STUDY GUIDE
for
Respiratory Emergencies

1. The term that means "difficulty in breathing" is
   A. orthopnea
   B. apnea
   C. hypopnea
   D. dyspnea

2. A patient who presents with orthopnea
   A. has difficulty in breathing sitting straight up
   B. has difficulty in breathing when laying flat
   C. uses only the diaphragm
   D. depends on hypoxic drive to breathe

3. Coughing up blood from the respiratory tree is called
   A. hematemesis
   B. hematome
   C. hemoptysis
   D. hymenoptera

4. Pulsus paradoxus occurs when
   A. the pulse increases during inspiration
   B. the systolic BP decreases 10 torr or greater while breathing
   C. the pulse rises and blood pressure drops when the patient sits up
   D. none of the above

5. Vibratory tremors felt through the chest by palpation is called
   A. percussive tremors
   B. tactile fremitus
   C. bronchophony
   D. pectoriloquy

6. Your patient who presents with shortness of breath, chest pain, fever, chills, general malaise, with productive yellow sputum streaked with blood, rales and wheezes in the right lower lobe probably has

   A. congestive heart failure
   B. emphysema
   C. an acute asthma attack
   D. pneumonia

7. The problem described in question 6 is a respiratory infection caused by

   A. a virus
   B. a bacteria
   C. a fungus
   D. all of the above

8. Which of the following could be the result of inhaling superheated steam?

   A. Laryngospasm and upper airway edema
   B. Bronchospasm and lower airway edema
   C. Pulmonary edema
   D. All of the above

9. Your first concern in dealing with any patient with a suspected toxic inhalation injury is

   A. managing the airway
   B. administering 100% oxygen
   C. your own personal safety
   D. removing the patient from the course

Scenario

Your patient is a firefighter who took off his self-contained breathing apparatus (SCBA) while performing overhaul procedures in a house fire. He presents with a headache, irritability, loss of coordination, and confusion.

10. This patient is probably suffering from

    A. acute myocardial infarction
    B. carbon monoxide poisoning
    C. transient ischemic attack
    D. stroke

11. The pathophysiology of this problem includes

    A. CO binding on hemoglobin
    B. cellular hypoxia
    C. metabolic acidosis
    D. all of the above

12. Management of this situation includes

A. Airway management
B. 100% oxygenation
C. transportation to a hyperbaric chamber
D. all of the above

Scenario

Your patient is a 45-year-old man who complains of sudden onset of upper right-sided stabbing chest pain and shortness of breath. He has no other medical history except for being hospitalized with pneumonia two weeks ago and sent home to recuperate. Earlier this week he had experienced some lower calf pain. He presents in moderate distress with the following vital signs: pulse 100, BP-140/80, respirations 28, skin warm and dry, and some expiratory wheezing in the area of chest pain.

13. Your prehospital diagnosis is

A. acute asthma attack
B. acute myocardial infarction
C. acute pulmonary embolism
D. spontaneous pneumothorax

14. This problem is characterized by

A. an allergic reaction
B. coronary artery ischemia
C. a moving blood clot
D. a ruptured lung

15. A predisposing factor of this condition includes

A. prolonged immobilization
B. atherosclerosis
C. congenital defect
D. hyperreactive airways

Scenario

Your patient is a 79-year-old female who presents in moderate respiratory distress. She sits upright and can only answers your questions with short phrases. She claims of having a recent cold and this worsening shortness of breath and cough. She denies any chest pain. She has a long history of breathing problems. She claims to get this every year at this time and it lasts about two months. She

also admits to smoking 2 packs of cigarettes each day for the past 50 years. Her vital signs are: pulse 100 and regular, BP-150/80, respiratory rate 36 and labored, skin cyanotic. Your auscultate diffuse expiratory wheezes. She has a very productive cough with her sputum being a yellowish-brown and sticky. She has pitting pedal edema and ascites.

16. Your prehospital diagnosis should be

    A. acute asthma
    B. emphysema
    C. chronic bronchitis
    D. acute pulmonary embolism

17. The cause of this disease is

    A. allergies
    B. venous stasis
    C. years of toxic inhalation
    D. none of the above

18. The pathophysiology of this disease involves

    A. destruction of alveolar walls
    B. increased mucous production
    C. traveling blood clot
    D. hyperreactive airways

19. This patient's smoking history is described as

    A. 50 pack/years
    B. 2 pack/years
    C. 100 pack/years
    D. none of the above

20. Her sputum indicates
    A. respiratory infection
    B. pulmonary edema
    C. hematemesis
    D. hemoptysis

21. Her pedal edema is probably caused by
    A. left heart failure
    B. acute pulmonary edema
    C. hematemesis
    D. Cor pulmonale

22. Her cyanosis is caused by

A. hypocarbia
B. hypoxia
C. pulmonary hypertension
D. increased residual volume

23. The base station physician orders you to administer albuterol via nebulizer in an attempt to

A. decrease pulmonary edema
B. stop the allergic reaction
C. dilate the airways
D. increase cardiac contractions

Scenario

Your patient is a 24-year-old male who presents in severe respiratory distress. His wife states that he has had increasing difficulty in breathing all morning but now it is much worse. He has a history of asthma and takes the following oral medications: Theodur (theophylline) and prednisone; and the following metered dose inhalers; Ventolin (albuterol), and Beclovent (beclomethasone). Upon examination you find an otherwise healthy person who speaks in broken sentences only. His vital signs are: pulse-120 and strong, BP-140/80, respirations 40 and very labored, skin pale. You auscultate inspiratory and expiratory wheezes and rhonchi bilaterally. He is hyperresonant to percussion.

24. Asthma is a disease characterized by

A. airway edema
B. bronchospasm
C. hypermucous secretion
D. all of the above

25. The above reactions are caused by the
A. sympathetic nervous system response
B. release of norepinephrine
C. release of histamine
D. blockage of parasympathetic action

26. Prednisone and beclomethasone are drugs that
A. dilate the bronchioles directly
B. decrease inflammation
C. stimulate the respiratory center
D. Stimulate the allergic response

27. Albuterol and theophylline are prescribed to

A. dilate the bronchioles directly
B. decrease inflammation
C. inhibit the respiratory center
D. block the allergic response

28. The hyperresonance is due to

A. collapsed alveoli
B. associated pneumothorax
C. air-trapping in the alveoli
D. decrease duration of the expiratory phase

29. Common side effects from administering albuterol and aminophylline to your patient could include

A. increase heart rates
B. tremors
C. nausea and vomiting
D. all of the above

Scenario

Your patient is a 59-year-old male who presents sitting at the kitchen table in moderate respiratory distress. His elbows are on the table in a tripod position and he appears to be really working at breathing. Although this problem came on gradually today, his family states that he has had lung disease for a long time. He is a lifetime smoker and is on home oxygen at 2 liters/per/minute via cannula. He takes Atrovent (ipratroprium bromide) inhaler, Theolair (theophylline), and Proventil (albuterol) inhaler. He appears very thin and barrel chested with a pink complexion. You immediately notice the pronounced accessory muscles in his neck and chest along with retractions. He labors to breathe, pursing his lips during exhalation. His vital signs are: pulse 90, BP-140/80, respiratory rate-40, skin and pink, diffuse expiratory wheezes, O_2 saturation 90%.

30. Your prehospital diagnosis is

A. asthma
B. congestive heart failure
C. chronic bronchitis
D. emphysema

31. This disease is characterized by

A. alveolar wall destruction
B. hypermucous secretion
C. decreased left ventricular function
D. allergic reaction

32. His pink complexion is caused by

A. decreased carbon dioxide levels
B. increased oxygen levels
C. increased red blood cell production
D. decreased tidal volume

33. Atrovent is a drug in which class?

A. Sympathomimetic
B. Corticosteroid
C. Anticholinergic
D. Xanthine bronchodilator

34. The Wright's meter measures

A. Peak expiratory flow
B. Residual volume
C. Oxygen saturation
D. Total lung capacity

35. The right lung consists of

A. a single large lobe of lung tissue.
B. two lobes of lung tissue: the parietal and visceral lobes.
C. three lobes of lung tissue: The parietal, visceral, and mediastinal lobes.
D. two lobes of lung tissue: the upper and lower lobes.
E. three lobes of lung tissue: the upper, middle, and lower lobes.

36. The left lung consists of

A. a single large lobe of lung tissue.
B. two lobes of lung tissue: the parietal and visceral lobes.
C. three lobes of lung tissue: The parietal, visceral, and mediastinal lobes.
D. two lobes of lung tissue: the upper and lower lobes.
E. three lobes of lung tissue: the upper, middle, and lower lobes.

37. Carbon dioxide is _____ times more soluble in water than oxygen.

A. 10
B. 12
C. 21
D. 120
E. 210

38. Causes of decreased oxygen levels in the blood include all of the following except

A. fluid accumulation in alveolar or interstitial spaces.
B. pneumothorax.
C. atelectasis.
D. hyperventilation.
E. pulmonary embolism.

39. Causes of elevated arterial pressure of carbon dioxide (PCO_2) include increased CO_2 production. All of the following are causes of increased CO_2 production, except

A. fever.
B. hypoventilation.
C. muscular exertion.
D. shivering.
E. metabolic processes resulting in formation of acids.

40. PCO_2 is also elevated by decreased CO_2 elimination. All of the following are causes of decreased CO_2 elimination, except

A. chronic obstructive pulmonary diseases.
B. hyperventilation.
C. respiratory depression by drugs.
D. airway obstruction.
E. mechanical dysfunction (muscle injury/impairment).

41. Elevated arterial carbon dioxide levels can be decreased by

A. hyperventilation with supplemental oxygen.
B. breathing into a paper bag.
C. correcting the causes of PCO_2 elevation.
D. Both answers A and C.
E. Both answers B and C.

42. Which of the following statements regarding regulation of respiratory function is false?
    A. Regulation of respiration is both voluntary and involuntary.
    B. The respiratory center is located in the brain stem.
    C. Inspiration is initiated by nerve impulses sent to the diaphragm and intercostal muscles from the brain stem.
    D. Expiration is initiated by nerve impulses sent to the diaphragm and intercostal muscles from the medulla.
    E. None of the above is false.

43. Microscopic stretch receptors, located in the lung and pleura, prevent overexpansion and stop inspiration. Which of the following statements regarding receptors is false?
    A. The expansion of inspiration activates the stretch receptors, which then send impulses to the brain stem.
    B. The medulla responds by sending expiration impulses to the diaphragm and intercostal muscles.
    C. Elastic recoil of the lungs occurs as the diaphragm and intercostal muscles relax.
    D. Stretch receptors cease to send impulses to the brain stem and the cycle begins again.
    E. None of the above is false.

44. Ingestion of CNS depressant drugs
    A. increases the respiratory rate.
    B. decreases the respiratory rate.
    C. has no effect upon the respiratory rate.
    D. Any of the above.
    E. None of the above.

45. Palpation of the chest will assist in assessing all of the following, except
    A. presence of subcutaneous emphysema.
    B. symmetry of excursion.
    C. presence of a pneumothorax.
    D. bilateral equality of tactile fremitus.
    E. structural instability.

46. Friction rub is associated with pleural disease or pleural inflammation and sounds like

    A. pieces of dried leather rubbing together
    B. several strands of hair, rubbed between your thumb and forefinger.
    C. the rasping noise produced by rubbing your palms together.
    D. Any of the above.
    E. None of the above.

47. When the chest is auscultated, the rattling noises produced by the presence of thick mucous or other secretions in the throat or bronchi are called

A. snoring.
B. stridor.
C. wheezing
D. rhonchi.
E. rales.

48. When the chest is auscultated, the whistling, musical sound produced by airway narrowing due to bronchoconstriction, edema, or foreign materials is called

A. snoring
B. stridor
C. wheezing
D. rhonchi
E. rales

49. A harsh, high-pitched sound heard on inspiration, characteristic of upper airway obstruction, is called

A. snoring
B. stridor
C. wheezing
D. rhonchi
E. rales

50. When the chest is auscultated, fine, moist sounds associated with fluid in the smaller airways are called

A. snoring
B. stridor
C. wheezing
D. rhonchi
E. rales

51. All of the following observations may indicate the presence of hypoxia or dyspnea, except

A. anxiety
B. confusion
C. rapid speech and lengthy sentences
D. nail bed clubbing
E. refusal to recline

The following four questions concern the same event

52. You are eating at a restaurant with your family when a nearby commotion catches your attention. You notice a conscious middle-aged man sitting in a chair and exhibiting the universal sign of choking. He is cyanotic and quiet with a very distressed expression. You should immediately

    A. perform 6 to 10 back blows
    B. perform 6 to 10 abdominal thrusts
    C. ask "are you choking?" Can you speak? Can you cough?
    D. solicit information from bystanders
    E. perform finger sweeps and call for help

53. After the tenth abdominal thrust, the patient's airway status remains unchanged. However, he no longer has his eyes open and does not appear to be making as much effort to breathe as before. You should
    A. perform 6 to 10 back blows
    B. perform 6 to 10 abdominal thrusts
    C. ask "are you choking?" Can you speak? Can you cough?
    D. solicit information from bystanders
    E. perform finger sweeps and call for help

54. As you continue with your treatment, the patient becomes unconscious and begins to slide from his chair. You support him to prevent trauma and guide him onto the floor into a supine position. You should immediately
    A. call for help, turn his head to the side, open the airway, and attempt Finger sweeps
    B. assume the appropriate position and perform 6 to 10 abdominal thrusts, then finger sweeps
    C. roll him to his side and perform 6 to 10 back blows, then finger sweeps
    D. call for help, assume the appropriate position, and perform 6 to 10 abdominal thrusts, then finger sweeps
    E. call for help, roll him to his side, and perform 6 to 10 back blows, then finger sweeps

55. Your finger sweeps draw some mucous and saliva from the oropharynx, but no large pieces of matter. You should immediately
    A. call for help, turn his head, and repeat the finger sweep
    B. call for help, position yourself, and repeat the abdominal thrusts, then the finger sweeps
    C. call for help, roll the patient to his side, and repeat the back blows, then the finger sweeps
    D. open the airway and attempt to visualize the matter lodged in the patient's airway
    E. open the airway and attempt ventilation

56. An increased number of mucous-secreting cells in the respiratory epithelium, producing large amounts of sputum, is characteristic of

A. emphysema
B. chronic bronchitis
C. asthma
D. answers a and b only
E. answers a, b, and c

57. Although the alveoli are not seriously affected by the disease process of _____, alveolar hypoventilation occurs and diminishes gas exchange

A. emphysema
B. chronic bronchitis
C. asthma
D. answers b and c only
E. answers a, b, and c

58. Pursed-lip breathing is indicative of _____ and serves to assist expiration

A. emphysema
B. chronic bronchitis
C. asthma
D. answers a and b only
E. answers a, b, and c

59. Wheezes may accompany

A. emphysema
B. chronic bronchitis
C. asthma
D. answers a and b only
E. answers a, b, and c

60. Rhonchi may accompany

A. emphysema
B. chronic bronchitis
C. asthma
D. answers a and b only
E. Answer b and c

61. A barrel chest, pink skin coloring, and recent weight loss is characteristic of a patient suffering from

A. emphysema
B. chronic bronchitis
C. asthma
D. answers a and b only
E. answers a, b, and c

62. An overweight patient with cyanosis and peripheral edema is characteristic of a patient suffering from

A. emphysema
B. chronic bronchitis
C. asthma
D. answers b and c only
E. answers a, b, and c

63. Widespread reversible narrowing of the airway by thick, tenacious sputum is characteristic of a patient suffering from

A. emphysema
B. chronic bronchitis
C. asthma
D. both answers a and c
E. both answers b and c

64. Bronchospasm secondary to mucous production is characteristic of a patient suffering from

A. emphysema
B. chronic bronchitis
C. asthma
D. both answers a and c
E. both answers b and c

65. Inhaled irritants, respiratory infection, or emotional stress may precipitate an acute episode of

A. emphysema
B. chronic bronchitis
C. asthma
D. answers a and b only
E. both answers a, b and c

66. Aminophylline may be ordered for the treatment of

A. emphysema
B. chronic bronchitis
C. asthma
D. answers a and b only
E. both answers a, b and c

67. Signs and symptoms of pneumonia include all of the following, except

A. fever, chills, and weakness
B. a productive cough
C. chest pain
D. barrel chest and diminished excursion
E. wheezes and upper abdominal pain

68. Management of pneumonia includes all of the following, except

A. supplemental oxygen
B. nebulized bronchodilators
C. cardiac monitoring
D. Diuretics
E. upright positioning for comfort

69. Carbon monoxide inhalation causes cellular hypoxia because carbon monoxide

A. binds to hemoglobin more strongly than oxygen
B. prevents the inhalation of oxygen
C. prevents oxygen from crossing cell membranes
D. answers a and b only
E. answers a, b, and c

70. Signs and symptoms of carbon monoxide poisoning include all of the following, except

A. headache, irritability and agitation
B. euphoria and elation
C. chest pain, nausea and vomiting
D. confusion, loss of coordination, and errors in judgment
E. seizures

71. Cherry red skin coloration has long been associated with carbon monoxide poisoning and occurs

A. soon after onset of euphoria, but before loss of consciousness
B. soon after onset of headache, but before loss of consciousness
C. just prior to altered mentation
D. very late in the course of poisoning, usually well after loss of consciousness
E. only after death, when lividity is noted

72. Which of the following statements regarding management of carbon monoxide (CO) poisoning is false?

A. The CO victim should be transported to a hospital that offers hyperbaric oxygen treatment
B. In the presence of CO poisoning, nebulized bronchodilators will greatly assist in increasing oxygen transport to the cells
C. Oxygen should be administered in as high a concentration as possible, even if the CO-poisoned patient has a history of COPD
D. All of the above is false
E. none of the above is false

73. A pulmonary embolism is described as the obstruction of a pulmonary artery by

A. an air embolus
B. a fat embolus or blood clot
C. an amniotic fluid embolus
D. answers a or b only
E. answers a, b, or c

74. Factors favoring the development of a pulmonary embolus include all of the following, except

A. atrial fibrillation
B. thrombophlebitis
C. aspiration of vomitus
D. use of oral contraceptives
E. prolonged immobilization

75. Although signs and symptoms will vary depending upon the size of the area obstructed, a patient with a pulmonary embolism may

A. complain of sudden onset of severe dyspnea, with or without chest pain
B. exhibit tachycardia, tachypnea, and hypotension
C. have signs and symptoms of right heart failure (distended jugular veins)
D. Answers a and b only
E. answers a, b, and c

76. Hyperventilation may be caused by many medical emergencies. However, when hyperventilation is produced by anxiety alone, it will cause
    A. a fall in arterial CO_2, causing respiratory alkalosis
    B. a fall in arterial O_2, causing respiratory alkalosis
    C. a fall in arterial O_2, causing respiratory acidosis
    D. A fall in arterial CO2, causing respiratory acidosis
    E. A fall in arterial CO2, causing metabolic alkalosis

77. Signs and symptoms of anxiety-induced hyperventilation syndrome include all of the following, except
    A. onset of seizure in patients with a seizure disorder
    B. complaints of chest pain
    C. complaints of dizziness
    D. focal-motor seizure of the hands and feet
    E. complaints of numbness and tingling around the mouth and in the hands and feet

78. Treatment of anxiety-induced hyperventilation syndrome should include which of the following?

    A. Emotional support and reassurance
    B. Supplemental oxygen
    C. Rebreathing exhaled air in a brown, paper bag
    D. A and B
    E. A, B, and C