

Fundamentals of Pathology: Pathoma Testbank/Studyguide

Chapter 1: Growth Adaptations, Cellular Injury and Death

1. Ischemia and other toxic injuries increase the accumulation of intracellular calcium as a result of:

- A) release of stored calcium from the mitochondria.
- B) improved intracellular volume regulation.
- C) decreased influx across the cell membrane.
- D) attraction of calcium to fatty infiltrates.

2. The patient is found to have liver disease, resulting in the removal of a lobe of his liver. Adaptation to the reduced size of the liver leads to _____ of the remaining liver cells.

- A) metaplasia
- B) organ atrophy
- C) compensatory hyperplasia
- D) physiologic hypertrophy

3. A person eating peanuts starts choking and collapses. His airway obstruction is partially cleared, but he remains hypoxic until he reaches the hospital. The prolonged cell hypoxia caused a cerebral infarction and resulting _____ in the brain.

- A) caspase activation
- B) coagulation necrosis
- C) rapid phagocytosis
- D) protein p53 deficiency

4. Bacteria and viruses cause cell damage by _____, which is unique from the intracellular damage caused by other injurious agents.

- A) disrupting the sodium/potassium ATPase pump
- B) interrupting oxidative metabolism processes
- C) replicating and producing continued injury
- D) decreasing protein synthesis and function

5. The patient has a prolonged interruption in arterial blood flow to his left kidney, causing hypoxic cell injury and the release of free radicals. Free radicals damage cells by:

- A) destroying phospholipids in the cell membrane.
- B) altering the immune response of the cell.
- C) disrupting calcium storage in the cell.
- D) inactivation of enzymes and mitochondria.

6. Injured cells have impaired flow of substances through the cell membrane as a result of:

- A) increased fat load.
- B) altered permeability.
- C) altered glucose utilization.
- D) increased surface receptors.

7. Reversible adaptive intracellular responses are initiated by:

- A) stimulus overload.
- B) genetic mutations.
- C) chemical messengers.
- D) mitochondrial DNA.

8. Injured cells become very swollen as a result of:

- A) increased cell protein synthesis.
- B) altered cell volume regulation.
- C) passive entry of potassium into the cell.
- D) bleb formation in the plasma membrane.

9. A diabetic patient has impaired sensation, circulation, and oxygenation of his feet. He steps on a piece of glass, the wound does not heal, and the area tissue becomes necrotic. The necrotic cell death is characterized by:

- A) rapid apoptosis.
- B) cellular rupture.
- C) shrinkage and collapse.
- D) chronic inflammation.

10. A 99-year-old woman has experienced the decline of cell function associated with age. A group of theories of cellular aging focus on programmed:

- A) changes with genetic influences.
- B) elimination of cell receptor sites.
- C) insufficient telomerase enzyme.
- D) DNA mutation or faulty repair.

11. An 89-year-old female patient has experienced significant decreases in her mobility and stamina during a 3-week hospital stay for the treatment of a femoral head fracture. Which of the following phenomena most likely accounts for the patients decrease in muscle function that underlies her reduced mobility?

- A) Impaired muscle cell metabolism resulting from metaplasia
- B) Dysplasia as a consequence of inflammation during bone remodeling
- C) Disuse atrophy of muscle cells during a prolonged period of immobility
- D) Ischemic atrophy resulting from vascular changes while on bedrest

12. A 20-year-old college student has presented to her campus medical clinic for a scheduled Papanicolaou (Pap) smear. The clinician who will interpret the smear will examine cell samples for evidence of:

- A) changes in cell shape, size, and organization.
- B) the presence of unexpected cell types.
- C) ischemic changes in cell samples.
- D) abnormally high numbers of cells in a specified field.

13. Which of the following pathophysiologic processes is most likely to result in metastatic calcification?

- A) Benign prostatic hyperplasia
- B) Liver cirrhosis
- C) Impaired glycogen metabolism
- D) Hyperparathyroidism

14. Despite the low levels of radiation used in contemporary radiologic imaging, a radiology technician is aware of the need to minimize her exposure to ionizing radiation. What is the primary rationale for the technicians precautions?

- A) Radiation stimulates pathologic cell hypertrophy and hyperplasia.
- B) Radiation results in the accumulation of endogenous waste products in the cytoplasm.
- C) Radiation interferes with DNA synthesis and mitosis.
- D) Radiation decreases the action potential of rapidly dividing cells.

15. The parents of a 4-year-old girl have sought care because their daughter has admitted to chewing and swallowing imported toy figurines that have been determined to be made of lead. Which of the following blood tests should the care team prioritize?

- A) White blood cell levels with differential
- B) Red blood cell levels and morphology
- C) Urea and creatinine levels
- D) Liver function panel

16. A 70-year-old male patient has been admitted to a hospital for the treatment of a recent hemorrhagic stroke that has left him with numerous motor and sensory deficits. These deficits are most likely the result of which of the following mechanisms of cell injury?

- A) Free radical injury
- B) Hypoxia and ATP depletion
- C) Interference with DNA synthesis
- D) Impaired calcium homeostasis

17. Which of the following processes associated with cellular injury is most likely to be reversible?

- A) Cell damage resulting from accumulation of fat in the cytoplasm
- B) Cellular changes as a result of ionizing radiation
- C) Cell damage from accumulation of free radicals
- D) Apoptosis

18. The extrinsic pathway of apoptosis can be initiated by:

- A) damage to cellular DNA.
- B) decreased ATP levels.
- C) activation of the p53 protein.
- D) activation of death receptors on the cell surface.

19. A patient with severe peripheral vascular disease has developed signs of dry gangrene on the great toe of one foot. Which of the following pathophysiologic processes most likely contributed to this diagnosis?

- A) Inappropriate activation of apoptosis
- B) Bacterial invasion
- C) Impaired arterial blood supply
- D) Metaplastic cellular changes

20. Which of the following facts underlies the concept of replicative senescence?

- A) Genes controlling longevity are present or absent in varying quantities among different individuals.
- B) Telomeres become progressively shorter in successive generations of a cell.
- C) The damaging influence of free radicals increases exponentially in later generations of a cell.
- D) Aging produces mutations in DNA and deficits in DNA repair.

Answer Key

- 1. A
- 2. C
- 3. B
- 4. C
- 5. A
- 6. B
- 7. C
- 8. B
- 9. B
- 10. A

11. C

12. A

13. D

14. C

15. B

16. B

17. A

18. D

19. C

20. B

Chapter 2: Inflammation, Inflammatory Disorders, and Wound Healing

MULTIPLE CHOICE

1. Tears are considered to be part of the:

- 1. first line of defense.
- 2. second line of defense.
- 3. third line of defense.
- 4. specific defenses.
- 5. nonspecific defenses.

a.	1, 4
b.	1, 5
c.	3, 4
d.	2, 5

ANS: B

2. A specific defense for the body is:

- a. phagocytosis.
- b. sensitized T lymphocytes.
- c. the inflammatory response.
- d. intact skin and mucous membranes.

ANS: B

3. The inflammatory response is a nonspecific response to:

- a. phagocytosis of foreign material.
- b. local vasodilation.
- c. any tissue injury.
- d. formation of purulent exudates.

ANS: C

4. Chemical mediators released during the inflammatory response include:

- a. albumin and fibrinogen.
- b. growth factors and cell enzymes.
- c. macrophages and neutrophils.
- d. histamine and prostaglandins.

ANS: D

5. Which of the following result directly from the release of chemical mediators following a moderate burn injury?

- 1. Pain
- 2. Local vasoconstriction
- 3. Increased capillary permeability
- 4. Pallor

a.	1, 2
----	------

- | | |
|----|------|
| b. | 1, 3 |
| c. | 2, 3 |
| d. | 2, 4 |

ANS: B 6. Granulation tissue is best described as:

- | | |
|----|--|
| a. | highly vascular, very fragile, and very susceptible to infection. |
| b. | an erosion through the wall of viscera, leading to complications. |
| c. | a type of adhesion with no vascularization. |
| d. | a form of stenosis, in a duct, that is extremely tough and resists attack by microbes. |

ANS: A

7. Edema associated with inflammation results directly from:

- | | |
|----|--|
| a. | increased fluid and protein in the interstitial compartment. |
| b. | increased phagocytes in the affected area. |
| c. | decreased capillary permeability. |
| d. | general vasoconstriction. |

ANS: A

8. The warmth and redness related to the inflammatory response results from:

- | | |
|----|---|
| a. | increased interstitial fluid. |
| b. | production of complement. |
| c. | a large number of white blood cells (WBCs) entering the area. |
| d. | increased blood flow into the area. |

ANS: D

9. What is the correct order of the following events in the inflammatory response immediately after tissue injury?

1. Increased permeability of blood vessels
2. Dilation of blood vessels
3. Transient vasoconstriction
4. Migration of leukocytes to the area
5. Hyperemia

- | | |
|----|---------------|
| a. | 5, 3, 2, 1, 4 |
| b. | 1, 2, 4, 5, 3 |
| c. | 2, 3, 5, 4, 1 |
| d. | 3, 2, 5, 1, 4 |

ANS: D

10. The process of phagocytosis involves the:

- | | |
|----|--|
| a. | ingestion of foreign material and cell debris by leukocytes. |
| b. | shift of fluid and protein out of capillaries. |
| c. | formation of a fibrin mesh around the infected area. |

d. movement of erythrocytes through the capillary wall.

ANS: A

11. Systemic effects of severe inflammation include:

-
- a. erythema and warmth.
-
- b. loss of movement at the affected joint.
-
- c. fatigue, anorexia, and mild fever.
-
- d. abscess formation.

ANS: C

12. The term *leukocytosis* means:

-
- a. increased white blood cells (WBCs) in the blood.
-
- b. decreased WBCs in the blood.
-
- c. increased number of immature circulating leukocytes.
-
- d. significant change in the proportions of WBCs.

ANS: A

13. Which of the following statements applies to fever?

-
- a. Viral infection is usually present.
-
- b. Heat-loss mechanisms have been stimulated.
-
- c. It is caused by a signal to the thalamus.
-
- d. It results from release of pyrogens into the circulation.

ANS: D

14. Mechanisms to bring an elevated body temperature down to the normal level include:

-
- a. general cutaneous vasodilation.
-
- b. generalized shivering.
-
- c. increased heart rate.
-
- d. increased metabolic rate.

ANS: A

15. Replacement of damaged tissue by similar functional cells is termed:

-
- a. fibrosis.
-
- b. regeneration.
-
- c. resolution.
-
- d. repair by scar tissue.

ANS: B

16. Scar tissue consists primarily of:

-
- a. granulation tissue.
-
- b. epithelial cells.
-
- c. collagen fibers.

- d. new capillaries and smooth muscle fibers.

ANS: C

17. Which of the following promotes rapid healing?

- a. Closely approximated edges of a wound
- b. Presence of foreign material
- c. Exposure to radiation
- d. Vasoconstriction in the involved area

ANS: A

18. Glucocorticoids are used to treat inflammation because they directly:

- a. promote the release of prostaglandins at the site.
- b. decrease capillary permeability.
- c. mobilize lymphocytes and neutrophils.
- d. prevent infection.

ANS: B

19. Patients taking glucocorticoids for long periods of time are likely to develop all of the following EXCEPT:

- a. decreased bone density.
- b. wasting of skeletal muscle.
- c. opportunistic infections.
- d. increased leukocyte production.

ANS: D

20. Which of the following drugs relieves fever and some types of pain but is NOT an anti-inflammatory agent?

- a. Acetaminophen
- b. Prednisone
- c. Aspirin
- d. Ibuprofen

ANS: A

21. A burn area in which the epidermis and part of the dermis is destroyed is classified as:

- a. full-thickness.
- b. deep partial-thickness.
- c. superficial partial-thickness.
- d. first-degree.

ANS: B

22. A woman has burns on the anterior surfaces of her right arm, chest, and right leg. The percentage of body surface area burned is approximately:

- a. 13.5%.

- | | |
|----|--------|
| b. | 18%. |
| c. | 22.5%. |
| d. | 31.5%. |

ANS: C

23. The characteristic appearance of a full-thickness burn is:

- | | |
|----|--|
| a. | painful with multiple blisters. |
| b. | heavy bleeding. |
| c. | red with some swelling. |
| d. | dry, firm, charred, or hard white surface. |

ANS: D

24. A typical source of infection in burn areas is:

- | | |
|----|--|
| a. | the skin grafts. |
| b. | microbes surviving in the hair follicles in the burn area. |
| c. | circulating blood bringing microbes to the burn wound. |
| d. | opportunistic virus in digestive tract. |

ANS: B

25. A large burn area predisposes to decreased blood pressure because:

- | | |
|----|--|
| a. | bleeding occurs under the burn surface. |
| b. | the heart is damaged by toxic materials from the burn. |
| c. | fluid and protein shift out of the blood. |
| d. | vasoconstriction occurs in the burn area. |

ANS: C

26. During an inflammatory response, hyperemia is caused by:

- | | |
|----|---|
| a. | increased blood flow in the area. |
| b. | increased capillary permeability. |
| c. | irritation of sensory nerve endings by histamine. |
| d. | increased leukocytes in the area. |

ANS: A

27. The advantages of applying a biosynthetic skin substitute to a large area of full-thickness burns include:

1. reduced risk of infection.
2. decreased loss of plasma protein and fluid.
3. developing stronger fibrous scar tissue.
4. more rapid healing.
5. regeneration of all glands, nerves, and hair follicles.

- | | |
|----|---------|
| a. | 1, 3 |
| b. | 4, 5 |
| c. | 1, 2, 4 |

d. 2, 3, 5

ANS: C

28. Purulent exudates usually contain:

- a. small amounts of plasma protein & histamine in water.
- b. red blood cells & all types of white blood cells.
- c. numerous leukocytes, bacteria, and cell debris.
- d. large amounts of water containing a few cells.

ANS: C

29. Isoenzymes in the circulating blood:

- a. are a type of plasma protein normally present in the circulating blood.
- b. often indicate the precise location of an inflammatory response.
- c. are normally released from leukocytes during the inflammatory response.
- d. are pyrogens, causing low-grade fever.

ANS: B

30. A serous exudate is best described as a:

- a. thin, watery, colorless exudate.
- b. thick, sticky, cloudy secretion.
- c. thick, greenish material containing microbes.
- d. brownish, clotted material.

ANS: A

31. Systemic manifestations of an inflammatory response include:

- a. edema and erythema.
- b. area of necrosis and loss of function.
- c. pain and tenderness.
- d. fever and malaise.

ANS: D

32. Some local effects of a general inflammatory response would include:

- a. high, spiking fever and chills.
- b. redness, warmth, and swelling.
- c. leukopenia and reduced erythrocyte sedimentation rate (ESR).
- d. anorexia and headaches.

ANS: B

33. Prolonged administration of glucocorticoids such as prednisone may cause:

1. atrophy of lymphoid tissue.
2. increased resistance to infection.
3. thrombocytopenia.
4. decreased protein synthesis.

a. 1, 2

- | | |
|----|------|
| b. | 1, 3 |
| c. | 1, 4 |
| d. | 2, 4 |

ANS: C

34. Application of ice to an injured knee reduces edema by:

- | | |
|----|---------------------------------------|
| a. | promoting return of lymph fluid. |
| b. | causing local vasoconstriction. |
| c. | increasing the rate of tissue repair. |
| d. | causing systemic vasodilation. |

ANS: B

35. Healing of large areas of skin loss (including dermis and epidermis) would be most successful through:

- | | |
|----|--|
| a. | rapid mitosis and regeneration of skin layers. |
| b. | resolution of damaged cells in the area. |
| c. | covering the area with biosynthetic skin substitute. |
| d. | graft of fibrous tissue to the area. |

ANS: C

36. Prostaglandins are produced from _____ and cause _____.

- | | |
|----|--|
| a. | activated plasma protein; increased capillary permeability |
| b. | mast cells; vasodilation and pain |
| c. | platelets; attraction of neutrophils, chemotaxis |
| d. | mast cell granules; activation of histamines and kinins |

ANS: B

37. The number of neutrophils in the blood is increased significantly:

- | | |
|----|-----------------------------------|
| a. | during allergic reactions. |
| b. | during chronic inflammation. |
| c. | to produce antibodies. |
| d. | in order to promote phagocytosis. |

ANS: D

38. An abscess contains:

- | | |
|----|----------------------|
| a. | serous exudate. |
| b. | purulent exudate. |
| c. | fibrinous exudate. |
| d. | hemorrhagic exudate. |

ANS: B

39. Nonspecific agents that protect uninfected cells against viruses are called:

- | | |
|----|--------------|
| a. | neutrophils. |
|----|--------------|

- b. macrophages.
- c. interferons.
- d. pyrogens.

ANS: C

40. Causes of inflammation include:

- a. direct physical damage such as cuts and sprains.
- b. allergic reactions.
- c. infection.
- d. All the above

ANS: D

41. In normal capillary exchange, what is net hydrostatic pressure based on?

- a. The difference between the hydrostatic pressure within the capillary, as compared with the hydrostatic pressure of the interstitial fluid
- b. The relative osmotic pressures in the blood and the interstitial fluid
- c. The difference between the hydrostatic pressure and osmotic pressure within the capillary
- d. The difference between the concentrations of blood cells, plasma proteins, and dissolved substances in the blood and the interstitial fluid

ANS: A

42. The cardinal signs of inflammation include all of the following EXCEPT:

- a. redness.
- b. loss of function.
- c. nausea.
- d. swelling.

ANS: C

43. Drugs that have anti-inflammatory, analgesic, and antipyretic activities include:

1. COX-2 inhibitors (NSAIDs).
2. glucocorticoids (e.g., prednisone).
3. ibuprofen (NSAID).
4. acetaminophen.
5. aspirin (ASA).

- a. 1, 2
- b. 2, 4
- c. 1, 3, 5
- d. 1, 4, 5

ANS: C 44. Aspirin (ASA) is discouraged for treatment of viral infection in children because of:

- a. decreased bone growth after puberty.
- b. frequent production of blood clots.
- c. formation of a granuloma filled with virus.

d. the risk of developing Reyes syndrome.

ANS: D

45. Systemic manifestations of inflammation include all EXCEPT:

- a. pyrexia.
- b. malaise.
- c. local swelling.
- d. anorexia.

ANS: C

46. Which of the following cellular elements found in the inflammatory response are responsible for phagocytosis?

- a. Macrophages
- b. Basophils
- c. B lymphocytes
- d. T lymphocytes
- e. Eosinophils

ANS: A

47. Which chemical mediator is involved in prolonging the inflammatory response?

- a. Bradykinin
- b. Histamine
- c. Leukotrienes
- d. Chemotactic factors

ANS: C

48. Potential complications after healing by scar formation include all the following EXCEPT:

- a. lack of sensory function in the area.
- b. contractures and adhesions.
- c. increased hair growth.
- d. keloid formation.

ANS: C

49. All of the following are correct statements regarding wound healing EXCEPT:

- a. Resolution occurs where there is minimal tissue damage and the cells can recover.
- b. Granulation tissue forms a permanent replacement for damaged tissue.
- c. Regeneration occurs where the cells are capable of mitosis.
- d. Scar tissue forms where the surrounding cells are incapable of mitosis.

ANS: B

50. Which of the following statements regarding inflammation is incorrect?

- a. Inflammation caused by an allergen or a burn will typically produce a serous exudate.
- b. Infection is one cause of inflammation.

- c. Inflammation is the body's nonspecific response to tissue injury.
- d. Disorders are named using the ending *-sarcoma* to indicate inflammation.

ANS: D

51. Which of the following helps to localize and wall off the foreign material during an inflammatory response?

- a. Lymphocytes
- b. Increased fluid
- c. Fibrinogen
- d. Antibodies

ANS: C

52. Why is an application of cold recommended as part of the RICE first aid measures immediately following an inflammatory response due to injury?

- a. It improves circulation in the area removing chemical mediators.
- b. It causes local vasoconstriction to reduce local edema.
- c. It draws more phagocytic cells to the area to remove debris.
- d. It promotes immediate healing.

ANS: B

53. One goal for current research in tissue engineering is to:

- a. create a functional replacement tissue when regeneration is not possible.
- b. adapt cells from the injured organ to produce replacement tissue.
- c. design a nonliving synthetic replacement tissue.
- d. use stem cells as a temporary covering for damaged tissue.

ANS: A

54. Identify the proper sequence in the healing process.

- a. A blood clot forms; granulation tissue grows into the gap; new blood vessels develop; phagocytosis of foreign material and cell debris occurs; and collagen fibers form a tight, strong scar.
- b. A blood clot forms; phagocytes remove foreign material and cell debris; granulation tissue grows into the gap; new blood vessels form; and collagen fibers promote formation of a tight, strong scar.
- c. Collagen fibers form in the damaged area; a blood clot forms; granulation tissue grows into the gap; angiogenesis takes place; and foreign material and cell debris are removed by phagocytes.
- d. Foreign material and cell debris are removed by phagocytes; a blood clot forms; granulation tissue grows into the gap; new blood vessels form; and collagen fibers grow and cross-link.

ANS: B

55. All of the following are factors that promote healing EXCEPT:

- a. good nutrition: protein, vitamins A and C.
- b. a clean, undisturbed wound.
- c. effective circulation.
- d. advanced age.

ANS: D

56. Identify the correct statement about burns:

- a. The severity of the burn depends on the temperature, duration, and extent of the burn.
- b. Young children are less likely to suffer severe burns from immersion in excessively hot water.
- c. Burns to the palms of the hands are more damaging than burns on the face.
- d. With a major burn, excessive bleeding usually causes shock.

ANS: A

57. Which statement applies to the recommended emergency care for burns?

- a. Drop and lie completely still on your back.
- b. Call a neighbor for help if the burn appears to be extensive.
- c. Apply lotion and cover burn tightly with a sheet or towel.
- d. Cover the burn area with clean, cool, or tepid water and remove nonsticking clothing.

ANS: D

58. Inhalation of carbon monoxide is a threat for many burn patients because this gas:

- a. causes swelling in the trachea.
- b. quickly reduces the available oxygen in the blood.
- c. prevents full expansion of the lungs.
- d. is toxic to the nervous system.

ANS: B

59. How does scar tissue usually cause obstructions to develop in tube-like structures?

- a. Scar tissue continues to grow and spread, causing a blockage.
- b. Scar tissue does not stretch, but rather shrinks in time, causing narrowing.
- c. Scar tissue twists and forms knots as it develops.
- d. Scar tissue attaches to nearby normal tissue, causing obstruction.

ANS: B

60. Which of the following is a serious potential complication found only with the anti-inflammatory COX-2 inhibitor drugs?

- a. Increased risk of infection at the site of inflammation
- b. Reyes syndrome developing in children and young adults
- c. Increased incidence of heart attacks
- d. Greatly delayed blood clotting

ANS: C

Chapter 3: Principles of Neoplasia

MULTIPLE CHOICE

1. What is a benign neoplasm originating from adipose tissue called?

- a. Adenoma

-
- b. Lipoma
 - c. Fibrosarcoma
 - d. Adenocarcinoma
-

ANS: B

2. What are malignant neoplasms arising from connective tissue cells called?

-
- a. Carcinomas
 - b. Sarcomas
 - c. Melanomas
 - d. Fibromas
-

ANS: B

3. Which of the following is a characteristic of a benign tumor?

-
- a. It is unencapsulated and invasive.
 - b. It consists of undifferentiated cells.
 - c. It exerts systemic effects.
 - d. Cells appear relatively normal.
-

ANS: D

4. Which factor provides the basis for the grading of newly diagnosed malignant tumors?

-
- a. Size of the tumor
 - b. Number of metastases
 - c. Degree of differentiation of the cells
 - d. Number of lymph nodes involved
-

ANS: C

5. A warning sign of possible cancer would be any of the following EXCEPT:

-
- a. persistent, unusual bleeding.
 - b. a change in bowel habits.
 - c. sudden development of fever, nausea, and diarrhea.
 - d. a change in shape, color, or surface of a skin lesion.
-

ANS: C

6. The common local effects of an expanding tumor mass include:

- 1. obstruction of a tube or duct.
 - 2. anemia and weight loss.
 - 3. cell necrosis and ulceration.
 - 4. tumor markers in the circulation.
-

-
- a. 1, 2
 - b. 1, 3
 - c. 2, 4
 - d. 3, 4
-

ANS: B

7. Which of the following does *paraneoplastic syndrome* refer to?

- a. The effects of substances such as hormones secreted by the tumor cells
- b. Severe weight loss and cachexia associated with advanced cancer
- c. The decreased resistance to infection resulting from malignant tumors
- d. The effects of multiple metastatic tumors

ANS: A

8. Which term refers to the spread of malignant cells through blood and lymph to distant sites?

- a. Invasiveness
- b. Seeding
- c. Metastasis
- d. Systemic effect

ANS: C

9. One reason for staging a malignant tumor at the time of diagnosis is to:

- a. identify the original cell from which the tumor developed.
- b. locate and identify the primary tumor.
- c. decide the initiating factor for a particular tumor.
- d. determine the best treatment and prognosis.

ANS: D

10. The process of carcinogenesis usually begins with:

- a. exposure to promoters causing dysplasia.
- b. development of defective genes.
- c. an irreversible change in the cell DNA.
- d. a single exposure to a known risk factor causing temporary cell damage.

ANS: C

11. What would be an external source of ionizing radiation?

- a. A needle containing a radioisotope implanted beside the tumor
- b. Gamma rays delivered by a cobalt machine
- c. A dose of a radioactive drug to be ingested
- d. A fluid containing radioactive material instilled in a body cavity

ANS: B

12. Radiation therapy destroys:

- a. all cells in the tumor at one time.
- b. the cells in the center of the tumor.
- c. primarily rapidly dividing cells.
- d. radioresistant cells.

ANS: C

13. The most critical adverse effects of chemotherapy and radiation therapy are:

- a. thrombocytopenia and leucopenia.
- b. headache and lethargy.
- c. nausea and constipation.
- d. alopecia and weight loss.

ANS: A

14. Chemotherapy usually involves a combination of drugs in order to:

- 1. reduce the adverse effects.
- 2. guarantee that all cancer cells are destroyed.
- 3. be effective in more phases of the cell cycle.
- 4. totally block the mitotic stage.

- a. 1, 3
- b. 1, 4
- c. 2, 3
- d. 3, 4

ANS: A

15. Why does ovarian cancer have a poor prognosis?

- a. The ovaries are inaccessible for examination.
- b. Specific signs rarely appear until after secondary tumors have developed.
- c. The same tumor markers are present with many types of cancer.
- d. No effective treatment is available.

ANS: B

16. Select the correct pair representing a malignant tumor and its marker:

- a. colon cancer: carcinoembryonic antigen (CEA)
- b. hepatic cancer: CA125, AFP
- c. prostate cancer: human chorionic gonadotropin (hCG)
- d. testicular cancer: Philadelphia chromosome

ANS: A

17. Antiangiogenesis drugs act on a malignant tumor by:

- a. promoting the immune response and removal of abnormal tumor cells.
- b. blocking hormonal stimulation of tumor cells.
- c. reducing blood flow and nutrient supply to tumor cells.
- d. transporting radioisotopes into the tumor.

ANS: C

18. The development of neutropenia during chemotherapy for cancer means:

- a. the cancer cells are being destroyed quickly.
- b. the patient is likely to hemorrhage.

-
- c. higher doses of chemotherapy could be tolerated by this patient.
 - d. the patient is at high risk for infection.
-

ANS: D

19. Malignant brain tumors:

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- a. metastasize quickly to all parts of the body.
 - b. spread first to lungs and bone.
 - c. spread to other parts of CNS.
 - d. do not metastasize anywhere at any time.
-

ANS: C

20. Identify the common dose-limiting factor for chemotherapy:

-
- a. Alopecia
 - b. Bone marrow depression
 - c. Nausea and vomiting
 - d. Weight loss
-

ANS: B

21. Glucocorticoids are often prescribed during a course of chemotherapy and radiation because:

-
- a. glucocorticoids greatly potentiate the effect of chemotherapy.
 - b. the immune system is stimulated.
 - c. skeletal muscle atrophy will be decreased.
 - d. inflammation around the tumor may be reduced.
-

ANS: D

22. Vomiting frequently follows a chemotherapy treatment because:

-
- a. the gastrointestinal tract is irritated.
 - b. the chemicals stimulate the emetic center.
 - c. the drugs have an unpleasant odor.
 - d. A and B
-

ANS: D

23. What type of normal cells are often damaged during chemotherapy and radiation treatments?

-
- a. Epithelial cells
 - b. Skeletal muscle cells
 - c. Nerve tissue
 - d. Collagen and fibrous tissue
-

ANS: A

24. Remission for cancer is generally defined as a period in which:

-
- a. chemotherapy cannot be used.
 - b. signs and symptoms are absent.
-