



# pathology testbank

HLS - midterm

2023-2024

done by ebaa and lujain

سج

# POLYCYTHEMIA

**1-** A 62-year-old man comes to his primary care physician for evaluation of daily headaches and blurry vision. These symptoms started two months ago. In addition, the patient reports feeling itchy over his body after bathing or visiting the sauna. Past medical history is notable for hypertension and asymptomatic gallstones were discovered on a recent ultrasound. The patient is a former smoker with a 20-pack-year smoking history. On the physical exam, the patient is observed to have facial plethora and a spleen palpated 2 cm below the left costal margin. Laboratory testing is ordered and the results are as follows:

Laboratory value	Result
Hemoglobin	18.1 g/dL
Hematocrit	54%
Erythrocytes	7.2 million/mm <sup>3</sup>
Leukocytes	12,500/mm <sup>3</sup>
Platelets	470,000/mm <sup>3</sup>
Uric Acid	7.9 mg/dL

- A-** Erythropoietin-independent proliferation of erythrocytes
- B-** Decreased blood plasma volume
- C-** Increased erythrocyte production secondary to hypoxia
- D-** Deposition of bile acids in the skin
- E-** Autoimmune destruction of myelin in the central nervous system

**2-** A 68-year-old male comes to his provider's office for evaluation of fatigue, weakness, and 8 kg (17.6 lb) unintentional weight loss over the past 2 months. Physical exam reveals oral mucosal pallor. Cardiac and pulmonary exams are non-contributory. Abdominal exam reveals hepatosplenomegaly. Laboratory testing results show the following, Biopsy of the bone marrow biopsy shows increased fibrosis and reduced cell count. Polymerase chain reaction testing reveals a mutation in ?

Laboratory value	Result
Hemoglobin	9.5 g/dL
Hematocrit	28.5%
Leukocytes	2,700/mm <sup>3</sup>
Platelets	100,000/mm <sup>3</sup>

- A-** thr gene
- B-** tyrosine c7
- C-** jak 1 gene
- D-** jak 2 gene
- E-** RAS gene

# ANEMIA

**3-Which of the following is not a feature of anemia of acute blood loss?**

- a. Symptoms of hypotension**
- b. Increased erythropoiesis**
- c. Reticulocytosis**
- d. Normochromic normocytic RBCs**
- e. Hyperkalemia**

**4- A patient with anemia may have all these general symptoms, except:**

- a. Increased red cell 2,3-BPG**
- b. Headache**
- c. Fatigue**
- d. Dizziness**
- e. Bradycardia**

**5- Which of the following best describes a person with acute GIT hemorrhage?**

- a. Fluid is shifted from intravascular space to interstitial fluid**
- b. Iron deficiency might occur, causing complications**
- c. Erythropoietin is immediately secreted after hemorrhage has occurred**
- d. Erythrocytes may appear as hypochromic microcytic**

**6- Growth retardation can be observed in:**

- a. Chronic hemolytic anemia**
- b. Anemia of acute blood loss**
- c. Iron deficiency anemia**
- d. Thalassemia major**

**7- A patient showed up to the hospital with hair loss, spooned fingernails, and tendency to eat dirt. Which of the following do you expect to see when examining a histological section of the patient's blood?**

- a. Microcytic hypochromic erythrocytes with reticulocytosis and thrombocytopenia**
- b. Ovalocytes with central pallor and low reticulocyte count**
- c. Lightly stained erythrocytes that have central & peripheral acidophilia with an area of pallor in between**
- d. Hypochromic microcytic anemia with anisopoikilocytosis that is densely stained with Perl's Prussian blue stain.**

**8- Wrong about Iron:**

- a) 20% of heme and 1% of non-heme iron are absorbed.**
- b) Is mostly absorbed in the jejunum.**
- c) Heparin inhibits iron absorption.**

**9-Which of the following is NOT an expected finding in a patient with iron deficiency anemia?**

- a) Koilonychia (spoon nails)**
- b) Angular stomatitis**
- c) Hypochromic microcytic red blood cells**
- d) Pallor**
- e) Symmetric paresthesia in lower limbs.**

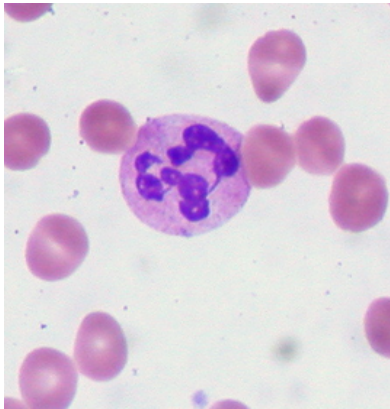
**10- A 31-year-old woman comes to the clinic because of increasing fatigue and dizziness over the past several months. She started a vegan diet six months ago with heavy and prolonged menstrual bleeding. Physical examination shows conjunctival pallor. Laboratory investigations reveal a hemoglobin level of 10.3 g/dL. Which of the following sets of laboratory values is most likely to be present in this patient?**

- A-normal serum iron and serum ferritin**
- B- low serum iron and high serum ferritin**
- C-high serum iron and low serum ferritin**
- D- low serum iron and low serum ferritin**

**11- The best test to use for differential diagnosis between iron deficiency anemia and anemia of chronic inflammation is:**

- a. Serum iron level**
- b. Mean cell volume**
- c. Bone marrow iron stores**
- d. Reticulocyte count**

**12- A 75-year-old man comes to his primary care physician for a routine visit. Five months ago, his wife died from a stroke. The patient reports feeling depressed, and he has been consuming large quantities of vodka on a daily basis. He previously ate a balanced diet. However, he has had little motivation to cook since his wife passed away, and he currently eats crackers and beef jerky purchased from a convenience store. Complete blood count reveals a hemoglobin of 9.2 g/dL and a mean corpuscular volume (MCV) of 110  $\mu\text{m}^3$ . A peripheral smear is ordered and the results are as follow:**



**A- Replacement of bone marrow by scar tissue**

**B- Defect in homologous DNA recombination**

**C- Iron deficiency secondary to bleeding in the gastrointestinal tract**

**D- Impaired DNA synthesis resulting from vitamin B12 deficiency**

**E- Impaired DNA synthesis resulting from vitamin B9 deficiency**

**13- Which one of the following is NOT a cause of vitamin B12 deficiency?**

- a) Jejunal resection.**
- b) Gastrectomy.**
- c) Malabsorption.**
- d) Veganism.**
- e) Lack of gastric intrinsic factor.**

**14- Not a definite effect of vitamin b12 deficiency?**

- a) Pernicious anemia
- b) Megaloblastic anemia
- c) Sterility
- d) Neuropathy
- e) Macrocytic hypochromic

**15- Which of the following causes pancytopenia:**

- a) Immune hemolytic anemia
- b) Thalassemia
- c) Iron deficiency anemia
- d) Hereditary spherocytosis
- e) B12 deficiency

**16-Pernicious anemia is described as ?**

- a. Macrocytic anemia
- b. Autoimmune gastritis
- c. Intrinsic factor deficiency
- d. Vitamin B12 deficiency
- e. All the answers are correct

**17- A patient with a strict vegetarian diet is at risk for:**

- a. Thrombocytosis
- b. Pancytopenia
- c. Reticulocytosis
- d. Severe coagulation

What is nail spooning called?

- Koilonychia

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- Clubbing

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- Paronychia

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- Hypertrophic osteoarthropathy

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- Pica

**18- A 15-month-old girl is brought by her caretakers , Laboratory testing reveals a hemoglobin of 6.5 g/dL, leukocyte count of 6,800/mm<sup>3</sup> and platelet count of 175,000/mm<sup>3</sup>. A peripheral smear reveals enlarged red blood cells. which of the following is found in her case ?**

- A-Fanconi anemia**
- B- iron deficiency anemia**
- C-Diamond-Blackfan anemia**
- D- vit B12 deficiency anemia**

**19- which of one of the following is wrong about Myelodysplastic syndrome ?**

- A-Acquired neoplastic disease of bone marrow**
- B-Patients commonly develop neutropenia**
- C- RBCs are microcytes**
- D-Anemia is refractory to treatment**
- E-Primarily disease of old age**

**20- Which of the following is MOST likely to be required by a 5-year-old boy with CKD?**

- a) Oprelvekin (IL-11)**
- b) Cyanocobalamin**
- c) Erythropoietin**
- d) Deferoxamine**
- e) Filgrastim (G-cSF).**

The production of which of the following is mainly defective in iron deficiency anemia?

- Heme

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- Alpha globin chains

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- None of these

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- Protoporphyrin

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- Beta globin chains

Which of the following best corresponds to laboratory values in iron deficiency anemia?

- Decreased ferritin, decreased serum iron, increased total iron-binding capacity
- Increased ferritin, decreased serum iron, and increased total iron-binding capacity
- Normal ferritin, decreased serum iron, and decreased total iron-binding capacity
- Decreased ferritin, increased serum iron, and increased total iron-binding capacity
- Decreased ferritin, decreased serum iron, and decreased total iron-binding capacity

Which of the following is NOT a feature of megaloblastic anemia?

- Reduced DNA synthesis
- Mean corpuscular volume > 100
- Reduced pyrimidine synthesis
- Increased erythropoiesis
- Pancytopenia

Which of the following are NOT characteristic of iron deficiency anemia?

- Low mean cell volume
- Can be caused by liver disease
- Absent Perl's staining pattern
- Low total iron binding capacity
- Low reticulocyte hemoglobin content

Which of the following is NOT characteristic of megaloblastic anemia?

- Severely high bilirubin level
- Chronic course of disease
- Loss of proprioception
- Macroovalocytes
- Can be caused by strict vegan diet



# THALASSEMIA

24- Hb Bart means that you have:

- a) 4 chains of gamma
- b) 4 chains of beta
- c) 3 chains of beta and 1 chain of alpha.

25- HbH is caused by:

- a) Deletion of 3 genes
- b) Deletion of 4 genes
- c) Mutation in 3 genes
- d) Mutation in 4 genes

26- A 29-year-old Chinese primigravid woman comes to the clinic at 24 weeks gestation for the first time due to decreased fetal movements. Her prenatal care has been inconsistent, but she has been taking vitamins daily. The patient's past medical history is significant for anemia. An ultrasound is performed and shows increased placental thickness. The ultrasound also reveals fetal ascites as well as pericardial and pleural effusions. Which of the following most accurately describes the predominant form of hemoglobin found in this fetus?

- A- aayy
- B- BBBB
- C- aaEE
- D- aaBB

27- A 2-year-old boy is brought to the clinician by his parents due to easy fatigability and growth delay. He is at the 30th percentile for length and below the 10th percentile for weight. Hematological tests and hemoglobin electrophoresis are obtained Hb : 10.8 , high HbA2 , absent HbA1 , Which of the following is the most likely diagnosis?

- A-  $\alpha$ -thalassemia major
- B-  $\beta$ -thalassemia minor
- C- Sickle cell disease
- D- Hemoglobin H disease
- E-  $\beta$ -thalassemia major
- F- Sickle cell trait

# SICKLE CELL DISEASE

**28- Doesn't worsen sickle cell trait:**

- a) Malarial infection**
- b) Hypoxia**
- c) Dehydration**
- d) Acidosis**

**29- Glutamic acid to valine (at position 6) is an amino acid substitution seen in the ----- chain in sickle-cell disease.**

- A-alpha chain**
- B- beta chain**
- C- delta chain**

**30- Newborns that have sickle-cell disease are initially asymptomatic because ----- levels are high, while hemoglobin S levels are low.**

- A- hemoglobin minor**
- B- hemoglobin C**
- C-hemoglobin F**
- D-hemoglobin y**

# OTHERS

**31- The genetic inheritance of glucose-6-phosphate dehydrogenase deficiency is ?**

- A- autosomal recessive**
- B- x linked**
- C- acquired**

**32- -----are pathological red blood cells that form as a result of the phagocytic removal of Heinz bodies in glucose-6-phosphate dehydrogenase deficiency.**

- A- spur cells**
- B- burr cells**
- C- bite cells**

**33- A 19-year-old man presents to the clinic with low-grade fevers, fatigue, paleness, shortness of breath, and a nonproductive cough for the past 2 weeks. Chest X-ray shows bilateral patchy infiltrates. Direct Coombs test is positive and RBC agglutination . Which of the following classes of antibodies is most likely implicated in this disease process?**

- A- Immunoglobulin D (IgD)**
- B- Immunoglobulin M (IgM)**
- C- Immunoglobulin G (IgG)**
- D- Immunoglobulin E (IgE)**
- E- Immunoglobulin A (IgA)**

**34- The patient's total bilirubin is elevated and hemoglobin levels are low. Peripheral blood smear shows microspherocytes and abundant reticulocytes. The patient's family history is non-contributory. Which of the following tests is most likely to be positive ?**

- A-Schilling test**
- B- Direct Coombs test**
- C- Ristocetin test**

اللهم كن مع المرابطين ناصراً ونصيراً اللهم سخر لهم ملائكة  
السماء وجنود الارض ومن عليها... وافتح لهم أبواب  
توفيقك... واشرح صدرهم , ويسر أمرهم .... وقوي عزيمتهم , ومدّ  
صبرهم... اللهم آمين اللهم آمين كثّفوا الدعاء لأهلنا في غزة  
اللّهُ ينصرهم ويثبّت أقدامهم .

# بالتوفيق # دفعة-القدس

