HLS Midterm Exam

022 Batch

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Physiology

1- What type of cell appears after 3 days after acute blood loss?

A- Proerythroblasts
B- Megaloblasts
C- Reticulocytes
D- Metamyelocytes
E- Platelets

Answer: C

2- A patient presents to your office complaining of extreme fatigue and shortness of breath on exertion that has gradually worsened during the past 2 weeks. Physical examination reveals a well-nourished woman who appears comfortable but some shortness of breath. Her vital signs include a pulse of 120, a respiratory rate of 20, and blood pressure of 120/70.
When she stands up, her pulse increases to 150, and her blood pressure falls to 80/50. Her hematologic values are as follows: Hb, 7 g/dI; Hct, 20%; RBC count, 2 × 10%ul; and platelet count, 400,000/ul. On a peripheral smear, her RBCs are microcytic and hypochromic. What is your diagnosis?
A) Aplastic anemia
B) Renal failure
C) Iron-deficiency anemia
D) Sickle cell anemia
E) Megaloblastic anemia

Answer: C

3- Which phagocytes can phagocytose more than 100 bacterial cells, extrude digestion products, and continue to survive and function for many months?

A- Neutrophils
B- Basophils
C- Macrophages
D- Eosinophils
E- Lymphocyte

Answer : C

4- Which clotting factor is activated by the positive feedback of thrombin ?

A- Factor 3
B- Anti-thrombin 3
C- Thrombomodulin
D- Factor 5
E- Factor 7

Answer : D

5- What cytokines are produced by activated macrophages to stimulate the bone marrow to produce granulocytes:

A- Erythropoietin
B- IL-1 , TNF , CSF-GM
C- tPA
D- Growth factors
Answer : B

6- One of the following promote the clotting :
A- Protein C
B- The glycocalyx
C- The smoothness of endothelial cell
D- Collagen
Answer : D

7- Which part of hemoglobin is not recycled?

A- Amino acids
B- Globin chains
C- Alpha and beta chains
D- Iron
E- Protoporphyrin

Answer : E

8- The EPO increases in one of following cases ?

A- High hematocrit
B- High Hb
C- Heart failure
D- High O2

Answer : C

9- One of the following, if deficient, it won't affect factor X ?
A- Factor 10
B- Factor 8
C- Factor 2
D- Factor 13

Answer : D

10- A patient having a deficiency in these clotting factors : 9,10,7 , which can be treated by vit K supplementation, what is the possible cause of this condition :

A- Bile duct obstruction
B- Hemophilia A
C- Thrombocytopenia
D- Genetic deficiency of anti-thrombin III

Answer : A

11- Which of the following is appropriate therapy for a massive pulmonary embolism?

A) Citrated plasma
B) Warfarin
C) Aspirin
D) Tissue plasminogen activator
E) Heparin

Answer : D

12- If we have a renal failure and the hematocrit is 25%.:
A. Liver produces 10% of the necessary EPO.
B. Failure of the Renin-Angiotensin-Aldosterone System

Answer : A

13- Choose the correct match

A- Neutrophils margination – second line defence
B- Monocyte circulating in the blood – second line defence
C- ICAM proteins – neutrophil surface lipoprotein

Answer: A

14- A 2-year-old boy bleeds excessively from minor injuries and has previously had bleeding gums. The maternal grandfather has a bleeding disorder. The child's physical examination shows slight tenderness of his knee with fluid accumulation in the knee joint. You suspect this patient is deficient in which coagulation factor(s)?

A) Prothrombin activation
B) Factor Il
C) Factor VIII
D) Factor X
E) Factor XIII

Answer: C

15- What is the molecule that forms a bridge between sub endothelial collagen and platelets?

A- vWF
B- Glycocalyx
C- Myosin and actin
D- Thromboplastin

Answer : A

16- What function do vitamin B12, and folic acid perform that is critical to hematopoiesis?

A) Support porphyrin production
B) Serve as cofactors for iron uptake
C) Support terminal differentiation of erythroid and myeloid cells
D) Support production of thymidine triphosphate

Answer : D

Biochemistry

17- What is wrong about 2,3-BPG effect ?

A- Reduces p50
B- Stabilize the T state
C- Bind to his 143 on beta chain
D- Changing of his143 to leu in fetal Hb causing less binding

Answer : A

18- How does fetal pyruvate kinase affect O2 binding in fetal cells?

A- Reduce 2,3 BPG
B- Increases pH
C- Generation of ATP
D- Inhibited by high amounts of succinyl-CoA

Answer : A

19- Which one is incorrect about chloride ions?

A- Cl covers O2 binding sites
B- Make an exchange with HCO3
C- Stabilize the T state by making interaction with globins
D- Maintain the charge balance

Answer : A

20- Incorrect about gene expression of alpha and beta globin chains

A- Their expression is affected by the mother's genetic background.
B- They are produced in equal amounts.
C- Production of both chains is the maximal at the variable phases.

Answer: A or C (Still not sure)

21- HbA1C glycosylation?

A- When measure it the patient must be in the fasting state
B-5.5% indicate a pre-diabetes
C- get glycosylated on its beta chain Asn AA.
D-Need enzymatic activity
E- Correlates with blood glucose level

Answer: E

22- The correct statement regarding the iron regulatory element :

A- It has a degradative effect on mRNA if found in 5'UTR bounded to iron regulatory protein-IRE binds to Iron bound, iron regulatory protein.
B- stabilizes the mRNA if found in 3' UTR bounded to iron regulatory protein.
C- IRE binds to Iron bound, iron regulatory protein.

Answer : B

23- Distal histidine mutating into tyrosine results in

A- R state stabilization
B -inability to release O2
C -T state stabilization
D-reductase cannot bind (resist it)
E-oxidation of Fe

Answer : E

24- Aggregation of platelet in platelet plug is mediated by ?
A- Direct contact with glycoprotein of other platelets .
B- Fibrinogen mediated interactions.
C- Direct contact with endothelial cell by vWF.
D- Direct contact with collagen .

Answer : B

25- Which of the following is not true about HbH and Hb barts?

A- Caused by alpha thalassemia
B- Homotetramers
C- Caused by deletion mutation
D- Both are fatal

Answer : D

26- Deleted question

27- The function of protein C is:

A- Degrade factor V and VIII
B- Degrade factor S
C- Degrades thrombomodulin

Answer : A

28- which molecule causes Fe absorption into enterocytes :

A- ferrireductase
B- transferrin
C- ferroportin
D- DMT-1

Answer : D

29- Which one solubilize fibrin clots
A-tPA
B-plasminogen
C-XIII
D-plasmin

Answer : D

30- Fava beans exacerbate G6PD because of:

A- Overproduction of oxidizing agents
B- Produce target damage to cell membrane
C- Antipyretic agents
D- Enzyme is inactive
E- Enzyme isn’t expressed

Answer : A

Histology

31- Cells whose granules contain major basic proteins :

A- small cells with scant cytoplasm
B- A cell filled with basophilic granules without nucleus
C- Bi-lobed cells with eosinophilic cytoplasm

Answer : C

32- Which of the following is the largest precursor in granulopoiesis and where synthesis of primary granules begins :

A- Proerythroblast
B- Myelocyte
C- Promyelocyte
D- Reticulocyte

Answer : C

33- The incorrect statement regarding the lymphatic system :

A- Primary follicles are formed only after antigen exposure
B- Secondary follicles found inside follicles.

Answer : A

34- The stain that is used to count the reticulocyte :

A- azure dye
B- Indian eye
C- Eosin dye
D- Methylene blue dye
E- Brilliant cresyl blue

Answer : E

35- The incorrect statement is:

A- Agranulocytes have Single lobulated Nuclei
B- Erythrocyte doesn't have MHC-1 molecules

Answer : A

36- Which one is true about basophils :

A- They have receptors which can bind IgE antibodies
B- They exhibit the highest motility among WBCs
C- They have a extensive phagocytic ability , more than macrophages
D- Commonly seen in blood films

Answer : A

37- The correct order of erythropoiesis is

A- proerythroblast, basophilic erythroblast, polychromatic erythroblast, normoblast, Reticulocyte.
B- Proerythroblast, basophilic erythroblast, normoblast, polychromatic erythroblast, reticulocyte.
C- Basophilic erythroblast, proerythroblast, polychromatic erythroblast, normoblast, reticulocyte.

Answer : A

38- What type of tissue supports bone marrow :

A-reticular tissue stroma [ANS]

39- Small cells with minimal cytoplasm and heterochromatin rounded nuclei represent:

A- Neutrophils
B- Eosinophils
C- Basophils
D- Inactive lymphocyte

Answer : D

40- Primary follicles consist of :

A- Unstimulated B cells
B- T cells
C- Activated B-cells
D- Plasma cells

Answer : A

41- Choose the Mismatch :

A- T lymphocyte-_—->inner cortex
B- B lymphocyte—->outer cortex
C- APC——>cortex and medulla
D- Follicular dendritic cells —> medulla
E- Plasma cells —> medullary cords

Answer : D

42- Correct about platelets:

A- Alpha granules contain lysosomes
B- granulomere>membrane channel
C- hyalomere is the outer peripheral pale zone
D- Plate Alpha granules contain lysozymes

Answer : C

Pathology

43- pure intravascular hemolysis caused by extra corpuscular agents : (deleted)

A- G6PD
B- Sickle cell anemia
C- Immune hemolytic anemia
D- Iron deficiency
E- Malaria

Answer : E

44- Which of the following is caused by direct traumatic damage to RBC :

A- Spherocytes
B- Echinocytes
C- Schistocyte

Answer : C

45- HbF can be isolated in which of the following:

A- HbH
B- Cooley's anemia
C- B- thalassemia intermedia
D- a- thalassemia

Answer : B

46- which of the following is not a symptom of anemia :

A- Tachypnea
B- Fatigue
C- Dizziness
D- Red urine
E- Redness of the skin

Answer : E

47- Mismatch :

A- Sickle cell trait – no anemia
B- Alpha thalassemia minor – high HBA2

Answer : B

48- Which of the following doesn't appear in aplastic anemia :

A- Macrocytic
B- Drug exposure
C- Absence of HSC in bone marrow
D- Splenomegaly

Answer : D

49- Not found after acute blood loss :

A- High EPO
B- Reticulocytopenia

Answer: B

50- Which of following doesn't appear in polycythemia vera :

A- High hematocrit
B- splenomegaly
C- hypervisocity
D- Reversible polycythemia

Answer. :D

51- Which of the following isn't a cause of relative polycythemia :
A- Cyanotic heart disease
B- Dehydration
C- Diuretics
D- Vomiting

E- Diarrhea
Answer : A

52- Which of the following causes macrocytic anemia :

A- Methotrexate Treatment
B- Iron deficiency
C- Sickle cell

Answer : A