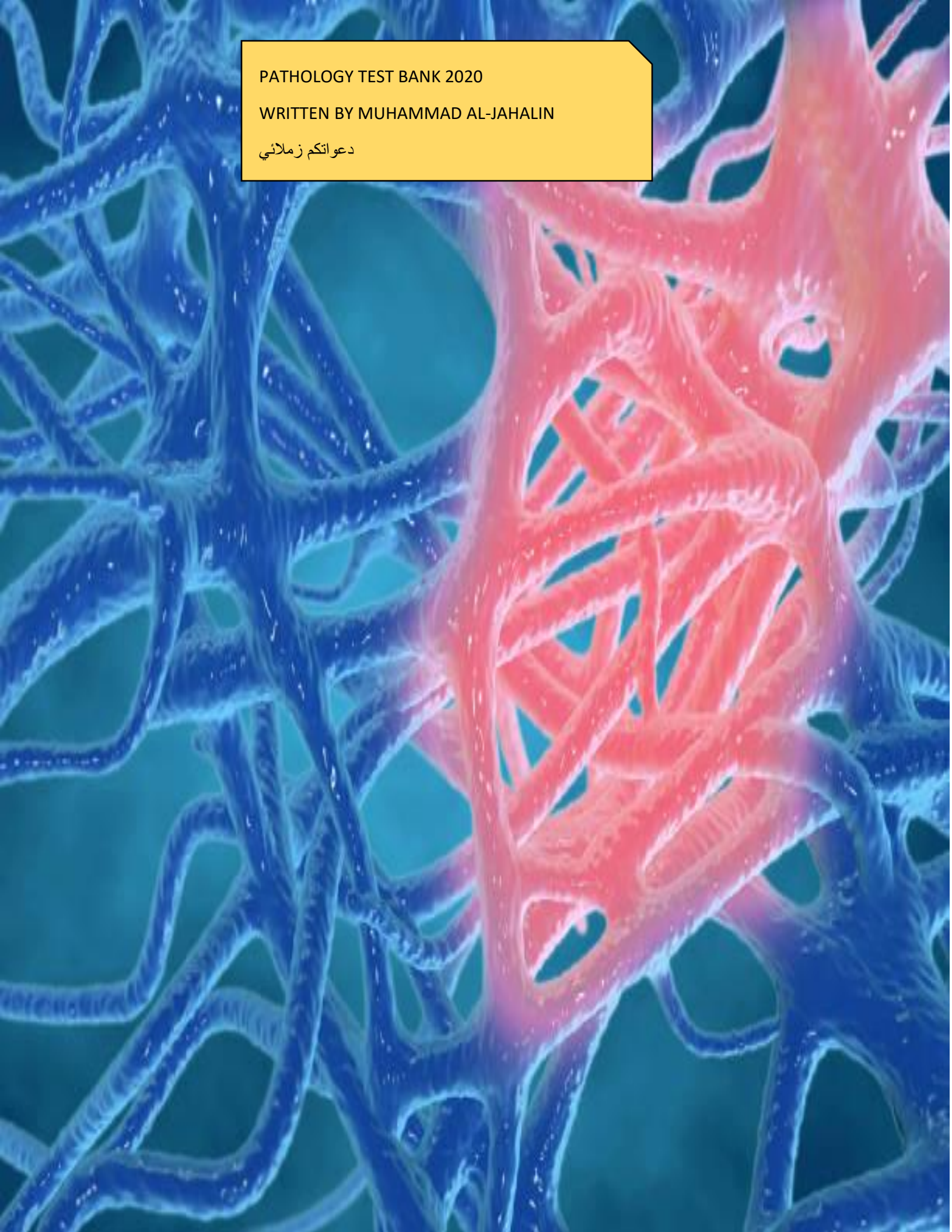
PATHOLOGY TEST BANK 2020
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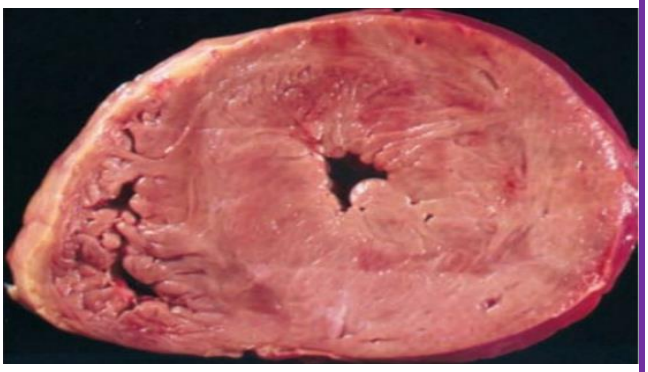
دعواتكم زملائي

1. The illustration shows a section of the heart from a 45-year-old African-American man with long-standing hypertension who died of a “stroke.” Which of the following adaptive changes is exemplified in the illustration?



(A) Aplasia

(B) Atrophy

(C) Hyperplasia

(D) Hypertrophy

(E) Hypoplasia

Answer D

2. An impending myocardial infarction was successfully averted by thrombolytic(clot-dissolving) therapy in a 55 year-old man. Which of the following biochemical events most likely occurred during the period of hypoxia?

(A) Decreased hydrogen ion concentration

(B) Increase in oxidative phosphorylation

(C) Loss of intracellular Na+ and water

(D) Stimulation of ATP synthesis

(E) Stimulation of anaerobic glycolysis and glycogenolysis

Answer E

3. A 45-year-old man with a long history of alcoholism presents with severe epigastric pain, nausea, vomiting, fever, and an increase in serum amylase. During a previous hospitalization for a similar episode, computed tomography scanning demonstrated calcifications in the pancreas. A diagnosis of acute pancreatitis superimposed on chronic pancreatitis was made. In this condition, which of the following types of necrosis is most characteristic?

(A) Caseous

(B) Coagulative

(C) Fat

(D) Fibrinoid

(E) Liquefactive

Answer C

4. A 29-year-old man hospitalized for acquired immunodeficiency syndrome (AIDS) is found to have pulmonary tuberculosis. Which type of necrosis is found in the granulomatous lesions (clusters of modified macrophages) characteristic of this increasingly frequent complication of AIDS?

(A) Caseous

(B) Coagulative

(D) Fibrinoid

(E) Liquefactive

Answer A

5. A 45-year-old woman is investigated for hypertension and is found to have enlargement of the left kidney. The right kidney is smaller than normal. Contrast studies reveal stenosis of the right renal artery. The size change in the right kidney is an example of which of the following adaptive changes?

(A) Aplasia

(B) Atrophy

(C) Hyperplasia

(D) Hypertrophy

(E) Metaplasia

Answer B

6. A 56-year-old man recovered from a myocardial infarction after his myocardium was entirely “saved” by immediate thrombolytic therapy. If it had been possible to examine microscopic sections of his heart during his ischemic episode, which of the following would be the most likely cellular change to be found?

(A) Karyolysis

(B) Karyorrhexis

(C) Pyknosis

(D) Swelling of the endoplasmic reticulum

Answer D

7.A 64-year-old woman presents with fever, chills, headache, neck stiffness, vomiting, and confusion. The Kernig sign (passive knee extension eliciting neck pain) and Brudzinski sign (passive neck flexion eliciting bilateral hip flexion) are both positive. Examination of the cerebrospinal fluid reveals changes consistent with bacterial meningitis, and brain imaging demonstrates a localized abscess. Which of the following types of necrosis is most characteristic of abscess formation?

(A) Caseous

(B) Coagulative

(C) Fibrinoid

(D) Liquefactive

Answer D

8. A 56-year-old man dies 24 hours after the onset of substernal chest pain radiating down his left arm to the ulnar aspect of his fingertips. Which of the following morphologic myocardial findings is an indicator of irreversible injury?

(A) Cell blebs

(B) Depletion of glycogen

(C) Mitochondrial swelling

(D) Myelin figures

(E) Pyknotic nuclei

Answer E

9. 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?

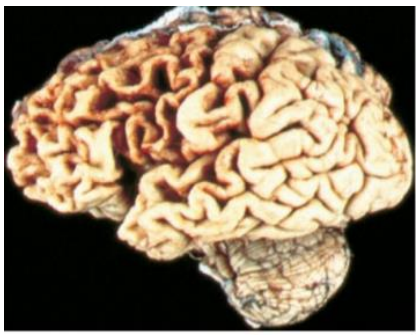
A. anaplasia

B. atrophy

C. dysplasia

D. hyperplasia

E. hypertrophy



Answer B

10) A 53-year-old man comes to the emergency department due to a few weeks of severe heartburn and difficulty swallowing He has had mild to moderate heartburn for several years and has tried weight loss elevating the head of the bed while sleeping, and several months of proton pump inhibitor therapy. Other medical problems include hypertension and hypothyroidism Temperature is 36 7 C (98 1 F) blood pressure is 130:80 mm Hg pulse is 78/min and respirations are 16/min BMI is 25 kg/m2: Physical examination is unremarkable An upper gastrointestinal endoscopy is performed and esophageal biopsy shows columnar epithelium with interspersed goblet cells A similar adaptive response can be seen in which of the following scenarios')

A) Bronchial epithelial cells in a chronic cigarette smoker

B) Epidermal cells in a patient with psoriasis

C) Melanocytes in a large irregular mole

D) Myocardial cells in a patient with aortic stenosis

E) Skeletal myocytes after prolonged immobility

Answer : A

11) A 61-year-old man comes to the emergency department due to fever. chills and a productive cough with thick blood-tinged sputum for the past several days His temperature is 38 8 C (102 F). blood pressure is 90/60 mm Hg and pulse is 110 min On examination. the patient is lethargic and ill appearing Bronchial breath sounds and crackles are present in the right lung Blood and sputum cultures grow Klebsiella pneumonia It is determined that the bacteria express a lipopolysaccride on their outer membrane surface that stimulates toll-like receptors in the inflammatory cells This in turn leads to degradation of the IkB inhibitor protein. which normally binds to a latent transcription factor found in the cytoplasm Which of the following factors is most likely to be directly activated by the removal of this inhibitor protein?

A. Granulocyte colony-stimulating factor

B. Janus kinase 2

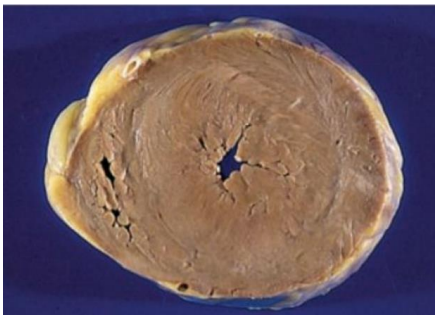
C. Nuclear factor-kappa B

D. Transforming growth factor-a

E. Tumor necrosis factor-a

DON’T DO IT Answer c

12. A 64-year-old man with long-standing angina pectoris and arterial hypertension dies of spontaneous intracerebral hemorrhage. At autopsy, the heart appears globoid. The left ventricle measures 2.8 cm on cross section (shown in the image). This adaptation to chronic injury was mediated primarily by changes in the intracellular concentration of which of the following components?



(A) DNA

(B) Glycogen

(C) Lipid

(D) mRNA

(E) Water

HYPERTROPHY + PROTEIN SYNTHESIS Answer D

13. A 30-year-old man with AIDS-dementia complex develops acute pneumonia and dies of respiratory insufficiency. At autopsy, many central nervous system neurons display hydropic degeneration. This manifestation of sublethal neuronal injury was most likely mediated by impairment of which of the following cellular processes?

(A) DNA synthesis

(B) Lipid peroxidation

(C) Mitotic spindle assembly

(D) Plasma membrane sodium transport

(E) Ribosome biosynthesis

Answer D

14)An investigator is studying the mechanism of bone healing in experimentally induced fractures in an animal model Decalcified sections of bone at various stages of healing are examined An electron micrograph of the bone is shown The image shows two different cells located within one particular slice of the bone Which of the following best describes the cell identified by the arrow in this image?

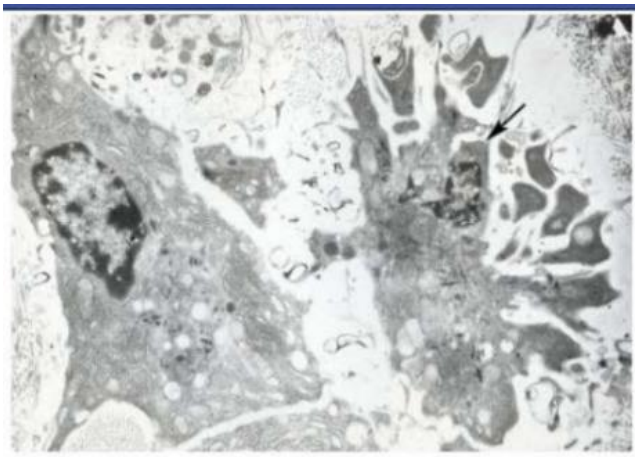
A. Apoptotic cell

B. Bone-lining macrophage

C. Dividing osteoblast

D. Necrotic cell

E. Typical osteoblast



Answer A

15) A 37-year-old man comes to the physician for a follow-up visit for management of non-Hodgkin lymphoma. follicular type The lymphoma cells do not appear to be actively dividing however the number of malignant cells continues to increase Overexpression of which of the following best accounts for the inhibited apoptosis of these abnormal cells?

A. bcl-2

B. Caspases

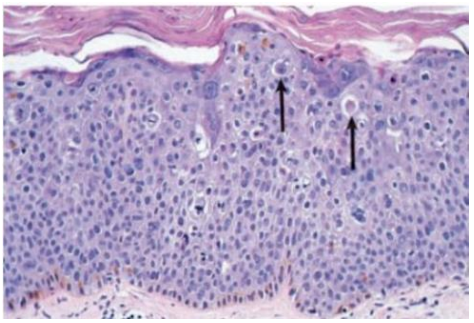
C. Fas

D. Perforin

E. p53

Answer A

16)A 43-year-old man presents with a scaly, erythematous lesion on the dorsal surface of his left hand. A skin biopsy reveals atypical keratinocytes filling the entire thickness of the epider-mis (shown in the image). The arrows point to apoptotic bod-ies. Which of the following proteins plays the most important role in mediating programmed cell death in this patient's skin cancer?



(A) Catalase

(B) Cytochromc c

(C) Cytokeratins

(D) Myeloperoxidase

(E) Superoxide dismutase

Answer B

17.A 40-year-old man is pulled from the ocean after a boating accident and resuscitated. Six hours later, the patient develops acute renal failure. Kidney biopsy reveals evidence of karyorrhexis and karyolysis in renal tubular epithelial cells. Which of the following biochemical events preceded these pathologic changes?

(A) Activation of Na+/k+ ATPase

(B) Decrease in intracellular calcium

(C) Decrease in intracellular pH

(D) Increase in ATP production

(E) Increase in intracellular pH

Answer C

18.An 11-year-old girl becomes infected with hepatitis A and experiences mild nausea for 1 week. On physical examination, she has minimal right upper quadrant tenderness and scleral icterus. Laboratory findings include a serum AST of 68 U/L, ALT of 75 U/L, and total bilirubin of 5.1 mg/dL. Her laboratory findings most likely result from which of the following changes in her hepatocytes? (basically leakage of AST and ALT)

A. Cell membrane defects

B. Lysosomal autophagy

C. Mitochondrial swelling

D. Nuclear chromatin clumping

E. Ribosomal dispersion

Answer A

19.A 33-year-old woman has had increasing lethargy and decreased urine output for the past week. Laboratory studies show her serum creatinine is 4.3 mg/dL and urea nitrogen 40 mg/dL. A renal biopsy is performed, and the specimen is examined using electron microscopy. Which of the following morphologic cellular changes most likely suggests a diagnosis of acute tubular necrosis?

A. Chromatin clumping

B. Mitochondrial swelling

C. Nuclear fragmentation

D. Plasma membrane blebs

E. Ribosomal disaggregation

Answer C

20.An experimental drug administered to a tissue preparation is found to inhibit cellular oxidative phosphorylation when given in high doses, and ATP production drops to 5% of normal. Cell membrane function is diminished. Which of the following substances is most likely to be present at increased concentration in culture fluid bathing the tissue?

A. Calcium

B. Glucose

C. Ketones

D. Potassium

E. Sodium

Answer D

21.A 47-year-old woman has poorly controlled diabetes mellitus and develops coronary artery disease. She now has decreasing cardiac output with blood pressure of 80/40 mm Hg and ejection fraction of 18%. An increase in which of the following substances in her blood is most indicative of reversible cell injury from decreased systemic arterial perfusion of multiple organs and tissues?

A. Carbon dioxide

B. Creatinine

C. Glucose

D. Lactic acid

E. Troponin

Answer A

22.A tissue preparation is experimentally subjected to a hypoxic environment. The cells in this tissue begin to swell, and chromatin begins to clump in cell nuclei. ATPases are activated, and ATP production decreases. Which of the following ions accumulating in mitochondria and the cytosol contributes most to these findings and to eventual cell death?

A. Ca^{2+}

B. Cl^{-}

C. HCO_3^-

D. K^+

E. Na^+

F. PO_4^{3-}

Answer A

23. In an experiment, a large amount of a drug is administered to experimental organisms and is converted by cytochrome P-450 to a toxic metabolite. Accumulation of this metabolite leads to increased intracellular lipid peroxidation. Depletion of which of the following intracellular substances within the cytosol exacerbates this form of cellular injury by this mechanism?

A. ADP

B. Glutathione

C. NADPH oxidase

D. Nitric oxide synthase

E. mRNA

F. Sodium

Answer B

24. In an experiment, metabolically active cells are subjected to radiant energy in the form of x-rays. This results in cell injury caused by hydrolysis of water. Which of the following intracellular enzymes helps to protect the cells from this type of injury?

A. Endonuclease

B. Glutathione peroxidase

C. Lactate dehydrogenase

D. Phospholipase

E. Protease

Answer B

25. A 5-year-old child ingests 50 iron tablets, each with 27 mg of iron. Within 6 hours the child develops abdominal pain and lethargy. On physical examination he is hypotensive. Laboratory studies show metabolic acidosis. Through formation of which of the following compounds is the cell injury in this child most likely mediated?

A. Ascorbic acid

B. Hemosiderin

C. Hydroxyl radical

D. Nitric oxide

E. Superoxide dismutase

Answer C

oxidative stress

26. A 54-year-old man experienced severe substernal chest pain for 3 hours. An ECG showed changes consistent with an acute myocardial infarction. After thrombolytic therapy with tissue plasminogen activator (t-PA), his serum creatine kinase (CK) level increased. Which of the following tissue events most likely occurred in the myocardium after t-PA therapy?

A. Cellular regeneration

B. Drug toxicity

C. Increased synthesis of CK

D. Myofiber atrophy

E. Reperfusion injury

Answer E

27. An experiment introduces a knockout gene mutation into a cell line. The frequency of shrunken cells with chromatin clumping, karyorrhexis, and cytoplasmic blebbing is increased compared with a cell line without the mutation. Overall survival of the mutant cell line is reduced. Which of the following genes is most likely to be affected by this mutation?

A. BAX

B. BCL2

C. C-MYC

D. FAS

E. p53

Answer B

A 46-year-old man has noted increasing abdominal size for the past 6 years. On physical examination his liver span is increased to 18 cm. An abdominal CT scan shows an enlarged liver with diffusely decreased attenuation. Laboratory findings include increased total serum cholesterol and triglyceride levels, increased prothrombin time, and a decreased serum albumin concentration. The representative microscopic appearance of his liver is shown in the figure.

29. Which of the following activities most likely led to these findings?

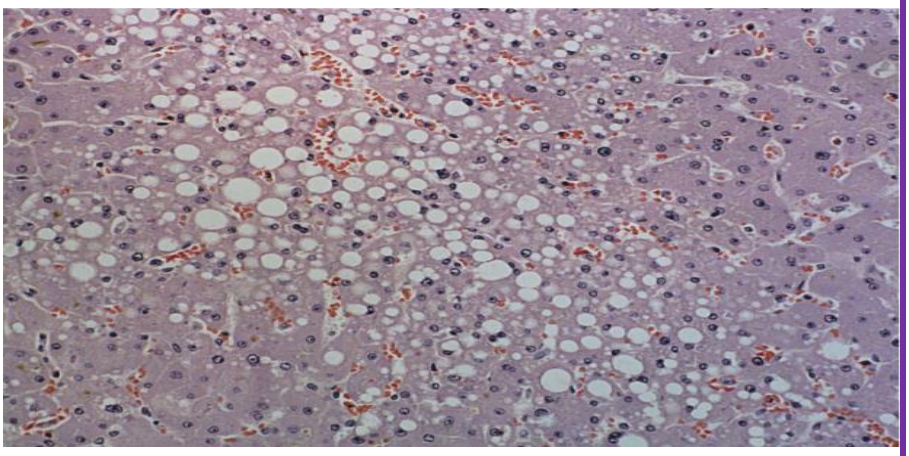
A. Drinking beer

B. Ingesting aspirin

C. Injecting heroin

D. Playing basketball

E. Smoking cigarettes



Answer A

30. At autopsy, the heart of a 63-year-old man weighs only 250 g (normal 330 g) and has small right and left ventricles. The myocardium is firm, with a dark chocolate-brown color throughout. The coronary arteries show minimal atherosclerotic changes. An excessive amount of which of the following substances, shown in the figure, would most likely be found in the myocardial fibers of this heart?

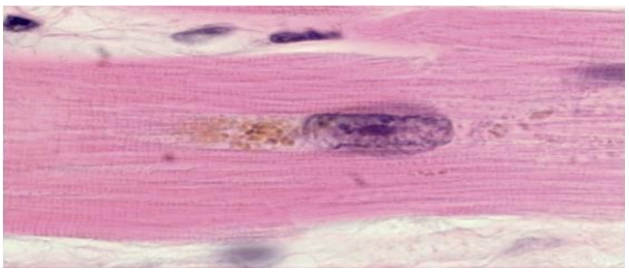
A. Bilirubin

B. Glycogen

C. Hemosiderin

D. Lipofuscin

E. Melanin



Answer D

31.An experiment analyzes cells for enzyme activity associated with sustained cellular proliferation. Which of the following cells is most likely to have the highest telomerase activity?

A. Endothelial cells

B. Erythrocytes

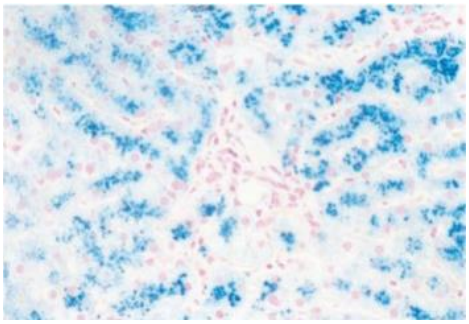
C. Germ cells

D. Neurons

E. Neutrophils

Answer C

32.A 45-year-old man presents with increasing abdominal girth and yellow discoloration of his skin and sclera. Physical examination reveals hepatomegaly and jaundice. A Prussian blue stain of a liver biopsy is shown in the image. What is the major intracellular iron storage protein in this patient's hepatocytes?



(A) Bilirubin

(B) Haptoglobin

(C) Hemoglobin

(D) Hemosiderin

(E) Transferrin

Answer D

33.A 45-year-old woman has had worsening dyspnea for the past 5 years. A chest CT scan shows panlobular emphysema. Laboratory studies show a deficiency of α1-antitrypsin (AAT). Her AAT genotype is PiZZ. A liver biopsy specimen examined microscopically shows abundant PAS-positive globules within periportal hepatocytes. Which of the following molecular mechanisms is most likely responsible for this finding in her hepatocytes? (it's a unexpected question in the exam)

A. Decreased catabolism of AAT in lysosomes

B. Excessive hepatic synthesis of AAT

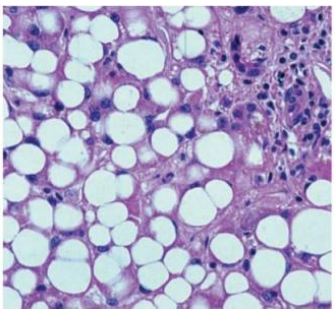
C. Impaired dissociation of AAT from chaperones

D. Inability to metabolize AAT in Kupffer cells

E. Retained misfolded AAT in endoplasmic reticulum

Answer E

34.The illustration is from a liver biopsy of a 34-year-old woman with a long history of alcoholism. Which of the following is the best explanation for the changes shown here?



(A) Accumulation of triglycerides within hepatocytes

(B) Apoptosis with replacement of damaged cells by lipid-laden macrophages

(C) Bilirubin accumulation with mobilization of fat by bile salts

(D) Enzymatic fat necrosis with digestion of liver parenchyma by released enzymes

(E) Irreversible damage to mitochondria

Answer A

35.A 45-year-old man is referred because of a recent diagnosis of hereditary hemochromatosis. Which of the following is a correct statement about this disorder?

(A) Damage to organs results from abnormal deposition of lead

(B) It can cause skin pigmentation

(C) Most cases are due to spontaneous mutations

(D) Skin hyperpigmentation is due to bilirubin accumulation

(E) The TIBC is characteristically increased

Answer D

36.A 60-year-old woman with breast cancer and widespread bony metastases is found to have calcification of multiple organs. The calcifications are best described as

(A) dystrophic with decreased serum calcium.

(B) dystrophic with increased serum calcium.

(C) metastatic with decreased serum calcium.

(D) metastatic with increased serum Calcium.

Answer D

37.A 69-year-old woman has had a chronic cough for the past year. A chest radiograph shows a 6-cm mass in the left lung. A needle biopsy specimen of the mass shows carcinoma. A pneumonectomy is performed, and examination of the hilar lymph nodes reveals a uniform, dark black cut surface. Which of the following factors most likely accounts for the appearance of these lymph nodes?

A. Aging effects

B. Bleeding disorder

C. Cigarette smoking

D. Liver failure

E. Multiple metastases

Answer C

Remember cigarettes have carbon -> exogenous substance

38.A 22-year-old woman from Albania has a congenital anemia requiring multiple transfusions of RBCs for many years. On physical examination, her skin has a bronze color. Liver function tests show reduced serum albumin. Which of the following findings would most likely appear in a liver biopsy specimen?

A. Amyloid in portal triads

B. Bilirubin in canaliculi

C. Glycogen in hepatocytes

D. Hemosiderin in hepatocytes

E. Steatosis in hepatocytes

Answer D

Remember the liver is involved in iron metabolism

39. A 72-year-old man died suddenly from congestive heart failure. At autopsy, his heart weighed 580 g (normal 330 g) and showed marked left ventricular hypertrophy and minimal coronary arterial atherosclerosis. A serum chemistry panel ordered before death showed no abnormalities. Which of the following pathologic processes best accounts for the appearance of the aortic valve seen in the figure?

A. Amyloidosis

B. Dystrophic calcification

C. Hemosiderosis

D. Hyaline change

E. Lipofuscin deposition

Answer **B**

40.A 70-year-old man with hypercalcemia died suddenly. At autopsy, microscopic examination showed noncrystalline amorphous deposits of calcium salts in gastric mucosa, renal interstitium, and alveolar walls of lungs. Which of the following underlying conditions would most likely explain these findings?

A. Chronic active hepatitis

B. Diffuse parathyroid hyperplasia

C. Disseminated tuberculosis

D. Generalized atherosclerosis

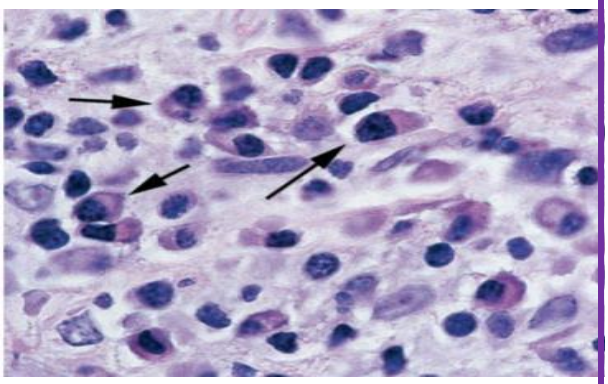
E. Normal aging process

F. Pulmonary emphysema

Answer B

41. A 41-year-old woman complains of excessive menstrual bleeding and pelvic pain of 4 months. She uses an intrauterine device for contraception. Endometrial biopsy (shown in the image) reveals an excess of plasma cells (arrows) and macrophages within the stroma. The presence of these cells and scattered lymphoid follicles within the endometrial stroma is evidence of which of the following conditions?

لاحظ انه رقم السؤال صدفة نفس عمر المريضة



(A) Acute inflammation

(B) Chronic inflammation

(C) Granulation tissue

(D) Granulomatous inflammation

(E) Menstruation

Answer B

42.A 68-year-old coal miner with a history of smoking and emphysema develops severe airflow obstruction and expires. Autopsy reveals a “black lung,” with coal-dust nodules scattered throughout the parenchyma and a central area of dense fibrosis. The coal dust entrapped within this miner’s lung was sequestered primarily by which of the following cells?

(A) Endothelial cells

(B) Fibroblasts

(C) Lymphocytes

(D) Macrophages

(E) Plasma cells

Answer D

43- A biopsy was taken from a patient and it was not cancer. Instead, they found out that it was chronic inflammation, what did they see?

a-Fibrosis, macrophages, lymphocytes, plasma cells

b-Neutrophils and macrophages

c-Eosinophils

d-Histamine and Heparin

answer A

44- In chronic gastric reflux, squamous epithelium may transform into columnar epithelium in a process called:

a-Hyperplasia

b-Atrophy

c-Hypertrophy

d-Metaplasia

answer D

45-Brain ischemia is characterized by:

a-Coagulative necrosis

b-Caseous necrosis

c-Liquefactive necrosis

d-Fibroid necrosis

answer C

46. A hunter is present with skin rash after direct contact with mushroom. Tests show that no microorganisms are involved but show also a huge number of IgE and mast cells. What is the right diagnosis ?

a-Parasitic infection

b-Bacterial infection

c-Autoimmune disease

d-Acute allergic reaction

Answer D

47..-IL-17 is mainly responsible for:

a-Neutrophil recruitment

b-Macrophage maturation

c-T cells maturation

d-Eosinophil recruitment

answer A

ALSO MONOCYTES

48.-A patient is present with myocardial damage caused by necrosis. Which of the following can be seen?

a-Intact cell membrane

b-Karyolysis

c-Apoptotic bodies

d-Shrinkage of cells

answer B

49. A specimen shows granuloma with caseous necrosis, which of the following is correct?

a-It is an acute inflammation

b-Using acid-fast stain most likely won't do anything

c-You should think about tuberculosis

d-It is probably of unknown etiology

answer C

50.-Which of the following is true regarding toll like receptors?

a-They circulate in the blood

b-Collectins are examples

c-They are essential for chemotaxis

d-They recognize PAMPs

Answer D

51. -Which of the following is true regarding inflammation?

a-It is essential for body survival

b-Strong inflammatory responses are always good

c-Non-vascularised tissues can get inflamed

d-There is no repair step in inflammation

Answer A

52. -Opsonization is best described as:

a-Recognizing the pathogen

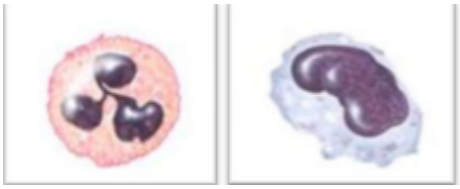
b-Coating the microbe to enhance phagocytosis

c-Following a specific chemical gradient

d-Activation of the complement system

answer B

53. -Which of the following statements is true regarding these pictures?



a-The cell on the left is a monocyte

b-The cell on the left has half-life of 1-2 days

c-The cell on the right is a neutrophil

d-Both cells have the same half-life

answer B

54.-Which of the following statements is true regarding steroids?

a-They are a potent inhibitor of phospholipases

b-They are inhibitors of COX-1

c-They induce immunity

d-They are considered as pro-inflammatory drugs

Answer A

55.-Which of the following pigments is found in sites of bruises?

a-Carbon

b-Lipofuscin

c-Hemosiderin

d-Melanin

answer C

56. -Which of the following is true regarding M2 pathway?

a-It is also called the classical pathway

b-It is activated by the presence of microbes

c-It stops inflammation and promotes repair

d-Macrophages start producing IL-1 and chemokines

answer C

57. -Which of the following enzymes are activated by apoptosis intrinsic pathway caused by accumulation of misfolded proteins?

a-endonucleases

b-Lipases

c-Caspases

d-Proteases

answer C

58.- Which of the following is an example of physiologic hypertrophy?

a-Compensation after the removal of part of the liver

b-Cardiac enlargement in aortic valve disease

c-The change of columnar epithelium in cigarette smokers

d-Myometrium during pregnancy

answer D

59. -The breast during lactation undergoes:

a-Hyperplasia

b-Atrophy

c-Hypertrophy

d-Metaplasia

Answer A

60. -48 year old tumor patient was given chemotherapeutic drugs to kill malignant cells. These cells are affected through:

a-Necrosis

b-Apoptosis

c-Hypertrophy

d-They are not affected

answer B

61. -Which of the following conditions is most likely to be found in alcoholic patients?

a-Lipofuscin accumulation

b-Cholesterol esters accumulation

c- steatosis

d-Dystrophic calcification

answer C

62. - Which of the following enzymes reduce oxidative stress?

a-Nitric oxide synthase

b-Glutathione peroxidase

c-myeloperoxidase

d-Proteases

answer B

63. -Ischemia reperfusion injury is directly linked to:

a-Protein misfolding

b-Generation of ROS

c-Toxins

d-Necrosis

Answer B

64. -Which of the following is considered an anaphylatoxin ?

a-C5A

b-C3B

c-IgG

d-NO

answer A

65. -A liver biopsy showed that a patient has a noncaseating granuloma. Which of the following disease can cause this condition?

a-Tuberculosis

b-Sarcoidosis

c-Syphilis

d-Asthma

answer B

57.-TNF is a:

a-Cytokine

b-Chemokine

c-Lipid

d-Complement protein

Answer A

58. -Which of the following cells and molecules are involved in asthma?

a-IgE and eosinophils

b-Cytokines

c-Macrophages and neutrophils

d-Complement proteins

answer A

59-Which of the following is true regarding chemokines ?

a-C3A is an example

b-Factor H is an inhibitor for them

c-They are involved in opsonization

d-They have G-protein coupled receptors

answer D

60.-Which of the following molecules is anti-apoptotic ?

a-Bax

b-P53

c-BCl-2

d-Bak

answer c

61-Stasis and Ethyrema are caused by:

a-Leukocytes

b-Expression of selectins

c-PMN accumulation

d-Histamine as a vasodilator

answer D

62- A patient is present with a red and swollen appendix and had to undergo appendectomy. No considerable amount of lymphocytes is found. Which of the following is correct?

a-It is a chronic appendicitis

b-Transudate fluid is found

c-It is a purulent suppurative inflammation

d-None of the above is correct

answer C

63-Which of the following are pain mediators?

a-Chemokines

b-Prostaglandins and bradykinin

c-Histamine

d-Platelet-activating factor

answer B

64-Weak adhesion to the endothelium is mediated by:

a-LFA-1

b-Integrins

c-P and E selectins

d-PECAM-1

answer C

65-Which of the following is eliminated through extrinsic pathway of apoptosis?

a-Cells with many DNA mutations

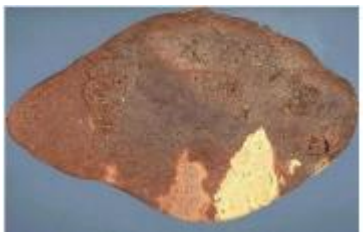
b-Accumulation of misfolded proteins

c-Self reacting lymphocytes

d-Cells with oxidative stress

Answer C

66- Which of the following us true regarding this picture?



a-It is the same mode of necrosis as in brain infarction

b-The underlying tissue architecture is preserved

c-It can be seen in focal bacterial infection

d-It can be seen in tuberculosis

answer B

67- Which of the following is true regarding Nitric Oxide?

a-Acts as a vasoconstrictor

b-Produced without the need of enzymes

c-A soluble gas derived from arginine

d-Its concentration is always constant

answer C

68-What type of necrosis can be seen in this picture?

a-Gangrenous necrosis

b-Fibrinoid necrosis

c-Fat necrosis

d-Caseous necrosis

Answer A

69- Acute phase proteins are best described as:

a-Their levels are used to diagnose prolonged chronic inflammation

b-C-reactive protein is the only example

c-Specific indicators of certain diseases

d-Non-specific indicator of acute inflammation

answer D

70-Which of the following is typical for apoptosis ?

a-Disrupted plasma membrane

b-Absence of inflammation

c-Pyknosis and karyorrhexis

d-Leakage of cell components

answer B

71- What causes effusion of fluids in the first stages of vascular phase?

a-Endothelial imjury

b-Leukocytes recruitment

c-Retraction of endothelium via mediators

d-Margination

answer C

72-Caseous necrosis is most likely found in:

a-Peritoneal cavity

b-Tuberculosis

c-Myocardial infarction

d-Pancreatic tissue

answer B

73- Which of the following is a direct result of ROS damage?

a-Failure of ATP synthesis

b-Lactic acidosis

c-Detachment of ribosomes from ER

d-Lipid peroxidation

answer D

74) In the cellular phase of inflammatory response, the later strong adhesion of leukocytes to endothelium is mediated by:

a. Integrin (ICAM-1)

b. CD31 (PECAM-1)

c. P and E Selectins

d. Interleukins and Tumor necrosis factor (ILs and TNF)

e. Alpha and Beta Chemokines

answer A

75) Restoration of blood flow following myocardial infarction may impose more tissue injury sometimes, the main mechanism directly responsible for this paradoxical effect is:

a. Decreased ATP production.

b. Increased reactive oxygen species formation.

c. Accumulation of misfolded proteins.

d. Hypoxia.

e. Decreased PH.

Answer B

76) The strong anti-inflammatory action of steroids is mediated by:

a. Stimulation of histamine production

b. Stimulation of lipoxygenase enzyme

c. Inhibition of cyclooxygenase-1 (Cox-1)

d. Inhibition of phagocytosis

e. Inhibition of phospholipase leading to decreased production of leukotrienes and prostaglandins

answer E

77) A tissue biopsy from the colon for one of your patients who suffered from diarrhea was taken. The pathologist calls you and is worried about a parasitic infestation. The most likely inflammatory cellular infiltrate that he observed would be:

a. Lymphocytes

b. Plasma cells

c. Eosinophils

d. Macrophages

e. Eosinophils, fibroblasts and tissue macrophages.

Answer C

78) In intracellular accumulations, one of the following is an example of accumulation due to inherited enzyme deficiency:

a. Silicosis.

b. Lysosomal storage diseases.

c. Anthracosis.

d. Steatosis.

e. Alpha 1 antitrypsin deficiency.

Answer B

79) The process of coating microbes to enhance their phagocytosis is defined as:

a. Apoptosis

b. Opsonization

c. Diapedesis

d. Effective phagocytosis

e. Transmigration

answer B

80) After sun exposure, a fair skinned patient noted a brownish discoloration over the skin of her face and dorsum of hands. Which of the following substances most likely accumulated at these sites?

a. Melanin pigment.

b. Hemosiderin pigment.

c. Lipofuscin pigment.

d. Bilirubin pigment.

e. Glycogen pigment.

Answer A

81) ONE of the following changes is associated with cellular hypertrophy:

a. Autophagy

b. Decreased function.

c. Protein degradation,

d. Decreased protein synthesis.

e. Increased protein synthesis.

Answer E

82) Which of the following is a typical example of adaptive physiological atrophy?

a. Left ventricular changes in hypertension.

b. Endometrial changes after menopause.

c. Breast lobules changes during lactation.

d. Uterine smooth muscle changes in pregnancy.

e. Skeletal muscle changes in athletes.

Answer B

83) Which of the following patterns of necrosis can be caused by focal bacterial and fungal infections:

a. Caseous necrosis.

b. Coagulative necrosis.

c. Liquefactive necrosis.

d. Fibrinoid necrosis.

e. Fat necrosis.

Answer C

84) Exposure to a high dose of radiation injury with resultant DNA damage is associated with which of the following cellular responses:

a. Bax/Bak activation.

b. BH3 sensor inhibition.

c. Bcl2 activation.

d. Caspase inhibition.

e. Cytochrome c inhibition.

Answer A

85) Myeloperoxidase enzyme in macrophages catalyzes the conversion of:

a. H2O2 to hypochlorite.

b. Oxygen to superoxide.

c. H2O2 to water.

d. H2O2 to hydroxyl group.

e. Superoxide to H2O2.

Answer A

86) A child was brought to the emergency room with sore throat. The Tonsils are red and congested, and he was febrile (Temp: 39.8 °c). Which mediator(s) is/are responsible for these 3 inflammatory features?

a. Prostaglandins

b. Interleukins

c. Leukotrienes.

d. Bradykinin

e. Complement system proteins

answer A

87) Which one of the following mediators is implicated in the pathogenesis ischemic heart disease and brain strokes?

a. Prostaglandin C4

b. Leukotriene B4

c. Leukotriene E4

d. Prostaglandin E4

e. Thrombaxane A2.

Answer E

88) Which one of the following serum markers that we usually measure to indicate the presence of non-specific inflammatory reaction?

a. Liver transaminases

b. Anti-nuclear antibodies

c. C-reactive protein

d. Prostaglandins C, D and E

e. Tumor necrosis factor

Answer C

89) Which of the following statements best describes the "inflammatory response"?

a. In normal humans it is protective

b. Always associated with systemic effects

c. Transforms to chronic inflammation in 50% of the cases

d. Events sequence is haphazard in 20% of the cases

e. Its mediators are the same in amount

answer A

90) Which mediator is synthesized from arginine by an enzyme?

a. Nitric oxide synthase

b. Nitric oxide

c. Hydrogen peroxide

d. Oxygen super-oxide

e. Myeloperoxidase

answer B

91) Elimination of self-reactive lymphocytes by apoptosis is mediated by which of the following molecules:

a. BH3.

b. Bcl2.

c. P53.

d. Fas-Fas ligand.

e. Bax/Bak

answer D

92) This is a cartoon image representing an important inflammatory cell. Which of the following statements best describes this cell feature or function?

a. It contains high level of nitric oxide

b. This cell secretes neutrophil extracellular traps (NET)

c. The life span is 5-6 days

d. This cell is a major producer of cytokines mediators

e. It is a major chronic inflammatory cell infiltrate

answer B

93) Which of the following mediators is a cytokine produced by macrophages?

a. Bradykinin

b. Prostaglandin E

c. Histamine

d. Tumor necrosis factor (TNF)

e. Thromboxane A2

answer D

94) A 49-year-old male patient came with recent non-intentional weight loss, fever and lymphadenopathy. A lymph node biopsy showed multiple necrotizing granulomas. The top differential diagnosis should

a. Sarcoidosis

b. Non-specific chronic inflammation

c. Viral lymphadenitis

d. Tuberculous lymphadenitis

e. Auto immune necrotizing lymphadenitis

answer D

95) A 23-year-old female patient with chronic history of bronchial asthma who underwent removal of polyps from nose. The tissue examination revealed benign polyp with numerous numbers of eosinophils (hundreds). The pathologic explanation for this finding is?

a. Allergic reaction/polyp

b. Acute parasitic inflammation

c. Chronic fibrinous inflammation

d. Eosinophilic granulomatous inflammation

e. Acute suppurative inflammation

answer A

96) Accumulation of misfolded proteins in the cytoplasm, activates which of the following enzymes:

a. Superoxide dismutase.

b. Glutathione peroxidase.

c. Catalase.

d. Caspase.

e. Telomerase.

Answer D

97) One of the following can cause pathologic apoptosis:

a. Turnover of gut epithelium.

b. Viral infections.

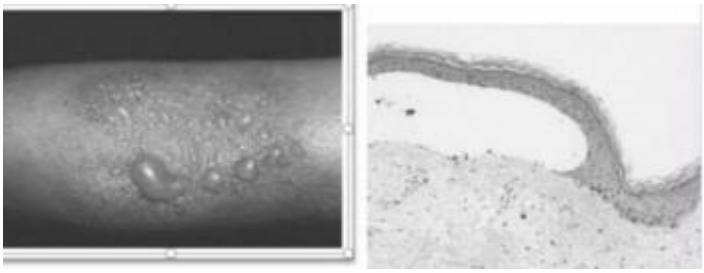
c. Involution of endometrium after menopause.

d. Embryogenesis.

e. Elimination of self-reactive lymphocytes.

Answer B

98) Below is a picture of a hand (left) and its pathologic microscopic image. The best description of this type of reaction is?



a. Ulcerative inflammation

b. Fibrinous inflammation

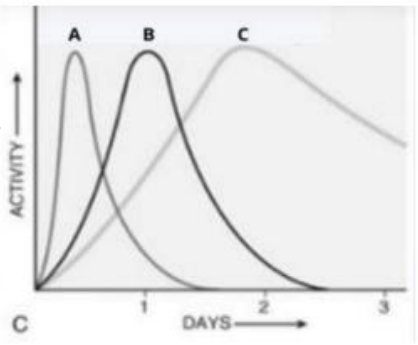
c. Suppurative inflammation

d. Serous inflammation

e. Exudative inflammation

answer D

99) Which one of the following statements is correct?



a. Curve A represent the macrophages and lymphocytes cellular infiltration phase

b. Curve B represents the initial neutrophilic infiltration phase

c. Curve A represents the initial cellular phase

d. Curve C represents the initial edematous phase

e. Curve B represents the initial vascular phase

answer B

101) One of the followings is an IRREVERSIBLE change in cell injury:

a. Cellular swelling.

b. Mitochondrial densities.

c. Myelin figures.

d. Cell membrane blebs.

e. Nuclear karyorrhexis.

Answer E

102) Which one of the following best describes the vascular leakage in the early vascular phase of acute inflammation?

a. It is an early phase due to retraction of endothelial cells

b. It is due to increased intravascular oncotic pressure

c. It is due to direct endothelial cell injury by adhering neutrophils.

d. The process is best called transcytosis induced by growth factors

e. It is mediated by blockage of the lymphatic channels

answer A

103) The changes in the epithelial lining of the lower esophagus in patients with reflux esophagitis, from squamous epithelium to glandular epithelium is termed:

a. Metaplasia.

b. Atrophy.

c. Dysplasia.

d. Hyperplasia.

e. Hypertrophy.

Answer A

104) Which receptors are responsible for recognizing pathogens proteins in the initial phases of inflammation?

a. Receptors for lectins and collectins.

b. Receptors for circulating complement system proteins.

c. Toll-like receptors

d. Receptors for immunoglobulins E (IgE).

e. Receptors for damage associated molecular patterns (DAMPS).

Answer C

105) The major function of the alternatively activated macrophage (M2) is?

a. Inhibition of inflammation and activation of repair

b. Bacterial recognition

c. Nitric oxide production

d. Activation and stimulation of viral intracellular killing

e. Opsonization and phagocytosis

answer A

106) After removal of the appendix for a patient; the pathology report came back with "acute appendicitis". What did the pathologist most likely see under microscopic examination?

a. Atypical glands with abnormal mitosis

b. Loss of appendicular architecture and granulomas

c. Numerous eosinophils

d. Fibrosis and numerous lymphocytes

e. Numerous tissue neutrophils

Answer E

107) Coagulative necrosis is characterized by which of the following:

a. Central caseation.

b. Liquified center.

c. Preserved tissue architecture initially.

d. Cheesy like material.

e. Caused by bacterial infections.

Answer C

108) Which one of the following histopathological findings would be most consistent with Sarcoidosis?

a. Serous transudative inflammation

b. Non-necrotizing granulomatous inflammation

c. Suppurative exudative inflammation

d. Ulcerative inflammation

e. Necrotizing granulomatous inflammation

Answer B

109) Brown atrophy is a term that refers to the deposition of which of the following substances:

a. Melanin pigment.

b. Glycogen pigment.

c. Lipofuscin pigment.

d. Hemosiderin pigment.

e. Bilirubin pigment.

Answer C

110) Which of the following arachidonic acid metabolites is a strong chemotactic agent?

a. Leukotriene E4

b. Leukotriene B4

c. Leukotriene C4

d. Prostacyclin

e. Prostaglandin G2

Answer B

111) The hallmark of CCL4 toxicity in the liver is:

a. Influx of inflammatory cells.

b. Caseous necrosis.

c. Endoplasmic reticulum stress.

d. Protein accumulation.

e. Fatty change.

Answer E

112) The pathologist calls you to let you know that your patient tissue biopsy revealed the presence of "necrotizing granulomatous inflammation". What would be the most important question to ask the pathologist?

a. Was there any atypical mitosis?

b. Were there asteroid bodies in the granulomas?

c. Were the granulomas large or small?

d. Was there an increase in the number of plasma cells?

e. Did you do acid fast stain (tuberculosis stain)?

Answer E

113) Calcium deposition in damaged aortic valves can be explained as:

a. Excessive calcium nutritional intake.

b. Dystrophic calcification.

c. Hypercalcemia.

d. Apoptosis.

e. Metastatic calcification.

Answer B

114) Lipid peroxidation of cellular and organelle membranes in the process of cell injury is mediated by:

a. Membrane pump failure.

b. Low PH.

c. Direct acting toxins.

d. ATP depletion.

e. Reactive oxygen species.

Answer E

Fill the blanks from robbins

1.Type of cell death which is energy-dependent, tightly regulated, and associated with normal cellular functions.

2- Type of cell death which results from a pathologic cell injury.

3- Type of cell death associated with inflammation

4-It is the irreversible condensation of chromatin in the nucleus of a cell undergoing necrosis or apoptosis

5-It is the destructive fragmentation of the nucleus of a dying cell

6-It is the complete dissolution of the chromatin of a dying cell

7- This is the first manifestation of almost all forms of injury to cells

8- Surface blebs, increased eosinophilia of the cytoplasm, cellular swelling

9-Cell injury with loss of nuclei, cellular fragmentation and leakage of cellular contents.

Answers

1. Apoptosis 2. necrosis 3. necrosis 4. Pyknosis 5. Karyorrhexis 6. Karyolysis 7. Cellular swelling 8. Reversible/ Early Ischemic Injury 9. Irreversible/ Necrotic cellular injury

Mid 2017

1-The pigment that accumulated in aged atrophic cardiac muscle?

Answer: Lipofuscin

2-What is the cause of pure congestive heart disease?

Answer: Increased hydrostatic pressure

متوقعش معنا لانه بشابتر 4 روبنز اسف ملحقتش اشوف الشيتات

3-From where TNF is produced

Answer: macrophages and T-lymphocyte

4-What is wrong about Granulomas

Answer: Epithelioid histeocytes are recruited by B lymphocytes

الصح انها بالMICROPHAGES

5-Worng mismatch

Answer: Macrophages / B-lymphocyte interaction Bidirectional activation

6-All of the following are involved in fever except

Answer: CRP

7-Fever caused by?

Answer: Prostaglandins (PGEEEE2)FEEEVER

8-Which of the following induce recruitment of neutrophils and macrophages in both chronic and acute inflammation?

Answer: IL-17

9-What is the cell that can stay in the tissue as resident for years?

Answer: Macrophage

10-Accumulation of miss-folded proteins (ER stress) involved with all of these diseases except?

Answer: UV radiation cause damaged DNA

11-All of the following are done by the activation of M2 macrophage by the alternative pathway except?

Answer: Phagocytosis

12-Which best describes acute inflammation?

Answer: Prominent local and systemic effect

13-Which mediator mainly cause erythema and statis from blood vessels?

Answer: BV dilation by histamine

14-What is the best definition of the inflammatory response?

Answer: Response of vascularized tissue to injury

15-Which best describe mediators of inflammation?

Answer: they activate each other

16-Not physiologic adaptation

Answer: Excess estrogen

17-Acute allergic reaction

Answer: Eosinophil

18-Patient with one or more compliment deficiency indicates?

a-hereditary angioedema

b-PNH

Answer: (PNH) paroxysmal nocturnal hemoglobinuria

19-Wrong or deficiency Complement system cause

Answer: Recurrent infection

20- Correct order of leukocyte migration?

Answer: Margination-rolling-adhesion-transmigration

21-M1 pathway except

Answer: Inhibition of bak and bax

22-Complement good as osponin?

Answer: C3b

23-False about ROS?

Answer: H_2O_2 turned to H_2O by myeloperoxidase

24 Best description of cell movement?

Answer: Chemotaxis

25-Not an example of protein accumulations

Answer: Steatosis

26-What does aspirin inhibit?

Answer: Cyclooxygenase

27-Not in CA++ mechanism?

Answer: Lipid peroxidation

28-Best description of pus?

Answer: Purulent exudate

29-Type of brain necrosis?

Answer: Liquefactive necrosis

30- Ischemia-reperfusion?

Answer: Generation of ROS

31-Which one is considered pathologic?

Answer: Hyperplasia of endometrium with excess estrogen

32-Low enzymes cause?

Answer: Glycogen storage disease

33-Something does pure transudate in congentive heart disease?

Answer: Increased vascular hydrostatic

34-Acute asthma is characterized by the presence of?

Answer: Eosinophils + IgE antibodies.

35-All can undergo apoptosis by mitochondrial pathway except?

Answer: Cytotoxic T lymphocytes

36-One of the following is not involved in ATP depletion?

Answer: increase in the pH

37-All is true about metaplasia except?

Answer: It is irreversible

Mid 2016

Bacterial infections :1

A1: liqufactive necrosis

Q2:wrong about hyperplasia

A2: resistance to growth factor

Q3:Pancreatitis

A3:fat necrosis

Q4: the common product of all pathways

A4: C3

Q5: wrong about Metaplasia

A5: already differentiated cells

Q6: define inflammation

A6: ez فوق حلیناه

Q7: pregnant woman, something wrong about the changes in her uterus

A7: irreversible changes

Q8: something wrong about the elimination of T-lemphocytes

:Q9; the first manifestation of vascular changes during inflammation

A9: vasoconstriction followed by vasodilation

Q10: fever/ pain / acute appendicitis

A10: neutrophils

Q11: acute appendicitis

A11: neutrophil

Q12; sequential steps

A12: recognition/ recruitment/ removal/ controlling / repair

Q13: pus is

... A13: a purulent exudate

:Q14: the mediators that are secreted by an alternatively activated macrophage

A14:growth factor and iL-10

Q15: about steroids

..A15: inhibition of phospholipases

,Q16: what is wrong about apotosis

A16; the presence of neutrophils in the infiltrate

Q17: exudate

A17: high cellularity

:Q18: ROS play a role in all the following except

A18: extrinsic mitochondrial apoptotic pathway

Q19: most potent radical

A19: h2o2-mpo-halide

:Q20; all of the following enzymes are activated by calcium except

A20:catalase

:Q21: all of the following can be found in reversible injury except

A21:fragmentation of nucleus

Q22: right about granuloma

A22: sarcoidosis diagnosed by exclusion

:Q24: all of the following initiate apoptosis except

A24: FLIP

;Q25: induction of pain by

A25; kinins

Q26; first morphological change in any reversible injury

A26: swelling

Q27: life span of neutrophils

A27: 1-2 days

:Q28: the first manifestation of MI

A28: enzymes

;Q29: one of the following is irreversible

A29; cytochrome c escapes into cytosol

Q30:Viscous meshwork of nuclear chromatin

A30: neutrophil traps NETS

1- one of the following has a phagocytic ability : neutrophils

2-contribute to margination : Stasis

3-cells showing karyorrhexis and fragmented eshi with intact structure : Viral Hepatitis

4-About the liver what is wrong : it's a labile tissue

بروبنز مش حاسبينه LABILE

5-which of the following is associated with granuloma of sarcoidosis : Epitheliod Histocyte

6- so2al en el exudate edema which is wrong : Low specific gravity

transudate is a fluid with low protein content, little or no cellular material, and low specific gravit

7-about growth factors they do all the following except : Increase the rate of cell death by apoptosis

8-one of the following is wrong between acute and chronic inflammation : Acute inflammation cause more pain than chronic inflammation

9-About Patient with Gout disease uric acid crystals bind to sensors of cell damage

10- patient with alzahaimer what is wrong : increase protein synthesis

11. old male has tachycardia , bradycardia , diarreah and m3'e9 ra7 3la aldoctor w f79oooh, bs 6l3et nteget al lab lego eno fe 3ndo eshe lono brown fe al kidney ta3to....sho hay al pigmet ?

1. lipofucin
2. melanin
3. 9ab3'a 7amra
4. all of the above

Lipofucin اتوقع

ميد باثو اخر اشي

-responsible for pain: kinin and prostaglandine

-complement protein (work as chemoattractant): c5a

-what is the receptor that recognize uric acid after DNA injury: sensors of cell damage

-main cell in chronic inflammation: macrophage

--cell that have phagocytic activity: neutrophil

-type of tissue that bt7mml el injry aktr mn 3'ero aw hek shi:

skeletal muscle

بتصمد كثير بحالة الهايبوكسيا يعطيكم العافية خلصنا دعواتكم