
19. DYSPNEA

19-1. WHY BREATHE?

1. In a healthy person, the principal stimulus to breathe is
 - a. an elevation in the level of oxygen in the arterial blood
 - b. a fall in the level of oxygen in the arterial blood
 - c. an elevation in the level of carbon dioxide in the arterial blood
 - d. a fall in the level of carbon dioxide in the arterial blood
 - e. none of the above
 2. In some patients with chronic obstructive pulmonary disease (COPD), this stimulus may be dulled, and instead such patients derive their stimulus to breathe from
 - a. an elevation in the level of oxygen in the arterial blood
 - b. a fall in the level of oxygen in the arterial blood
 - c. an elevation in the level of carbon dioxide in the arterial blood
 - d. a fall in the level of carbon dioxide in the arterial blood
 - e. none of the above
-

19-2. WHAT'S IN A BREATH?

1. A patient who has taken an overdose of narcotics is found unconscious and breathing very shallowly six times per minute. It is likely he has
 - a. hypercarbia
 - b. hypocarbia
 - c. anoxia
 - d. metabolic acidosis
 - e. carpopedal spasm
 2. The way to correct this problem is to
 - a. administer oxygen by nasal cannula
 - b. administer oxygen by nonrebreathing mask
 - c. assist ventilations with a bag-valve-mask
 - d. have the patient breathe into a paper bag
 - e. start an intravenous infusion
 3. A 38-year-old victim of smoke inhalation is found in marked respiratory distress, breathing deeply 30 times a minute. Rales are audible in his lungs. It is likely he has
 - a. hypercarbia
 - b. hypoxia
 - c. metabolic acidosis
 - d. hypokalemia
 - e. hypernatremia
 4. The way to treat this problem is to
 - a. administer oxygen by nasal cannula
 - b. administer oxygen by nonrebreathing mask
 - c. assist ventilations with a bag-valve-mask
 - d. have the patient breathe into a paper bag
 - e. start an intravenous infusion
-

19-3. CAN'T BREATHE

1. Dyspnea is best defined as
 - a. very rapid respirations
 - b. abnormally deep respirations
 - c. use of accessory muscles to breathe
 - d. hyperventilation
 - e. the sensation of being short of breath
2. List at least five acute medical conditions that may cause dyspnea.
 - a.
 - b.
 - c.
 - d.
 - e.

19-4. HELP, I'M SMOTHERING IN A GRID

The grid below contains 18 signs and symptoms of respiratory problems. How many can you find? Can you list any others?

B A T H Y P E R P N E A S T
 A G R I C L A U R E S T A R
 R T A C H Y P N E A P I T A
 E R C S Y O N E T T L E I C
 S D Y S P N E A R I A E C H
 T R A P O I A S P A N A S E
 L A N O X I N E A R E G L A
 E C O L I X E G L A R E U L
 S U S K A N F O L T H E R T
 S L I P P O O F O T O N O U
 N A S A L F L A R I N G I G
 E V E N I L L N E S C A R Y
 S T R I D O R A B L H E A P
 S A T C H W H E E Z I N G S

19-5. WHO'S WHO IN RESPIRATORY DISTRESS?

The following items from the history and physical examination are characteristic of patients with various respiratory problems. For each item listed, indicate whether it is most likely to be associated with

- a. upper airway obstruction
- b. left heart failure
- c. acute asthmatic attack
- d. decompensated chronic obstructive pulmonary disease (COPD)
- e. pulmonary embolism

(Note. Some items may be associated with more than one illness.)

- ___ history of heavy cigarette smoking
- ___ pink, frothy sputum
- ___ wheezes
- ___ stridor
- ___ rhonchi
- ___ very sudden onset (within minutes)
- ___ history of high blood pressure
- ___ copious yellow-green sputum
- ___ patient takes birth control pills
- ___ patient is normal between acute attacks
- ___ bubbling rales
- ___ hyperinflated chest
- ___ pursed-lip breathing
- ___ snoring
- ___ patient has been at bedrest for several weeks
- ___ barrel chest
- ___ may be associated with acute myocardial infarction

19-6. WILL THE REAL PINK PUFFER PLEASE STAND UP?

For each of the following patients whose chief complaint is dyspnea, indicate whether he or she is most likely suffering from

- left heart failure
- acute asthmatic attack
- decompensated COPD
- pneumonia
- pulmonary embolism
- spontaneous pneumothorax
- hyperventilation syndrome

- _____ 70-year-old man with fever, shaking chills, chest pain, and cough.
- _____ 15-year-old boy with respiratory distress and tight wheezes heard throughout his chest.
- _____ 20-year-old, tall, thin man who had the sudden onset of sharp chest pain and dyspnea while traveling by plane. Breath sounds are diminished over the left chest.

- _____ 38-year-old woman who suddenly became short of breath while watching television. She has no significant medical history and no allergies. She takes vitamins and birth control pills regularly. Physical examination is unremarkable except for obvious respiratory distress and tachycardia.
- _____ 22-year-old man who says, "I can't get any air." He complains of numbness around the mouth and stabbing chest pains. His hands are contorted in a clawlike position.
- _____ 52-year-old man who was awakened from sleep by dyspnea. He is agitated and frightened and cannot give a history. Foam is pouring out of his mouth, and his lungs are full of rales.
- _____ 57-year-old man who complains of increasing dyspnea over several days, since a recent bout of flu. He says he "keeps a cough," but lately he has been bringing up more sputum. He is somewhat cyanotic, and rales, rhonchi, and wheezes are heard in his chest.

19-7. OUR MAN IN YEREVAN

Wending his way through Armenia, Morris Q. picks up some important information about respiratory illness and radios it in immediately. What has Morris learned?

- Rattling noises in the chest caused by mucus in the bronchial tree _____
37 24 56 49 16 44 41
- Chronic obstructive lung disease with destruction of air spaces _____
36 12 6 11 7 58 4 25 1
- Watery liquid secreted by glands in the mouth _____
39 53 3 17 47 21
- One effect of hypercarbia _____
9 48 32 38 54 30 20 35
- Interference on the radio _____
46 14 26 43 51 29
- Opposite of a sinner _____
22 19 28 57 10
- Story _____
50 8 52 5
- Blemish, spot, blot _____
2 27 33 55 31
- Slackening or stopping of blood flow _____
40 23 13 18 45 42
- Opposite of out _____
15 34

Message: _____
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 //

19-8. I'D WALK A MILE FOR A CAMEL (IF I WEREN'T SO SHORT OF BREATH)

Indicate which of the following statements about chronic obstructive pulmonary disease (COPD) are true and which are false.

1. Most patients with COPD have a history of heavy cigarette smoking.

TRUE

FALSE

2. If a patient with COPD is confused or agitated, it is a sign that he also suffers from psychiatric illness.

TRUE

FALSE

3. Oxygen should be withheld from patients with COPD and respiratory failure, for it may depress their respirations.

TRUE

FALSE

4. A cold or flu may cause a patient with COPD to go into acute respiratory failure.

TRUE

FALSE

5. COPD is usually seen in patients of middle age or older.

TRUE

FALSE

6. A patient in acute decompensation of COPD should be transported supine to the hospital.

TRUE

FALSE

19-9. BEHIND THE SMOKESCREEN

In the grid below are 20 characteristics identifying patients at risk of having suffered inhalation injury from a fire. How many can you find. Which of them should alert you to the possibility of imminent laryngeal edema and complete airway obstruction?

L O S I N G E D N A S A L H A I R S
 O P T I C I A N S A R E O N L Y T O
 S E R O N G S S A P H O N I A L L O
 T C E L A G N O P E A N G R Y S O T
 C H O A R S E N E S S N E E R C O Y
 O A T W A V E D T O T E X A S Y T S
 N R S H D O Z E E D Y S P N E A M P
 S T R E E T E A S Y E T O U T N O U
 C T I E S R S L O B E A S T O O S T
 I A R Z A F A C I A L B U R N S T U
 O F F I C I A L S L I E R I G I U M
 U F U N D E R W E A R R E O I S M S
 S Y N G R O A N A S T Y H O W C M A
 N I K E A B R A S S Y C O U G H Y P
 E I N A C L O S E D R O O M N U A N
 S T I C K Y O I L Y G L U E Y G L E
 S I N G E D M O U S T A C H E F E A
 E S K I T O O D L E D I D D L Y D R

19-12. GAS PAINS

Indicate which of the following statements regarding gas exposure are true and which are false.

1. Hydrogen sulfide can be recognized by its characteristic apple blossom odor.

TRUE FALSE

2. High concentrations of hydrogen sulfide may cause paralysis and respiratory arrest.

TRUE FALSE

3. Rescue personnel should wear breathing apparatus when entering an environment where there are toxic fumes.

TRUE FALSE

4. In responding to a tear gas incident, EMS personnel should coordinate closely with the police.

TRUE FALSE

5. Victims of tear gas exposure should be encouraged to keep moving.

TRUE FALSE

6. It is essential to warn the emergency room in advance when you are bringing in a tear gas victim.

TRUE FALSE

20. CHEST PAIN

20-1. MYOCARDIAL PLUMBING

1. The arteries that supply the myocardium with oxygen and nutrients are called
 - a. brachial arteries
 - b. carotid arteries
 - c. cerebral arteries
 - d. coronary arteries
 - e. pulmonary arteries
2. As a person grows older, these arteries may become progressively hardened and narrowed due to a disease process known as
 - a. multiple sclerosis
 - b. atherosclerosis
 - c. aortic aneurysm
 - d. atherosis
 - e. congestive heart failure
3. When the heart muscle fails to receive enough oxygen, for whatever reason, the patient will experience
 - a. dyspnea
 - b. tachypnea
 - c. angina
 - d. dizziness
 - e. headache

20-2. RISKY BUSINESS

In the following list, place an X beside the factors that are risk factors for developing coronary artery disease. In addition, circle the X next to those risk factors that a person can reduce or eliminate by changing lifestyle or habits.

- | | |
|--|--|
| <input type="checkbox"/> varicose veins | <input type="checkbox"/> measles |
| <input type="checkbox"/> cigarette smoking | <input type="checkbox"/> diabetes mellitus |
| <input type="checkbox"/> high blood pressure | <input type="checkbox"/> rheumatoid arthritis |
| <input type="checkbox"/> jogging | <input type="checkbox"/> family history of heart attack |
| | <input type="checkbox"/> family history of emphysema |
| | <input type="checkbox"/> poor physical fitness |
| | <input type="checkbox"/> high serum cholesterol |
| | <input type="checkbox"/> female sex |
| | <input type="checkbox"/> competitive, aggressive personality |

20-3. WILL THE REAL ANGINA PATIENT PLEASE SIT DOWN?

1. Each of the following is a description by a patient of his chest pain. Which description does NOT sound like angina pectoris?
 - a. "I have a squeezing sensation in my chest that almost takes my breath away."
 - b. "I have sharp, stabbing pains in my chest whenever I take a deep breath."
 - c. "I feel as if there's a 50-pound weight on my chest."
 - d. "I get a kind of pressure in my chest if I go up the stairs too quickly."
 - e. "My chest feels tight, as if there's an iron band around it."
2. List three ways in which the pain of acute myocardial infarction differs from the pain of angina.
 - a.
 - b.
 - c.

20-4. OUR AGENT IN ATHENS

Taking a brief holiday in the sun, MQM suddenly remembers a message he needs to transmit, and he rushes off to the telegraph office to send this vital intelligence out to you.

1. Profuse sweating 2 39 27 52 20 30 34 15 50 18 7
2. Refusal to accept the potential seriousness of one's symptoms 24 31 55 6 37 26
3. Squeezing sensation in the chest 53 41 14 44 5 1
4. In a state of inadequate oxygenation 48 35 36 21 12 4 47
5. Clever, humorous, funny 43 54 23 29 28
6. Where to find the teeth 3 11 22 51 46
7. Opposite of dry 17 9 42
8. When to withhold oxygen from a patient with chest pain 16 49 32 25 10
9. In addition, although; up to now 13 40 19
10. Month of the Vietnamese calendar 45 33 8
11. Twentieth letter of the alphabet 38

Message: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 //

20-5. IT MUST BE SOMETHING I ATE

You are called to attend a 50-year-old man whose chief complaint is chest pain. He states that the pain started about two hours ago and has not let up since. He is sure that it is probably just a little indigestion, and he says he feels very silly about calling for an ambulance, but his wife insisted. The pain feels like, "Something pressing on my chest." and it is accompanied by vague feelings of nausea. On physical examination, the patient appears pale. His skin is cool and moist. Vitals are pulse 120 and slightly irregular, BP is 110/60, and respirations are 16 and unlabored. The rest of the physical examination is unremarkable.

1. The FIRST thing you should do upon hearing this patient's chief complaint is
 - a. obtain a detailed history
 - b. take vital signs
 - c. administer oxygen
 - d. move the patient to the ambulance
 - e. place the patient in a recumbent position
2. In telling you his story, this patient is showing signs of
 - a. regression
 - b. overreaction
 - c. depression
 - d. hysteria
 - e. denial
3. In view of the patient's story, one must assume nonetheless that he is suffering
 - a. an acute attack of indigestion
 - b. an acute myocardial infarction
 - c. an acute pulmonary embolism
 - d. acute pulmonary edema
 - e. an attack of uncomplicated angina pectoris

20-6. WEAK AND CONFUSED

You are called to attend a 78-year-old woman who suddenly became very weak at home. The patient herself seems very confused and cannot give you a history, but her daughter, with whom the patient lives, states that the patient had been fine until this morning, when she was too weak to get out of bed. She has become progressively confused since. The patient has never been in the hospital and has been generally in good health, but she does take blood pressure pills prescribed by the family doctor.

On examination, you find the patient confused and disoriented. Her skin feels rather cold. Vitals are pulse 108 and irregular, BP is 100/70, and respirations are 28. There are scattered wheezes in the chest. The patient can move all extremities.

1. In view of the patient's age and history, there is a strong possibility that she is suffering from
 - a. a heart attack
 - b. hyperventilation syndrome
 - c. mental depression
 - d. myasthenia gravis
 - e. angina pectoris
2. The first measure you should take in treating this patient is
 - a. sit her up with legs dangling
 - b. assist her in taking her blood pressure pill
 - c. have her walk slowly to the ambulance
 - d. carry her to the ambulance
 - e. administer oxygen
3. In view of the physical findings, what possible complication(s) may be developing in her condition?
 - a. dangerous disturbances in cardiac rhythm
 - b. congestive heart failure
 - c. cardiogenic shock
 - d. none of the above
 - e. all of the above

20-7. MY HEART BELONGS TO MY EMT

You are called to attend a 42-year-old man whose chief complaint is "crushing" chest pain. Place an X beside those measures listed below that are part of the management of this case. Circle the X beside the measure you would take FIRST.

- ☐ Measure and record vital signs
- ☐ Have the patient lie down flat.
- ☐ Take a brief history.
- ☐ Do a brief secondary survey.
- ☐ Administer oxygen.

- ☐ Loosen any tight clothing on the patient.
- ☐ Have the patient rebreathe into a paper bag.
- ☐ Ask the patient to walk slowly out to the ambulance.
- ☐ Radio ahead to the hospital with your estimated time of arrival.
- ☐ Use full sirens to ensure the fastest possible transport.
- ☐ Keep a finger on the patient's pulse throughout transport.

20-8. LIFE IS SO COMPLICATED

Listed below are signs that should alert the EMT to possible complications in a patient with a suspected heart attack. For each sign, indicate whether it is a sign of impending

- a. cardiac arrest
- b. congestive heart failure
- c. cardiogenic shock

- ☐ tachypnea
- ☐ hypotension
- ☐ very slow pulse
- ☐ wheezes
- ☐ irregular pulse

20-9. THE SILENT KILLER

Lurking in the grid below are 18 words associated with heart attack. Can you find them?

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | E | A | R | O | H | D | E | A | R | A | R | E | Y | O | U | A | R | C | E |
| M | Y | O | C | A | R | D | I | A | L | I | N | F | A | R | C | T | I | O | N |
| E | E | S | O | R | E | F | E | E | N | R | I | G | O | R | T | H | O | R | T |
| O | S | P | P | A | L | I | D | N | D | O | N | T | I | U | R | E | N | O | E |
| W | E | A | K | N | E | S | S | T | I | E | R | H | O | N | E | R | U | N | R |
| E | G | L | E | T | E | T | E | R | A | A | U | E | O | N | A | O | N | A | O |
| T | I | P | P | Y | T | A | P | Y | P | I | L | L | X | E | R | S | O | R | S |
| S | K | I | P | T | O | M | Y | S | H | O | E | O | Y | I | E | C | E | Y | T |
| K | A | T | I | S | P | A | L | L | O | R | G | E | G | R | A | L | I | C | O |
| I | M | A | G | I | R | L | Y | F | R | O | M | W | U | R | L | E | Y | O | L |
| N | I | T | R | O | G | L | Y | C | E | R | I | N | E | N | G | R | I | L | O |
| G | R | I | N | A | N | D | E | A | S | Y | D | O | E | S | R | O | I | N | G |
| T | H | O | W | A | R | M | P | A | I | N | T | O | N | A | U | S | E | A | I |
| I | M | N | O | M | U | C | H | E | S | T | P | A | I | N | T | I | L | E | S |
| F | A | S | T | I | N | G | I | S | G | O | O | D | F | O | R | S | L | I | M |
| F | E | A | R | O | F | I | M | P | E | N | D | I | N | G | D | O | O | M | S |

21. UNCONSCIOUS STATES

21-1. CABLE FROM CALCUTTA

Morris Q. is heading east for a special assignment. Reaching eastern India, he stops to transmit the latest intelligence. Decode his message in the usual fashion.

1. Fainting 54 51 19 58 11 35 3
2. Person who must take insulin 25 47 9 53 1 39 23 6
3. What every unconscious patient should receive 34 57 28 50 37
4. Sensation of being short of breath 45 5 12 14 62 18 26
5. A summons; a card requesting one's attendance at a party 60 24 2 21 16 43 59 17 31 44
6. A person with diaphoresis is in a 22 49 13 33 20
7. Movement 8 52 10 36 61 42
8. Prefix meaning within 40 27 55 48 38
9. Noise made by a lion 56 41 46 4
10. Plural of is 15 30 29
11. Preposition of possession 7 32

Message: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 //

21-2. AT REST IN THE REST ROOM

You are called to attend a middle-aged man found unconscious in the men's room of a movie theater downtown. List the following steps of management in the correct sequence.

- a. Determine whether the patient has a pulse. (He does.)
- b. Try to find out from bystanders what happened.
- c. Administer oxygen.
- d. Measure and record vital signs.
- e. Determine whether the patient is breathing. (He is.)
- f. Obtain orders to start an intravenous infusion, and do so.

- g. Open the airway.
- h. Check the patient for injuries.
- i. Turn the patient to his side.
- j. Obtain orders to administer 50% dextrose intravenously, and do so.

- | | |
|----------|-----------|
| 1. _____ | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

21-3. ELEMENTARY, MY DEAR WATSON

Sometimes it takes a sharp eye and a bit of detective work to figure out what caused a person to become unconscious. For each of the clues listed below, indicate whether it is most consistent with coma due to

- a. head injury
- b. drug overdose
- c. diabetes
- d. stroke
- e. seizures
- f. meningitis

- ___ insulin in the patient's refrigerator
- ___ rigid neck
- ___ blood in the left ear canal
- ___ needle marks on the patient's thighs
- ___ needle tracks on the patient's arms
- ___ high fever
- ___ vomitus containing pills beside the patient
- ___ blood pressure medications on the bedside table
- ___ bottle of Dilantin in the patient's pocket
- ___ left side of patient's face drooping
- ___ patient's tongue bleeding

21-4. DRINK TO ME ONLY WITH THINE EYES

You are called to attend a middle-aged man who was found unconscious in an alley. The patient is unkempt and smells strongly of alcohol. He does not react to painful stimuli. Indicate which of the following statements about this patient are true and which are false.

- 1. The patient is obviously drunk, and the case should be referred to the police.
TRUE FALSE
- 2. The patient is in danger of airway obstruction.
TRUE FALSE

- 3. The patient may be a diabetic.
TRUE FALSE
- 4. The patient is in danger of aspiration.
TRUE FALSE
- 5. The patient may have suffered head injury.
TRUE FALSE
- 6. The patient should be taken to a Salvation Army shelter to sleep it off.
TRUE FALSE

21-5. SUGAR IS SWEET, AND SO ARE YOU

- 1. In a healthy person, a special hormone is secreted that enables sugar to be taken up from the bloodstream by body cells. This hormone is called
 - a. thyroxin
 - b. adrenalin
 - c. insulin
 - d. cortisone
 - e. prostaglandin
- 2. This hormone is produced by the
 - a. liver
 - b. spleen
 - c. kidney
 - d. adrenal glands
 - e. pancreas

- 3. When this hormone is not produced in adequate quantities, a person develops a condition called
 - a. hypoglycemic shock
 - b. diabetes mellitus
 - c. syncope
 - d. epilepsy
 - e. status epilepticus

21-6. WHICH DIABETIC IS WHICH?

1. When a known diabetic is found in a coma, it is sometimes difficult to determine whether the coma is due to ketoacidosis or hypoglycemia. For each of the clues listed below, indicate whether the clue points to
- diabetic ketoacidosis
 - hypoglycemic coma
- ☐ fruity odor to the breath
☐ cold, clammy skin
☐ convulsive movements
☐ deep, rapid respirations
☐ drooling
☐ hypotension
☐ sugar noted in dipstick test of urine
☐ fever
☐ bystanders state that the patient was behaving strangely before becoming unconscious

- ☐ relative states that the patient was unusually thirsty all day
2. Suppose that despite various clues, you are still unsure whether the patient is unconscious on account of hyperglycemia or hypoglycemia. In that situation, you should
- give an intravenous infusion of large amounts of normal saline
 - put a piece of candy in the patient's mouth
 - obtain orders to give 50% dextrose intravenously
 - obtain orders to give the patient his insulin dose
 - avoid giving fluids or sugar since you are not certain which the patient needs

21-7. FAINTING AND FITTING

Indicate which of the following statements about syncope and seizures are true and which are false.

- Fainting is caused by a temporary decrease in blood flow to the brain.
 TRUE FALSE
- A person who has fainted should be placed in a sitting position to reduce the work of the heart.
 TRUE FALSE
- Fainting may be caused by a disturbance in cardiac rhythm, such as severe bradycardia.
 TRUE FALSE

- A patient who is having seizures should be forcibly restrained to prevent him from injuring himself.
 TRUE FALSE
- If a patient clenches his teeth during a seizure, a bite stick should be forced between his upper and lower molars.
 TRUE FALSE
- The patient with seizures should be checked for injuries after the convulsive phase of the seizure subsides.
 TRUE FALSE

21-8. FARFETCHED FITS

- Seizures that occur one right after another, without the patient regaining full consciousness in between, are called
 - status epilepticus
 - status asthmaticus
 - status quo
 - status diabeticus
 - status hystericus
- This condition is a dire medical emergency and may cause death due to
 - hypoglycemia
 - posterior dislocation of the shoulder
 - multiple fractures
 - internal hemorrhage
 - hypoxia

- For this reason, the most important aspect of the management of repeated seizures is
 - administering 50% dextrose
 - restraining the patient
 - insuring oxygenation
 - giving intravenous fluids
 - keeping the patient flat

22. STROKE

22-1. HIDDEN SIGNS OF STROKE

The grid below contains 17 words related to stroke: 4 words for causes of stroke, 4 for precipitating factors, and 9 signs and symptoms of stroke. How many can you find?

T R A S H I C O N F U S I O N G E S T A B
O H S H E M I P A R E S I S T I S H E L L
W E R E H I D D E N M I N C E D M E A T U
E M T O E S Z E T C B R O O K F E A R E R
R O A R M E E U H O O P T R A L E D E A R
O R A L I B L U R P L M R E L U E A D S I
F R U M P L U R H E U M A T I C A C O O N
P H A L L O S S O F S P E E C H E H E N G
I A T R E C C U R R F A I R I E B E L L E
Z G H I G H B L O O D P R E S S U R E O L
Z E R E I S O L O N G T R Y I T R U E S T
A M O R A L C O N T R A C E P T I V E S T

22-2. DIFFERENT STROKES FOR DIFFERENT FOLKS

Stroke may result from several different mechanisms, and the way a stroke comes on often depends on the mechanism that caused it. For each of the characteristics listed below, indicate whether it is most applicable to

- cerebral thrombosis
- cerebral embolism
- cerebral hemorrhage

- ___ rupture of a blood vessel in the brain
- ___ associated with atherosclerosis
- ___ most common cause of stroke
- ___ free-floating blood clot that is swept into a cerebral artery
- ___ onset with very severe headache
- ___ tends to occur in young or middle-aged people
- ___ may be preceded by a series of "little strokes"
- ___ severe hypertension
- ___ rigid neck
- ___ rheumatic heart disease
- ___ blood clot that arises within a cerebral artery
- ___ birth control pills

22-3. WHICH PATIENT HAS THE STROKE?

Described below are five patients encountered during a shift on the ambulance. Which patients are likely to be suffering from a stroke? What is wrong with the other patients?

- a. 42-year-old man found staggering in the street, unkempt, drooling, and combative. The patient's speech is slurred. He is confused and disoriented. His skin is cold and clammy. Vital signs are within normal limits.
- b. 62-year-old woman found in the bathroom at home. Her speech is slurred, and she is unable to move her right arm or right leg. The skin is warm and moist. Blood pressure is 180/110.
- c. 70-year-old man who became suddenly confused. He appears short of breath. His skin is cold and clammy. Pulse is 120 and regular, BP is 180/130, and respirations are 40 and labored. The chest is full of wheezes and rales.
- d. 70-year-old woman who complains of a sudden headache, blurring of vision, and difficulty walking. Vital signs are normal.
- e. 68-year-old woman who had a seizure and went into coma. Pulse is 50 and regular, BP is 200/130, and respirations are 8 and irregular, with periods of apnea.

22-4. WHAT DOES A STROKE LOOK LIKE?

You have been called to attend a 75-year-old woman whose chief complaint is weakness. You suspect she may have had a stroke, and you want to look for clues that will support or rule out this hypothesis. For the parts of the secondary survey listed below, indicate what particular information you would look for in a patient with a suspected stroke.

Phase of the secondary survey
Past medical history

Check in particular for:

Pulse

Blood pressure

Respirations

Head

Neck

Chest

Extremities

22-5. TENDER, LOVING CARE

Indicate whether each of the following statements about the prehospital care of a patient with stroke is true or false

- | | |
|---|---|
| 1. If a patient with a stroke cannot talk, he or she probably cannot understand either. | 4. A patient with a suspected stroke should be given fluids by mouth to prevent dehydration. |
| TRUE | TRUE |
| | FALSE |
| 2. The patient with a stroke should be told that everything will be all right in order to relieve his or her anxiety. | 5. In moving and positioning the stroke patient, the EMT should take care to protect paralyzed extremities from injury. |
| TRUE | TRUE |
| | FALSE |
| 3. A patient with a suspected stroke should receive oxygen. | 6. A neurologic checklist should be filled out for every stroke victim. |
| TRUE | TRUE |
| | FALSE |

23. ANAPHYLAXIS

23-1. IMMUNITY GONE BERSERK

1. Anaphylaxis is best defined as
 - a. cardiovascular collapse
 - b. the presence of itching and hives
 - c. bronchospasm and laryngeal edema
 - d. an overwhelming allergic reaction
 - e. immunity to a virus
 2. Which of the following individuals is most likely to suffer an anaphylactic reaction to a bee sting?
 - a. a person who has never been stung by a bee before
 - b. a person who has had bee stings in the past without any ill effects
 - c. a person who had a serious reaction to a previous bee sting
 - d. a person whose second cousin once had a serious reaction to a bee sting
 - e. a person who is taking penicillin
 3. Which of the following may be responsible for an anaphylactic reaction?
 - a. an antibiotic medication
 - b. a wasp sting
 - c. strawberries
 - d. any of the above may cause anaphylaxis in a sensitive person
 - e. none of the above will cause anaphylaxis
-

23-2. ANAPHYLACTIC ANAGRAM

Fill in the missing words using the definitions supplied below.

1. A _ _ _ _ _
2. _ N _ _ _ _ _
3. _ A _ _ _ _ _ / _ _ _ _ _
4. _ _ P _ _ _ _ _
5. _ _ H _ _ _ _
6. _ _ _ Y _ _ _ _ _
7. _ _ _ L _ _ / _ _ _ _ _
8. _ _ _ _ A _ _ _ _
9. _ _ _ _ _ X _ _ _
10. _ _ _ _ _ I _ _ _
11. _ _ _ _ _ S _ _ _
12. _ _ _ _ _ K _ _ _
13. _ _ _ _ _ I _ _ _
14. _ _ _ _ _ L _ _ _
15. _ _ _ _ _ L _ _ _
16. _ _ _ _ _ S _ _ _

Definitions

1. Foreign substance introduced into the body
2. Protein formed by the body in response to No. 1
3. Swelling of the throat
4. Low blood pressure
5. Effective means of administering No. 13 in anaphylaxis
6. Rapid pulse
7. The sting of this insect may cause anaphylaxis
8. Swelling
9. What happens when the airway becomes obstructed
10. Hives
11. Itching
12. Inadequate perfusion of body tissues
13. Most important drug in the treatment of anaphylaxis
14. Antibiotic that frequently causes allergic reactions
15. Referring to the area around the eyes
16. Sounds heard on auscultation of a chest in the presence of bronchospasm

23-3. DISTRESS SIGNAL

You are called to attend an 18-year-old man complaining of feeling sick and having difficulty breathing. He states that he had been to the doctor this morning to have an abscess drained, and he was started on an antibiotic. He took the first pill when he got home, about three hours ago. About an hour ago, he started having crampy abdominal pain and diarrhea, and he broke out in hives. Just before he called for the ambulance, he noticed he was having difficulty breathing, and he says he feels as if there is a lump in his throat. On physical examination, he appears apprehensive and in moderate distress. His face is swollen, and he is covered with hives. His voice is very hoarse. Pulse is 108 and regular; BP is 110/60, and respirations are 24. There are a few wheezes in his chest, and his bowel sounds are hyperactive.

1. This patient is showing signs of an impending, life-threatening complication of his allergic reaction. The sign that should alert the EMT to the danger and extreme urgency of the situation is the patient's
 - a. abdominal pain
 - b. urticaria
 - c. hoarseness
 - d. wheezes
 - e. tachycardia
2. This sign suggests that the patient is developing
 - a. an acute abdomen
 - b. cardiovascular collapse
 - c. bronchospasm
 - d. neurogenic shock
 - e. laryngeal edema

23-4. THE TRUTH ABOUT ANAPHYLAXIS

Indicate whether each of the following statements regarding the management of anaphylactic reactions is true or false.

1. The most important medication in the treatment of anaphylactic shock is penicillin.
TRUE FALSE
2. Every patient with a severe anaphylactic reaction should receive oxygen.
TRUE FALSE
3. If a patient with an anaphylactic reaction is in shock, the Military Anti-Shock Trousers should be applied.
TRUE FALSE

4. If the anaphylactic reaction is the result of an insect bite or injection on an extremity, a tourniquet should be applied to the extremity distal to the injection site.
TRUE FALSE
5. A patient with anaphylactic shock should be transported in a sitting position to the hospital.
TRUE FALSE
6. A patient who has suffered an anaphylactic reaction should be encouraged to carry epinephrine with him at all times.
TRUE FALSE

24. ABDOMINAL PAIN

24-1. WHAT'S WRONG WITH THIS BELLY?

Hidden within the grid below are 20 causes of abdominal pain. How many can you list without looking at the grid? How many can you find in the grid?

D O P E R F O R A T I O N I A
U G A S T R I C U L C E R P S
O R A L A I D A Y O Y G V E K
D E N L U G E P U S S T O L I
E V E V L A A U R P T O I V D
N E U M O S O B E A R I T I N
A B R A O T T I S N O T T S I
L A Y S M R O O Z C L O S I Y
U L S E R I S H N R E D U N S
L I M P E T I E S E X S I F T
C O L I T I S R E A S O S E O
E V E R Y S I N K T I N K C N
R A P P E N D I C I T I S T E
G I B L E E D A S T A R D I D
B O B S T R U C T I O N T O O
K E T O A C I D O S I S I N G

24-2. IT ONLY HURTS TO LAUGH

For each of the following descriptions of abdominal pain, indicate whether it is most likely to be associated with

- a. pancreatitis
- b. appendicitis
- c. inflamed gallbladder
- d. kidney stone

- 1. ____ Dull, steady pain that started in the middle of the abdomen several hours ago, then shifted to the right lower quadrant.
- 2. ____ Excruciating colicky pain on the right side radiating into the right testicle.
- 3. ____ Severe, steady pain in the right upper quadrant radiating into the right shoulder.
- 4. ____ Severe, steady pain in the left upper quadrant radiating straight through to the back.

24-3. SIGNS OF A SICK BELLY

Hidden in the grid below are 20 signs and symptoms that should be checked for in evaluating a patient with abdominal pain. How many can you list without looking at the grid? How many can you find?

D E N N I S T A R R Y S T O O L Y
 C I D E N V O M I T I N G R U T E
 O N S A G U A R D I N G L E S H S
 L E S T A C H Y C A R D I A L Y T
 D R I V E O R G O O N A R D A P A
 C O M E O N T A S A L V E D I O C
 L S H E M A T E M E S I S Y N T H
 A E R O L T O I L P O N C D I E Y
 M E B O W E L S O U N D S A R N P
 M E T O P A N S Y N C H R I E S N
 Y E S I S A T A P A L L O R D I E
 S C O N S T I P A T I O N R H O A
 K I C K S T O N Y O N L Y H O N D
 I R E S T L E S S N E S S E R G E
 N S T E N D E R N E S S T A N E R

Which of the signs in the grid above should alert the EMT to the possibility of a life-threatening situation?

24-4. DELI BELLY?

Joe Pastrami calls for an ambulance because of severe abdominal pain. He states that the pain started about ten hours ago, after breakfast. He cannot imagine what caused it, unless it was the corned beef and pickle sandwich he ate three days ago. He states that the pain is steady, severe, and located in the left upper quadrant. It radiates into his back. He has been vomiting yellow-green, watery vomitus most of the day. He has been constipated for two days. On physical examination, he is lying very still. He winces when he coughs. Pulse is 128 and somewhat weak, BP is 106/62, and respirations are 32. The chest is clear. The abdomen is somewhat distended. There are no bowel sounds. It is rigid and very tender to light palpation.

Which of the following statements about this patient are true, and which are false?

1. Mr. Pastrami is probably simply suffering from indigestion and should be advised to take it easy and eat only bland foods for a few days.
 TRUE FALSE
2. Mr. Pastrami shows clear signs of internal bleeding.
 TRUE FALSE
3. Mr. Pastrami shows clear signs of peritoneal inflammation.
 TRUE FALSE
4. Mr. Pastrami shows clear signs of a hyperactive bowel.
 TRUE FALSE
5. Mr. Pastrami is in danger of shock.
 TRUE FALSE

24-5. BE KIND TO THE BELEAGUERED BELLY

You are called to attend a 51-year-old man whose chief complaint is severe abdominal pain. The patient has a known history of ulcer disease, but today he experienced a marked intensification of his usual ulcer pain, and he says that he feels like it is boring a hole in his stomach. He also feels very nauseated, but he has not vomited. On physical examination, he is pale and in marked distress. His skin is cold and clammy. Pulse is 128 and regular, BP is 100/60, and respirations are 32 and shallow. The chest is clear. The abdomen is exquisitely tender to palpation and feels like a board. No bowel sounds are heard.

Indicate whether each of the following statements about the management of this patient is true or false.

- | | | |
|---|------|-------|
| 1. The patient is in danger of vomiting and aspiration. | TRUE | FALSE |
| 2. The patient should be given oxygen. | TRUE | FALSE |
| 3. The patient should be given fluids by mouth to counteract his hypovolemia. | TRUE | FALSE |
| 4. The patient should be given aspirin to ease his pain. | TRUE | FALSE |
| 5. A bouncing ride in the ambulance would be torment for this patient. | TRUE | FALSE |
| 6. One should take ample time in the field to do a thorough and detailed abdominal examination on this patient. | TRUE | FALSE |

25. ALCOHOL AND DRUG ABUSE

25-1. ON THE ROAD TO MANDALAY

Morris Q. Morris is back on duty after a week of R and R, during which he frequented some of the better pubs in Burma. He radios in a message containing a vital piece of intelligence he picked up during this vacation. Decode it in the usual fashion.

1. The need for larger and larger doses of a drug to produce a given effect 44 12 37 32 18 23 9 48 3
2. Overwhelming involvement with a drug 49 33 17 36 14 1 27 43 20
3. Shaky 15 35 5 42 30 38 41 50 7
4. Mandible 29 13 10
5. Street slang for heroin; four-legged animal 45 34 6 53 26
6. Kind of monkey, for whom Rh factor was named 40 2 46 51 19 16
7. Abbreviation for blood pressure 25 4
8. Member of a monastic order 22 8 28 21
9. Sizzle in a hot pan 39 47 24
10. Possessive form of she 11 52 31

Message: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53

25-2. THE DANGERS OF DRINK

For each of the phrases below, indicate whether it is most characteristic of

- | | |
|-------------------------------|---|
| a. acute alcohol intoxication | <input type="checkbox"/> frightening hallucinations |
| b. withdrawal seizures | <input type="checkbox"/> death from respiratory depression |
| c. delirium tremens | <input type="checkbox"/> danger of aspiration |
| | <input type="checkbox"/> usually comes on 12 to 48 hours after the patient's last drink |
| | <input type="checkbox"/> should be transported to the hospital |
| | <input type="checkbox"/> cardiovascular collapse |
| | <input type="checkbox"/> rum fits |
| | <input type="checkbox"/> 15% mortality |
| | <input type="checkbox"/> should receive oxygen |
| | <input type="checkbox"/> coma |

(Note: Some items below may be associated with more than one of the conditions listed above.)

25-3. BOOZE ON THE BREATH

Five patients are found seriously ill or unconscious, each with alcohol on his breath. In doing a very careful survey, you discover that each of the patients is probably in the state he is for reasons other than ingestion of alcohol, including

- a. gastrointestinal bleeding
- b. pancreatitis
- c. hypoglycemia
- d. pneumonia
- e. subdural hematoma

Match the clinical findings below with the probable diagnosis above

1. ____ A 38-year-old man is found staggering in the street, confused and combative. His speech is slurred. He is drooling all over his shirt. His skin is cold and moist. Pulse is 124 and regular, BP is 110/60, and respirations are 16 and unlabored.
2. ____ A 52-year-old man is complaining of severe, steady, midepigastric pain. He denies vomiting. He states that his stools have been black like tar for two days. His skin is cold and clammy. Pulse is 136, BP is 70/0, and respirations are 28 and shallow. There is tenderness over the epigastrium.
3. ____ A 58-year-old man is found deeply unconscious and unkempt in an alley with an empty bottle of cheap wine beside him. Pulse is 48, BP is 200/140, and respirations are 14 and irregular (Cheyne-Stokes). One pupil is dilated and does not react to light.
4. ____ A 41-year-old man is complaining of severe abdominal pain; he is lying curled up on his right side. He says he has been vomiting yellow, watery material all day. He is in obvious distress and winces every time he moves. Pulse is 124 and regular, BP is 100/60, and respirations are 28 and shallow. There is diffuse abdominal rigidity and tenderness.
5. ____ A 61-year-old man is found delirious, unable to give a history. He is shaking, and his teeth are chattering. His skin is very hot and dry. Pulse is 120 and bounding, BP is 165/90, and the respirations are 40 and shallow. Rhonchi are heard in his chest.

25-4. DRUGGED DWARFS

Snow White arrives home one day to discover that five of her trusted dwarfs apparently overdosed on various substances.

- a. Sneezy overdosed on cocaine.
- b. Sleepy overdosed on a bottle of gin.
- c. Happy overdosed on heroin.
- d. Dopey overdosed on barbiturates.
- e. Grumpy overdosed on PCP.

Snow White reached this conclusion by evaluating the clinical findings of the dwarfs (she had just taken an EMT course at a neighboring castle). See if you can be as sharp as Snow White and match the clinical findings below with the specific overdoses listed above.

1. ____ This dwarf is confused and stuporous. His speech is slurred. His breath smells of alcohol. Pulse is 80 and regular, BP is 200/80, and respirations are 16 and unlabored.
2. ____ This dwarf is hostile and suspicious. He throws rocks at Snow White when she tries to approach to take vital signs, and he does not seem to notice when he accidentally drops a rock on his own foot. He says the CIA is after him. He has a rather blank stare, and his muscles are very rigid. He is sweating profusely.
3. ____ This dwarf is in coma. His breath smells of alcohol. The pulse is 132 and regular, BP is 80/40, and respirations are 12 and shallow. The pupils are widely dilated and unreactive to light.
4. ____ This dwarf is also comatose. His pulse is 80, BP is 100/70, and respirations are 6 per minute. His pupils are pinpoint.
5. ____ This dwarf is wide awake and looks as if he just stuck his finger in a light socket. He is restless, irritable, and talking a mile a minute. He says he cannot sleep and has no appetite. His nose is bothering him. Pulse is 128 and bounding, BP is 190/120, and respirations are 28 and unlabored.

25-5. YOU CAN BUY IT ON THE STREET

Stashed away in the grid below are the names of twenty commonly abused substances, including twelve "downers," six "uppers," and two hallucinogens. How many can you find? Which ones are uppers? Which are downers? Which are hallucinogens?

S P A S M O R P H I N E C K S A
 C M N E A T P A L E O D O N A B
 A D E X E D R I N E R A C O P S
 F E M T V A L I U M E O A R C H
 F A B U H S A M H M E D I U P E
 E M U L I E N E A R T O N N I S
 I N T R A C D A S R I V E R C H
 N O A H S O U R H A I L C H O G
 E L L Y C N E V I L L J A I D Y
 A L C O H O L E S N A F U M E S
 T O S T I L E S H L E P P A I N
 S O N D A U B E N Z A D R I N E
 K N I C O T I N E S Y Q U L E A

25-6. DRUNK, DRUGGED, OR DOWN AND OUT

Indicate whether each of the following statements regarding alcohol intoxication and drug overdose is true or false.

- | | |
|---|--|
| 1. An unconscious, intoxicated person is in danger of airway obstruction. | 4. A deeply comatose patient may lie for extended periods in a contorted position, causing ischemic damage to an arm or leg. |
| TRUE | TRUE |
| FALSE | FALSE |
| 2. The possibility of head injury should be considered in every patient found unconscious. | 5. A known alcoholic found unconscious at home can be left at home to "sleep it off." |
| TRUE | TRUE |
| FALSE | FALSE |
| 3. A person rendered unconscious from an overdose of barbiturates is in danger of aspiration. | 6. A neurologic checklist should be kept on every patient found unconscious from any cause. |
| TRUE | TRUE |
| FALSE | FALSE |

25-7. TAKE 200 ASPIRIN AND GO TO BED

1. For each of the following cases, indicate whether

- a. vomiting should be induced in the field
- b. vomiting should not be induced in the field

- A 19-year-old college student took an overdose of barbiturates at an indeterminate time before you arrived. He is stuporous and his speech is slurred
- A 30-year-old man swallowed a bottle full of some kind of capsules about one hour ago. He has a grand mal seizure while you are taking his vital signs.
- A 4-year-old child took the contents of a bottle of adult aspirin within the past hour. She is alert, crying, and has marked hyperpnea.
- A 25-year-old woman swallowed 50 Librium capsules half an hour ago. She says she has been very depressed since finding out two months ago that she is pregnant.
- A 32-year-old woman took 100 Nembutal in a suicide attempt, then panicked and immediately phoned for an ambulance. You find her alert and weeping.
- A 26-year-old man ingested 75 Thorazine tablets about 45 minutes ago. He is conscious and alert.

2. The correct dose of syrup of ipecac for an adult is

- a. 1 teaspoon (5 ml)
- b. 3 teaspoons (15 ml)
- c. 30 teaspoons (150 ml)
- d. 3 tablespoons (45 ml)
- e. 3 cups (720 ml)

3. Activated charcoal should be given

- a. 15 minutes before administering syrup of ipecac
- b. 1 to 2 minutes before administering syrup of ipecac
- c. together with the syrup of ipecac
- d. as soon as the patient feels the urge to vomit
- e. when the patient finishes vomiting

25-8. DEADLY DRUNK

A middle-aged man is found unconscious in his cold-water flat near the railway station. His quarters are in disarray, and there are empty wine bottles and empty medication bottles—mostly barbiturates—lying around everywhere. Arrange the following steps in managing this patient in the correct order.

- a. Turn the patient to the stable side position.
- b. Determine if the patient has a pulse. (He has.)
- c. Administer oxygen.

d. Open the patient's airway.

e. Check the patient for injuries.

f. Determine whether the patient is breathing. (He is.)

g. Suction the patient's mouth and throat.

h. Reposition and splint any ischemic extremities.

- | | | |
|---------|---------|---------|
| 1. ____ | 4. ____ | 7. ____ |
| 2. ____ | 5. ____ | 8. ____ |
| 3. ____ | 6. ____ | |