TEST BANK FOR

CELL INJURY

CAUTION: some of these questions are clinical cases with tough words to understand, the purpose of them is to find a keyword to solve the question, so don't worry if you couldn't understand them all.

1. The form of cellular adaptation in which cell size decreases due to a decrease in workload is:
   A) Atrophy
   B) Hypertrophy
   C) Hyperplasia
   D) Metaplasia
   E) Dysplasia

Answer: A

2. Cellular adaptation that occurs due to an increase in workload that results in an increase in the number of cells is:
   A) Atrophy
   B) Hypertrophy
   C) Hyperplasia
   D) Metaplasia
   E) Dysplasia

Answer: C

3. An example of hypertrophy would be:
   A) Liver regeneration after partial hepatectomy
   B) breast development at puberty
   C) the uterus during pregnancy
   D) the uterus during menstruation

Answer: C

4. A 52-year-old runner, notices a bunion (ورم) on her right and left big toe. What example of cellular adaptation is this:
   A) Physiological hyperplasia
   B) pathological hypertrophy
   C) physiological metaplasia
   D) none of above

Answer: B

5. Autophagy is associated with:
   A) Hypertrophy
   B) Hyperplasia
   C) Metaplasia
   D) Atrophy

Answer: D

6. A 75-year-old woman with Alzheimer disease dies of congestive heart failure. The brain at autopsy is shown in the image. This patient's brain exemplifies which of the following responses to chronic injury?

   A) Anaplasia
   B) Atrophy
   C) Dysplasia
   D) Hyperplasia
   E) Hypertrophy

Answer: B

7. A 52-year-old woman loses her right kidney following an auto mobile accident. A CT scan of the abdomen 2 years later shows marked enlargement of the left kidney. The renal enlargement is an example of which of the following adaptations?
   A) Atrophy
   B) Dysplasia
   C) Hyperplasia
   D) Hypertrophy
   E) Metaplasia

Answer: D

8. A 28-year-old woman is pinned by falling debris during a hurricane. An X-ray film of the leg reveals a compound fracture of the right tibia. The leg is immobilized in a cast for 6 weeks. When the cast is removed, the patient notices that her right leg is weak and visibly smaller in circumference than the left leg. Which of the following terms best describes this change in the patient's leg muscle?
   A) Atrophy
   B) Hyperplasia

C) Metaplasia
D) Ischemic necrosis
E) Irreversible cell injury

Answer: A

9. A 60-year-old man with chronic cystitis complains of urinary frequency and pelvic discomfort. Digital rectal examination is unremarkable. Biopsy of the bladder mucosa reveals foci (Refers to abnormal or unusual areas where glandular cells are found or proliferating) of glandular epithelium and chronic inflammatory cells. No cytologic signs of atypia or malignancy are observed. Which of the following terms best describes the morphologic response to chronic injury in this patient?
A) Atrophy
B) Dysplasia
C) Hyperplasia
D) Hypertrophy
E) Metaplasia

Answer: E

10. A 56-year-old woman with a history of hyperlipidemia and hypertension develops progressive, right renal artery stenosis(تضيق). Over time, this patient's right kidney is likely to demonstrate which of the following morphologic adaptations to partial ischemia?
A) Atrophy
B) Dysplasia
C) Hyperplasia
D) Hypertrophy
E) Neoplasia

Answer: A

11. A 5-year-old boy suffers blunt trauma to the leg in an automobile accident. Six months later, bone trabeculae have formed within the striated skeletal muscle at the site of tissue injury. This pathologic condition is an example of which of the following morphologic adaptations to injury?
A) Atrophy
B) Dysplasia
C) Metaplasia
D) Metastatic calcification

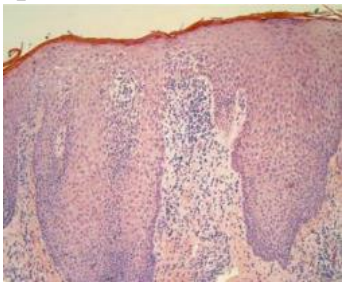
E) Dystrophic calcification

answer: C

12. A 59-year-old woman smoker complains of intermittent blood in her urine. Urinalysis confirms 4+ hematuria. A CBC reveals increased red cell mass (hematocrit). A CT scan demonstrates a 3-cm renal mass, and a CT-guided biopsy displays renal cell carcinoma. Which of the following cellular adaptations in the bone marrow best explains the increased hematocrit in this patient?
A) Atrophy
B) Dysplasia
C) Hyperplasia
D) Hypertrophy
E) Metaplasia

Answer: C

13. A 30-year-old woman presents with a 2-month history of fatigue, mild fever, and an erythematous scaling rash. She also notes joint pain and swelling, primarily involving the small bones of her fingers. Physical examination reveals erythematous plaques with adherent silvery scales that induce punctate bleeding points when removed. Biopsy of lesional skin reveals markedly increased thickness of the epidermis (shown in the image). Which of the following terms best describes this adaptation to chronic injury in this patient with psoriasis?
A) Atrophy
B) Dysplasia
C) Hyperplasia
D) Hypertrophy
E) Metaplasia



Answer: C

14. Atrophy in some cases can happen at the same time with which of the following:
A) Can happen with all types of cellular responses.
B) Hyperplasia
C) Apoptosis
D) Hypertrophy
E) Metaplasia

Answer: C

15. Which of the following is an example of accumulation due to an inherited enzyme deficiency?
    A) Silicosis
    B) Lysosomal storage diseases
    C) Anthracosis
    D) Steatosis
    E) Lipofuscin deposition

Answer: B

16. In chronic gastric reflux, the transformation of squamous epithelium to columnar epithelium is known as:

    A) Hyperplasia

    B) Atrophy

    C) Hypertrophy

    D) Metaplasia

    E) Dysplasia

Answer: D

17. Ischemia-reperfusion injury is directly associated with:
    A) Reactive oxygen species (ROS) formation
    B) Lactic acid buildup
    C) Hyperkalemia
    D) Decreased glycolysis
    E) Increased ATP production

Answer: A

18. A 56-year-old smoker presents with a chronic cough and increasing sputum production. A biopsy reveals bronchial epithelium with squamous metaplasia. Which of the following is true about this patient's condition?
    A) The process is irreversible.
    B) Squamous metaplasia is associated with an increased risk of infection.
    C) It is a physiologic change.
    D) This represents dysplasia, which is precancerous.
    E) The original cell type will be replaced by stratified cuboidal epithelium.

Answer: B

19. A 43-year-old male experiences mild burning substernal pain following meals for three years. A biopsy from the lower esophageal mucosa shows columnar epithelium with goblet cells but not squamous. Which of the following mucosal alterations is most likely present?
    A) Dysplasia
    B) Hyperplasia
    C) Carcinoma
    D) Ischemia
    E) Metaplasia

Answer: E

20. A 22-year-old pregnant female has missed her last two menstrual cycles. Which adaptive cellular response would most likely occur in her uterus during pregnancy?
    A) Hyperplasia
    B) Dysplasia
    C) Atrophy
    D) Hypertrophy
    E) More than one of the above

Answer: E

21. Which of the following is a distinguishing feature of irreversible cell injury?
    A) Cellular swelling with intact organelles
    B) Plasma membrane disruption and leakage of cellular contents
    C) Mitochondrial swelling without loss of function
    D) Nuclear chromatin clumping
    E) Increased cytoplasmic basophilia

Answer: B

22. A 72-year-old male presents with progressive difficulty in swallowing solids. Endoscopy reveals an esophageal tumor. Biopsy reveals malignant cells resembling intestinal epithelium. Which of the following adaptive processes most likely preceded this malignancy?
    A) Hypertrophy
    B) Atrophy
    C) Hyperplasia
    D) Metaplasia
    E) Dysplasia

Answer: D

23. Which of the following is a feature of reversible cell injury?
A) Mitochondrial swelling and rupture
B) Nuclear fragmentation
C) Plasma membrane blebbing
D) Disruption of lysosomal membranes
E) Release of intracellular enzymes into the bloodstream

Answer: C

24. A 58-year-old man presents with severe pain in his upper abdomen radiating to his back (acute pancreatitis). Lab tests show elevated serum lipase. Imaging shows diffuse pancreatic inflammation. Which of the following types of necrosis is most characteristic of this condition?
A) Coagulative necrosis
B) Liquefactive necrosis
C) Caseous necrosis
D) Fat necrosis
E) Fibrinoid necrosis

Answer: D

25. Which of the following is an example of intracellular accumulation due to an inherited enzyme deficiency?
A) Glycogen storage diseases
B) Anthracosis
C) Lipofuscin accumulation
D) Steatosis
C) Hemosiderosis

Answer: A

26. Which of the following is most commonly associated with cholesterol accumulation?
A) Melanosis
B) Nephrotic syndrome
C) Fatty liver disease
D) Atherosclerosis
E) Lipofuscin deposition

Answer: D

27. In the case of metastatic calcification, which condition is commonly involved?
A) Hyperparathyroidism
B) Tuberculosis

C) Atherosclerosis
D) Fat necrosis
E) Gout

Answer: A

28. Which pigment is considered endogenous and accumulates due to aging or past free radical injury?
A) Hemosiderin
B) Carbon
C) Lipofuscin
D) Bilirubin
E) Tattoo pigment

Answer: C

29. Dystrophic calcification is often associated with which of the following conditions?
A) Normal tissues
B) Hyperparathyroidism
C) Renal failure
D) Damaged heart valves
E) Hypervitaminosis D

Answer: D

30. In nephrotic syndrome, the most common intracellular accumulation observed in renal tubular cells is:
A) Protein reabsorption droplets
B) Lipid
C) Calcium
D) Glycogen
E) Hemosiderin

Answer: A

31. A 65-year-old woman has the sudden inability to move her right arm and to speak. MR angiography shows occlusion of a cerebral artery. She's given tissue plasminogen activator (tPA). Over the next week she regains some ability to move her arm and to speak which of the following cellular changes is most likely reversible upon TPA therapy?
A) Cell swelling
B) Nuclear karyorhexis
C) Cell fragmentation
D) Nuclear pyknosis

E) Membrane distrubtion

Answer: A

32. A cerebral angiogram reveals an occlusion to the left middle cerebral artery. 3 months later, a computed tomographic CT scan shows a large 5 centimeter cystic area in the parietal lobe cortex. This CT finding is most likely to go to consequence of resolution of from which of the following pathologic cellular events?
A) gangrenous necrosis
B) liquefactive necrosis
C) apoptosis
D) coagulative necrosis
E) atrophy
F) Caseous necrosis

Answer: B

33. One of the following does NOT apply to apoptosis:
A) Can be physiologic or pathologic
B) Intact cell membrane.
C) Intense acute inflammation
D) Programmed cell death
E) shrinkage of cells

Answer: C

34. One of the following is a cause of pathologic apoptosis:
A) Involution of endometrium after menopause
B) Embryogenesis
C) Elimination of self-reactive lymphocytes
D) Viral infections

Answer: D

35. Elimination of self-reactive lymphocytes by apoptosis is mediated by which of the following molecules:
A) Bax/Bak
B) Bcl2
C) Fas-Fas ligand interaction
D) BH3 sensors
E) p53

Answer: C

36. A 43 years-old male presents with mild burning substernal pain following meals for the past 3 years. Upper GI endoscopy is performed and biopsies are taken of an erythematous area of the lower esophageal mucosa 3 cm above the gastroesophageal junction. There is no mass lesion, no ulceration, and no hemorrhage noted. The biopsies show the presence of columnar epithelium with goblet cells. Which of the following mucosal alterations is most likely represented by these findings?
A) Dysplasia
B) Hyperplasia
C) Carcinoma
D) Ischemia
E) Metaplasia

Answer: E

37. A 22 year old recently wed female has missed her last two menstrual cycles . Her OB/GYN confirms her pregnancy. If we were to have a look at her uterus we would find which of the following adaptive cellular responses?
A) Hyperplasia
B) Dysplasia
C) Atrophy
D) Hyperthrophy
E) More than one of the above

Answer: E

38. A 56 year old female heavy smoker presents with chronic cough, but recently has noted increased sputum production. After a thorough history & physical examination bronchoscopy with biopsy is performed. The biopsy reveals bronchial epithelium with squamous metaplasia. Which of the following statements is applicable to these findings?
A) Physiologic process of aging
B) Irreversible, even if she stops smoking
C) Metastases to the lung
D) Risk for infection
E) Thromboembolism with infarction

Answer: D

Questions 36 and 37 are previously written but in a different way.

39. One of the following does not determine the cells response to different circumstances

A) Type of the cell.
B) Type of the stimulus.
C) Duration of the stimulus
D) Ability of the cell to withstand stress.
E) Whether the cell functions in fat metabolism or not.

Answer: E

40. The main mechanism of metaplasia is:

A) Growth factors stimulation.
B) Reprogramming of stem cells.
C) Receptor-ligand binding.
D) Hormonal level decrease.

Answer: B

41. Which of the following is incorrect:

A) The type of the cell plays an important role in determining how it responds to stress.
B) The main cause of endometrial hyperplasia is decreased levels of estrogen and increased levels of progesterone.
C) Nervous cells are much more sensitive to hypoxia than any other cell.
D) Cellular adaptation involves a change in size, phenotype, metabolic function and activity of the cell.
E) A mild stressful event will probably result in adaptation response.

Answer: B

42. The main challenge encountered by those with antitrypsin deficiency is linked to which of the following elements:

A) Enzymatic function.
B) Packaging and transport.
C) Protein metabolism.
D) Pigmentations.

Answer: B

43. One of the sentences listed below is incorrect.

A) Reactive oxygen species (ROS) influence cells by inducing lipid peroxidation, leading to membrane damage.
B) Catalase assists in the decomposition of hydrogen peroxide.
C) Certain drugs and chemical agents can lead to the generation of ROS.

D) ROS are generated physiologically in minimal quantities via redox reactions.
E) All of the above statements are True.

Answer: E

44. A 65-year-old male was admitted to the hospital with a myocardial infarction. He received anti-thrombotic therapy, which led to an improvement in his condition. However, several hours later, laboratory tests indicated an increase in specific kinase levels. Which of the following options best explains this occurrence? (creatine kinase is an enzyme that is found in the heart and if levels are elevated in serum, a MI can be detected - just like what we took in biochemistry)
A) Inflammatory response
B) Reperfusion injury
C) Reactive oxygen species (ROS) injury
D) Increased synthesis of creatine kinase
E) Activation of the complement system

Answer: B

45. Only one of the following statements holds true:
A) Cell injury serves as an adaptive mechanism for the cell to maintain its functionality.
B) Irreversible cell injury leads to the clumping of chromatin.
C) The primary trigger for the inflammatory response in cases of irreversible cell injury is the recruitment of neutrophils following the release of cellular contents.
D) Reversible cell injury is associated with karyorrhexis or pyknosis.
E) All of the aforementioned statements are false.

Answer: C

46. The release of cytochrome C into the cytosol is essential for the following processes:
A) Necrosis
B) Phagocytosis
C) Apoptosis
D) Lipid peroxidation
E) Metaplasia.

Answer: C

47. Among the following options, the tissue most vulnerable to ischemia is:
A) Skeletal muscle
B) Neurons
C) Meningeal cells

D) Renal tubules.

Answer: B

48. A 20-year-old male is involved in a motor vehicle accident. The left femoral artery is lacerated resulting in extensive blood loss. He is hypotensive for hours during transport to the ER. Which of the following tissues is most likely to withstand the impact of these events with the least damage?
A) Intestinal epithelium
B) Skeletal muscle
C) Retina
D) Cerebral cortex
E) Renal tubules

Answer: B

49. A 50-year-old female suffers an acute myocardial infarction. Thrombolytic agents are used to restore coronary blood flow. In spite of this therapy, the degree of myocardial fiber injury may increase because of which of the following cellular abnormalities?
A) Increased production of ATP
B) Decreased intracellular pH from anaerobic glycolysis
C) Increased free radical formation
D) Mitochondrial swelling
E) Decreased phospholipid peroxidation

Answer: C

50. In an experiment, cells are subjected to oxidant stress. There are increased numbers of free radicals generated within the cells. Generation of which of the following enzymes within these cells is the most likely protective mechanism to reduce the number of free radicals?
A) Phospholipase
B) Endonuclease
C) Glutathione peroxidase
D) Myeloperoxidase
E) Cytochrome p450.

Answer: C

51. A cellular mutation results in a protein that does not fold properly. The misfolded protein remains within the cell and is not excreted. Activation of which of the following cytoplasmic enzymes is most likely to occur?

A) NADPH oxidase
B) Glutathione peroxidase
C) Ribonuclease
D) Caspase
E) Telomerase

Answer: D

THE END

DONE BY: Some member of DST

References used:

1. Robbins Basic Pathology (10th)
2. Pathoma
3. The help of Ai
4. DR. Manar activities of 2022
5. DR. Manar in-slide questions.
6. المخيلة

Link for the quiz: click here