and need to describe what atherosclerosis is. Which of the following statements is the most appropriate explanation?

1. “It affects the arteries of the heart and is caused by a heart attack.”
2. “The walls of the coronary arteries lose elasticity, which leads to a heart attack.”
3. “Cholesterol and lipid material accumulate within the walls of arteries.”
4. “It affects veins and is caused by untreated high blood pressure.”

Answer: c

Objective: 15-4

Reference: 464

2. You are called to assist a 62-year-old female who is complaining of fatigue, jaw discomfort, and diaphoresis. When asked, she denies having chest pain or shortness of breath. She tells you that she has a history of hypertension and takes a blood pressure pill. She also has nitroglycerin. Which statement is inappropriate for this event?

1. “I am not going to attach the AED because she is conscious and has a pulse.”
2. “She is not short of breath, so we don't need to transport her.”
3. “I am going to call for ALS because she could be having a cardiac event.”
4. “I am going to check her blood pressure.”

Answer: b

Objective: 15-5

Reference: 476

3. You have been called to treat a 47-year-old man complaining of chest pain. He is alert, oriented, and complaining of pain in his chest that came on suddenly about 15 minutes ago. His skin is diaphoretic and cool. Which of the following actions should you take first?

1. Apply oxygen at 15 LPM through a nonrebreather mask.
2. Radio for an ambulance with ALS.
3. Help him administer his nitroglycerin.
4. Obtain a SAMPLE history.

Answer: a

Objective: 15-8

Reference: 485

4. Which of the following statements indicates that the speaker has an understanding of chest pain and acute myocardial infarction?

1. “If the chest pain started during activity, it is most likely cardiac in origin. If the pain started while the patient was at rest, it is most likely not cardiac in origin.”
2. “If the patient’s chest pain does not go away with nitroglycerin, you can assume that the medication has expired and is no longer effective.”
3. “If the patient experiences chest pain that radiates into the left arm, it is most likely a heart attack. If the pain radiates anywhere else, it is most likely not cardiac in origin.”
4. “Some patients experiencing acute myocardial infarction do not have actual chest pain; instead, they may experience a sensation of ‘severe heartburn.’ ”

Answer: d

Objective: 15-5

Reference: 474

5. A patient with chest pain informs you that he has a bad heart. You think he may have congestive heart failure. When performing your secondary assessment, which of the following signs or symptoms does *not* indicate that the patient is in congestive heart failure?

1. Swollen ankles
2. Bradycardia
3. Bubbling breathing noises
4. Shortness of breath

Answer: b

Objective: 15-5

Reference: 475

6. Aspirin may be used in a patient who has chest pain suggestive of a heart attack because aspirin may:

1. break up a blood clot that is occluding a coronary artery.
2. relieve the headache that is caused by the administration of nitroglycerin.
3. decrease the ability of platelets to form clots.
4. decrease the chest pain caused by the possible heart attack.

Answer: c

Objective: 15-8

Reference: 486

7. You are with a patient who is complaining of chest pain that radiates into his arm and neck. He is alert and oriented and has an open airway and adequate breathing. His pulse is strong and his skin is cool and slightly diaphoretic. His pulse is 84, his respirations are 18, and his blood pressure is 90/62 mmHg. Responses to SAMPLE questioning include a history of a previous heart attack and chronic lung disease; an allergy to aspirin; possession of nitroglycerin; and last ate about 6 hours ago. Based on this information, you would *not:*

1. assist the patient to take a nitroglycerin tablet.
2. place the patient on oxygen.
3. let him assume a position of comfort.
4. reassess his blood pressure in 5 minutes.

Answer: a

Objective: 15-8

Reference: 485

8. You are caring for a patient with chest pain who has just taken his nitroglycerin. The patient’s chest pain has been alleviated. You understand that nitroglycerin is effective in treating chest pain because it:

1. increases the heart rate and gets more blood to the heart muscle.
2. has a sedative effect, which makes the patient less aware of the pain.
3. dilates the arteries and veins, which decreases the workload on the heart.
4. causes the body to relax, decreasing the need for oxygen.

Answer: c

Objective: 15-8

Reference: 472

9. When assisting a patient to take a nitroglycerin tablet, it is:

1. placed under the tongue.
2. swallowed with only an ounce of water.
3. chewed and then allowed to dissolve slowly.
4. placed between the cheek and teeth.

Answer: a

Objective: 15-8

Reference: 486

10. Before nitroglycerin is administered, you should ensure that:

1. nitroglycerin is in fact prescribed for the patient.
2. the patient rates his chest pain as at least 7 on a scale of 1 to 10.
3. the patient’s systolic blood pressure is at least 110 mmHg.
4. the patient is standing.

Answer: a

Objective: 15-8

Reference: 486

11. Which of the following medications, if taken in the last 24 hours, would be a contraindication to administering nitroglycerin?

1. Coumadin
2. Aspirin
3. Viagra
4. Tylenol

Answer: c

Objective: 15-8

Reference: 486

12. You are assisting a 67-year-old patient with chest pain. He has taken two nitroglycerin tablets but his pain remains a 7 out of 10. He is diaphoretic; his respirations are 18 per minute and adequate; his pulse is 72; and his blood pressure 80/62 mmHg. He is on a nonrebreather mask at 15L per minute. You would:

1. assist him in taking his third and final nitroglycerin tablet.
2. attach him to an AED.
3. reassess his vital signs every 5 minutes and transfer him by ALS care.
4. give him only half of a nitroglycerin tablet.

Answer: c

Objective: 15-8

Reference: 486

13. Which of the following actions is most important before assisting a patient to take prescribed nitroglycerin?

1. Determine whether the patient has any allergies.
2. Evaluate the patient’s blood pressure.
3. Determine whether the patient has a headache.
4. Attach the patient to an AED.

Answer: b

Objective: 15-8

Reference: 486

14. When obtaining a medical history, which of the following statement made by a patient is classic for a patient with stable angina?

1. “I took three nitroglycerin over 15 minutes, but I still have pain.”
2. “When I stopped exercising, the pain went away.”
3. “The pain started when I was sitting down and reading the newspaper.”
4. “The pain lasted about 45 minutes before it gradually went away.”

Answer: b

Objective: Supplemental

Reference: 466-467

15. You are in the first-aid area assisting a patient who just arrived with chest pain. He relates a history of angina that usually resolves with nitroglycerin. The patient states that the pain started when he was skiing through the bumps. Over the last 20 minutes, he has taken three nitroglycerin tablets and rested, but the pain has not gone away. Your next action would be to:

1. try one more nitroglycerin tablet because nitroglycerin usually relieves his pain.
2. attach an AED in case he goes into cardiac arrest.
3. place him on high-flow oxygen.
4. check his blood pressure because he has taken three nitroglycerin tablets.

Answer: c

Objective: 15-8

Reference: 485

16. An OEC Technician indicates that she understands the difference between stable angina and an acute myocardial infarction (MI) when she states:

1. “Stable angina occurs when the heart rate becomes too high; an acute MI is the result of coronary artery disease.”
2. “Stable angina is not accompanied by other symptoms such as shortness of breath; the chest pain of an acute MI is.”
3. “The pain in an acute MI is typically described as “stabbing”; the pain with stable angina is more akin to pressure.”
4. “An acute myocardial infarction results in the death of cardiac tissue; stable angina causes ischemia to the heart muscle.”

Answer: d

Objective: 15-4

Reference: 466

17. Which of the following signs or symptoms is suggestive of right-sided congestive heart failure?

1. Elevated blood pressure
2. Edema in the legs and feet
3. A bounding pulse
4. An irregular heart rate

Answer: b

Objective: 15-5

Reference: 465

18. An alert and oriented 65-year-old woman presents with shortness of breath, noisy respirations, jugular vein distention, and edema in her feet and ankles. Her pulse is 132, her respirations are 24, and her blood pressure is 86/68. Based on these findings, you would suspect that the patient:

1. has an aortic dissection/aneurysm.
2. is having a hypertensive emergency.
3. is experiencing congestive heart failure.
4. Has pericardial tamponade.

Answer: c

Objective: 15-5

Reference: 475

19. You have just arrived with an AED at a scene where fellow OEC Technicians are treating a patient in cardiac arrest. ALS has been contacted and is about 1 minute away. Which of the following actions would you take?

1. Let the OEC Technicians continue CPR and wait for ALS.
2. Apply and use the AED.
3. Relieve the OEC Technician doing chest compressions.
4. Go outside to direct ALS when they arrive.

Answer: b

Objective: 15-10

Reference: 483

20. Which of the following statements made by a patient would cause you to suspect an aortic abdominal aneurysm?

1. “I have really bad belly pain that I also feel in my back.”
2. “My heart is beating so hard, you can feel it on my chest.”
3. “The pain is sharp and spreads to both arms.”
4. “I seem to be vomiting up some blood.”

Answer: a

Objective: 15-5

Reference: 475

21. You are assessing a 68-year-old man who is complaining of severe abdominal pain that radiates to his back. He tells you that he has a history of an abdominal aortic aneurysm. Based on this history and his complaints, on your physical exam you would look for:

1. bruising on his abdomen.
2. a pulsating mass in his abdomen.
3. blood pressure that is higher in one arm than in the other.
4. abdominal pain that is relieved when you place the patient on his side.

Answer: b

Objective: 15-7

Reference: 475

22. Blood in the right ventricle is pumped into the:

1. left ventricle.
2. pulmonary artery.
3. left atrium.
4. aorta.

Answer: b

Objective: 15-3

Reference: 459

23. Which of the following statements concerning arteries is true?

1. They carry blood away from the heart.
2. They have a lower pressure than veins.
3. They always carry oxygenated blood.
4. They drain into the venae cavae.

Answer: a

Objective: 15-1

Reference: 460

24. Which of the following statements concerning the cardiovascular system is true?

1. It consists of four major components: the heart, the lungs, the blood vessels, and blood.
2. The heart is a muscular organ located behind and to the right of the sternum.
3. An electrical impulse that starts in the right atrium stimulates contraction of the heart muscle.
4. The subclavian arteries supply blood to the pelvis and legs.

Answer: c

Objective: 15-1

Reference: 460

25. The largest artery in the body is the:

1. carotid artery.
2. femoral artery.
3. aorta.
4. jugular artery.

Answer: c

Objective: 15-1

Reference: 460

26. The walls of the capillaries are only one cell thick. This allows the exchange of nutrients and oxygen and waste products. The capillaries serve as the bridge between:

1. arterioles and venules.
2. the atrium right and the left atrium.
3. the pulmonary vein and the pulmonary artery.
4. arteries and veins.

Answer: a

Objective: 15-3

Reference: 462

27. Which of the following statements concerning the flow of blood to and through the right side of the heart is correct?

1. Blood reaches the right atrium from the aorta, is pumped through the mitral valve into the right ventricle, and is then pumped through the pulmonary veins to the lungs.
2. Poorly oxygenated blood reaches the right ventricle from the venae cavae, is pumped through the pulmonic valve into the pulmonary artery, and then enters the right atrium and is pumped into the lungs.
3. Oxygenated blood reaches the right atrium from the pulmonary veins, is pumped through the tricuspid valve into the right ventricle, and is then pumped into the aorta and throughout the body.
4. Poorly oxygenated blood reaches the right atrium from the venae cavae, is pumped through the tricuspid valve into the right ventricle, and is then pumped through the pulmonic valve and on to the lungs through the pulmonary arteries.

Answer: d

Objective: 15-3

Reference: 459

28. Which of the following structures help direct blood flow forward and prevent the backflow of blood within the heart?

1. Septa
2. The coronary arteries
3. The atrioventricular valves
4. The pulmonary vein and the pulmonary artery

Answer: c

Objective: 15-3

Reference: 459

29. The left side of the heart:

1. receives poorly oxygenated blood from the body.
2. pumps oxygenated blood to the body.
3. contains the pulmonic and tricuspid valves.
4. pumps poorly oxygenated blood to the lungs.

Answer: b

Objective: 15-3

Reference: 459

30. A thickening and loss of elasticity of the arterial walls is known as:

1. arteriosclerosis.
2. high blood pressure.
3. angina pectoris.
4. atherosclerosis.

Answer: a

Objective: 15-4

Reference: 465

31. A patient tells you that he has been diagnosed with coronary artery disease. You recognize this diagnosis to mean that the patient has:

1. a history of acute myocardial infarction.
2. had an operation known as coronary artery bypass grafting.
3. a failure of the heart to efficiently pump blood.
4. narrowing of the small arteries that supply blood and oxygen to the heart.

Answer: d

Objective: 15-4

Reference: 464

32. You are preparing to teach a class on hypertension. Which of the following statements provides *incorrect* information that you would not include in your presentation?

1. Hypertension is defined as a blood pressure with a systolic reading greater than 140 or a diastolic reading greater than 90.
2. There are no known treatable risk factors for hypertension.
3. The increased pressure in hypertension damages small arteries in many of the body’s organs.
4. Hypertension results from the restriction of blood flow when the internal diameter of small arterioles is reduced by atherosclerosis or other factors.

Answer: b

Objective: 15-4

Reference: 465

33. Which of the following statements about cardiovascular disease (CVD) is *false?*

1. CVD involves a number of diseases that affect either the heart or blood vessels.
2. CVD is the leading cause of death worldwide.
3. Most cases of CVD are congenital and could be prevented with improved prenatal care.
4. The underlying cause of most cases of CVD is coronary artery disease or atherosclerosis of the coronary arteries.”

Answer: c

Objective: 15-4

Reference: 465

34. One complication of an acute myocardial infarction may be cardiogenic shock. Based on your training, you would define cardiogenic shock as a(n):

1. condition whereby tissues of the body are oxygen deprived due to the heart’s inability to adequately pump blood.
2. absolute or relative shortage of blood supply to a tissue due to a blood clot.
3. abrupt cessation of the regular electrical activity of the heart.
4. acute illness in which the cardiac muscle does not get enough oxygen.

Answer: a

Objective: 15-5

Reference: 466–467

35. Hypotension, distended neck veins, and muffled or distant heart tones in which the heartbeat is difficult to auscultate are hallmark signs of:

1. pericarditis.
2. congestive heart failure.
3. aortic aneurysm.
4. pericardial tamponade.

Answer: d

Objective: 15-5

Reference: 475

36. A 62-year-old man presents with a complaint of abdominal pain radiating to his groin. He also complains of dizziness. On examination, his abdomen is tender and you feel a large pulsatile mass. His signs and symptoms are suggestive of:

1. acute embolism.
2. an abdominal aortic aneurysm.
3. a ruptured spleen.
4. cardiogenic shock.

Answer: b

Objective: 15-5

Reference: 475

37. Your neighbor tells you that he is concerned about his 70-year-old wife. She is at home recovering from a heart attack that occurred about 3 weeks ago. He explains that over the last few days her ankles and lower legs have been gradually swelling and are painful to touch. Today she seems to be a little short of breath. You recommend that your neighbor seek immediate medical attention because these findings are suggestive of:

1. congestive heart failure.
2. tension pneumothorax.
3. an acute myocardial infarction.
4. pericarditis.

Answer: a

Objective: 15-5

Reference: 475

38. You are out shopping when a middle-aged man suddenly falls to the ground. You quickly run to assist him and note that he is not breathing and does not have a carotid pulse. You begin CPR because you know that prompt intervention with an AED is needed. Which of the following statements is *not* a reason that prompt intervention with an AED is needed?

1. Since AED was first used by trained and lay rescuers, patient survival from sudden cardiac arrest has doubled.
2. Two common arrhythmias that are associated with sudden cardiac death—ventricular fibrillation and pulseless ventricular tachycardia—can respond to AED use.
3. Asystole, which can accompany an acute MI, is often reversed by the use of an AED.
4. Studies show that after 10 minutes of pulseless cardiac arrest due to V-fib or V-tach, the heart is less responsive to electrical stimulation.

Answer: c

Objective: 15-6

Reference: 468

39. When performing cardiac compressions on a 12-year-old child, you would:

1. administer cycles of 30 chest compressions followed by two breaths.
2. compress the chest about 1 inch.
3. recheck the pulse every four cycles.
4. place the heel of your hand on the upper section of the sternum.

Answer: a

Objective: 15-10

Reference: 480

40. Which of the following is *not* a reason to stop CPR?

1. The patient has the spontaneous return of a pulse and breathing.
2. You are ready to use an AED.
3. It has been 25 minutes, so brain damage has occurred.
4. Rescuers are too tired to continue administering CPR.

Answer: c

Objective: 15-10

Reference: 477

41. In performing CPR on an infant:

1. place two fingers on the sternum just beneath an imaginary line between the nipples, and make compressions that are approximately one-third the depth of the chest.
2. stop to check for a pulse after administering about 100 compressions.
3. place the heel of one hand on the sternum just above an imaginary line between the nipples, and make compressions that are about ½ inch deep.
4. check the carotid artery for a pulse before beginning compressions.

Answer: a

Objective: 15-10

Reference: 481

42. Three commonly used cardiac medications are:

1. Plavix, Nitroglycerine, and Albuterol.
2. Nitroglycerine, Coumadin, and Lasix.
3. Lipitor, Dilantin, and Tenormin.
4. Coumadin, Zesteril, and an Epi-pen.

Answer: b

Objective: 15-9

Reference: 487

43. Which of the following actions is *not* an action you should take when using an AED?

1. Ensure that no one is touching the patient when analyzing the patient’s heart rhythm and when delivering a shock.
2. Ensure that the chest is dry and wiped clean of any medications.
3. Apply any set of electrodes as patient age is not relevant.
4. Use the electrode to rip away excess chest hair if the electrode is not sticking well to the chest.

Answer: c

Objective: 15-11

Reference: 483

44. You are assessing a 38-year-old woman who is complaining of the sudden onset of chest pain and dyspnea. She describes the pain as sharp and states that it increases when she takes a deep breath. You note that she is tachypneic. Her BP is 130/82 and her pulse is 100. Based on her presentation, you suspect that she may have:

1. pulmonary embolism.
2. pericardial effusion.
3. unstable angina.
4. an aortic dissection/aneurysm.

Answer: a

Objective: 15-5

Reference: 472, 476

45. After jogging with your friend for about 30 minutes, she stops and asks why your heart rate increases and your heart feels like it is pumping harder after you exercise for a while. Based on your understanding of the cardiovascular system, your best response would be which of the following statements?

1. “You’re out of shape. Those things wouldn’t happen if you exercised more.”
2. “Exercise makes your body need more nutrients and oxygen; your heart pumps harder and faster to deliver more blood containing those things to your muscles.”
3. “When you exercise, your blood pressure increases, so your heart has to work harder to overcome the higher blood pressure.”
4. “Exercise pushes more blood into your heart, so your heart has to work harder and faster to pump the blood out so you don’t go into heart failure.”

Answer: b

Objective: 15-2

Reference: 464