Internal Medicine

Hematology & Oncology rotation

- Past papers

Done by: Malek Abu Rahma

Hematology & Oncology

1. A 17 year old male presents to emergency department complaining of headache, dizziness, and red urine that started 1 day after eating fava beans. He looks jaundiced and sweaty. A diagnosis of glucose-6-phosphate dehydrogenase (G6PD) deficiency is suspected. Which of the following statements about this condition is FALSE

A) In addition to fava beans, haemolysis can be triggered by certain medications which should be avoided.
B) Plasma exchange is the treatment of choice in adults with severe cases
C) Presence of bite cells on blood film is characteristic
D) This condition makes red blood cells susceptible to oxidative stress resulting in acute episodes of hemolysis
E) The disease is caused by point mutations in G6PD gene on X-chromosome

ANSWER : B

2. A 58 year old male is reviewed after complaining of gradual onset of odd behaviour with psychotic symptoms.He has irritability and parosthesia in hands and feet. Examination reveals an imbalanced gait and loss of vibration sensation. A diagnosis of subacute combined degeneration of the spinal cord is suspected.

The underlying diagnosis is likely:

A) Myelodysplastic syndrome
B) Autoimmune haemolysis
C) Vitamin b12 deficiency
D) Aplastic anaemia
E) iron deficiency

ANSWER : C

3. All of the following are associated with sickle cell disease except:

A) AML
B) Priapism
C) Stroke
D) Acute chest syndrome
E) Anemia

ANSWER : A

4. A 60 year old male presents with dizziness and fatigue of 3 weeks duration. He also has shortness of breath upon exertion and headaches, He has constipation and has lost 5 kg over the last two months. His physical examination reveals pallor and tachycardia. Blood tests show anemia with low MCV (mean corpuscular volume) and high RDW (red cell distribution width) Which of the following statements is FALSE:

A) Iron deficiency without anemia does not need treatment
B) A cause of iron deficiency should always be pursued
C) A detailed history about diet and iron intake should be carried out
D) Blood film is expected to show microcytic hypochromic red blood cells.
E) Ferritin and serum iron should be checked

ANSWER : A

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5. 43-year-old man presents to his physician with fatigue. The patient says he Is concerned about his fatigue because he has a strong family history of cancer. He thinks that if his parents did not drink, smoke, and eat such poor diets they would have lived longer lives. He says that because of all this, he never drinks alcohol or smokes tobacco. He has also followed a strict vegan diet for 10 years. He says that all of his meals are high in leafy green vegetables. Laboratory tests show a Hb level of 9 and MCV of 112. macrocytes appeared on a peripheral blood smear. Most appropriate next step:

A) Check Vitamin B 12 levels in serum
B) Check Folate level
C) Check Homocysteine level
D) Check Serum gastrin levels
E) Urine vitamin B12 level

ANSWER : A

6. Which of following can be used to cure transfusion-dependent beta-thalassemia

A) splenectomy
B) blood transfusions
C) deferasirox
D) plasmapheresis
E) Bone marrow transplantation

ANSWER : E

7. One of the following statements about glucose-6-phosphate dehydrogenase (G6PD) is FALSE:

A) Is an X-linked recessive disease
B) Splenectomy is the treatment of choice in case of severe attacks
C) Is the most common enzyme deficiency affecting humans.
D) In this disease, red blood cells become more susceptible to oxidative stresses
E) Most patients are asymptomatic with episodes of intravascular hemolysis and consequent anaemia

ANSWER : B

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8. Which of the following is correct about G6PD deficiency:

A) X-linked dominant
B) infections are a common trigger of hemolysis
C) less common in persons of African descent
D) anti-malarials reduce oxidative stress, and thus prevents hemolysis from taking place
E) Plasma exchange is the treatment of choice in adults with severe cases

ANSWER : B

9. 19 yr old male presented with "anemia syndrome", fever and easy bruising. No splenomegaly and no abnormal cells on peripheral smear. Hb 6 g/dl, WBC 1500 : Neutrophils 10%, Lymphocytes 80%, others 10%. Retics© 0,001%. MCV 105fl, platelet count 20k. Bone marrow biopsy has shown hypocellular Bone marrow composed mainly of fat and stromal cells. All of the following is true except:

A) Recurrent infections may take place in this patient.
B) The pathogenesis of this condition revolves around bone marrow failure due to hematopoietic stem cell deficiency
C) Treatment in case of severe cases and young age in the presence of a sibling donor include bone marrow transplant.
D) most common presenting symptom of patient's condition is bleeding.
E) It is believed that B lymphocytes are primarily causal in the bone marrow failure.

ANSWER : E

10. All of the following commonly cause hemolysis in G6PD patients except

A) Sulfonamides
B) erythromycin
C) Primaquine
D) Infections
E) Methylene blue

ANSWER : B

11. major Which of the following is curative for hemochromatosis of chronic dialysis in beta thalassemia

A) B.M transplant
B) Defirasorax
C) Splenectomy
D) Transfusion
E) Deferoxamine

ANSWER : A

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12. a case describing pt with bone marrow findings of fibrosis and teardrop cells:

A) Idiopathic myelofibrosis
B) G6PD Deficiency
C) Sideroblastic Anemia
D) Hereditary Elliptocytosis
E) Lead poisoning

ANSWER : A

13. Patient with thalasaemia was started on chelation therapy, which of the following is true :

A) Chelation therapy cannot be started before age of 7 years
B) Chelation therapy is given with vit c bacause it increases iron secretion
C) Before giving therapy, if organ damage was established it cannot be reversed when iron chelation therapy is started
D) Deferoxamine is first line of treatment
E) Oral deferasirox is the standard of care.

ANSWER : E

14. Which of the following laboratory investigations has the highest specificity and sensitivity in the diagnosis of iron deficiency anemia?

A) Serum ferritin level
B) Serum iron level
C) Serum TIBC
D) Serum MCV
E) Bone marrow biopsy

ANSWER : E

15. A 20-year-old female college student presented to the student's clinic with the new onset of bruising and epistaxis. Physical examination reveals ecchymoses on her extremities and petechiae on her ankles. Her spleen was not palpable and there was no lymph node enlargement. She has been otherwise well with no infective or B symptoms and she takes no medications. Blood tests: Hemoglobin 13 gm/dl (12-15.5), WBCs 6x109/l (4-10) , Platelets: 15 x9/l (150-450). PT: 13/13 INR 1.0. PTT 32/32. Blood film: Thrombocytopenia with large platelets. Normal red and white blood cells. LDH 375 u/l (240-480). Albumin 4.2 g/dl (3.5-5.2). The most likely diagnosis is:

A) Immune thrombocytopenia
B) Pseudothrombocytopenia
C) Disseminated intravascular coagulation
D) Vitamin B12 deficiency
E) Thrombotic thrombocytopenia purpura

ANSWER : A

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16. An 18 year old female was admitted with pallor, abdominal pain and long-standing history gum bleeding. She has been complaining of mucosal bleeding ever since she remembers. Her periods have always been heavy lasting more than 1 wk. She was admitted before and received bld TX for bleeding. She has summer epistaxis and bad bleeding gums. Her parents are 1st degree relatives. Her coagulation profile has shown prolonged BT, normal PT, PTT, TT and Plt, and absent clot retraction. The most likely diagnosis in this case is:

A) vWD
B) Hemophilia A
C) ITP
D) Glanzmann's thrombasthenia
E) TTP

ANSWER : D

17. All of the following are associated with thrombocytosis except:

A) Post-splenectomy
B) Chronic stage of CML
C) POLYCYTHEMIA VERA.
D) Pernicious anemia
E) Iron deficiency

ANSWER : D

18. One of the following bleeding patterns is a feature of coagulatory factor defect rather than a platelet defect

A) Gum bleeding
B) Small superficial bruises
C) Bleeding into Joints
D) Epistaxis
E) Petechial rash

ANSWER : C

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19. A 19 year old male is seen in clinic with repeated attacks of large joint painful swelling especially in his knees for several years. His maternal uncle has similar condition. Examination reveals swollen hot right knee with effusion and limitation of movement. Blood tests: Prothrombin time (PT): 14/14 sec. Partial thromboplastin time (PTT): 80/31 seconds. Mixing study of PTT: 32/31 platelets 268 x109/I FactorVIl: 41%.The most likely diagnosis is:

A) Glanzmann's thrombasthenia
B) Haemophilia B
C) Haemophilia A
D) Von Willebrand disease (VWD)
E) Disseminated intravascular coa ulation (DIC)

ANSWER : C

20. What is the most appropriate step in the management of a patient with heparin-induced thrombocytopenia and thrombosis?

A) Continue heparin and administer warfarin
B) Discontinue heparin and administer argatroban
C) Discontinue the heparin substitute with warfarin
D) Continue heparin and add lepirudin
E) Continue heparin and monitor closely

ANSWER : B

20. All of the following help to distinguish qualitative platelet disorder except:

A) platelet size
B) clot retraction
C) platelet aggragation
D) bone marrow cytogenatics
E) platelet flow cytometry

ANSWER : A

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21. 23-year-old woman with systemic lupus erythematosus diagnosed 2 years ago presents to the clinic because of tenderness in her left calf that Is worse with flexion of the foot. After an initial work-up, her rheumatologist suspects that she may have antiphospholipid antibody (APA)

syndrome. Which of the following laboratory findings is most likely in this patient?

A) Decreased partial thromboplastin time, corrected by mixing with fresh-frozen plasma
B) Decreased partial thromboplastin time, not corrected by mixing with fresh-frozen plasma
C) Prolonged partial thromboplastin time, corrected by mixing with fresh-frozen plasma
D) Prolonged partial thromboplastin time, not corrected by mixing with fresh-frozen plasma
E) Decreased Prothrombin Time, corrected by mixing with fresh-frozen plasma

ANSWER : D

22. A patient with gingival bleeding and increased bleeding time and normal PT and PTT and normal platelet count, parents are cousins, Based on the scenario above, the diagnosis is :

A) Glanzmann's thrombasthenia
B) VWD
C) Hemophilia
D) ITP
E) TTP

ANSWER : A

23. Upon arriving home following a 14-hour flight from Japan, a 58-year-old white woman notices significant swelling and pain in her right calf. She arrives at her apartment exhausted and falls asleep. In the middle of the night she wakes up severely short of breath. This woman most likely has what disorder?

A) Antithrombin III defidency
B) Factor V leiden
C) Protein C deficiency
D) Protein S deficiency
E) Prothrombin gene mutation

ANSWER : B

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24. All of the following are true about Transfusion Related Acute Lung Injury, except:

A) takes place within 6 hours of transfusion
B) Implicated donors are usually “multipara” female
C) donor anti-leukocyte antibodies are the cause of this transfusion reaction
D) causes noncardiogenic pulmonary edema with bilateral pulmonary infiltrates
E) a minority of cases require mechanical ventilation

ANSWER : E

25. female told that she has heterozygous factor V leiden ... what would you tell her

A) start of LMWH for lifelong
B) start on heparin and warfarin then stop heparin
C) do nothing
D) do lower limb doppler and treat accordingly
E) Order a CT Scan of the chest

ANSWER : C

26. One of the following is a mutation thrombophilia that Causes VTE:

A) Protein C def
B) Protein A def
C) Anticardiolipin
D) Lupus anticoagulant
E) Factor V leiden

ANSWER : E

27. not an acute complication for blood transfusion:

A) Rh hemolysis
B) Anaphylactic transfusion reaction
C) TRALI
D) Metabolic reaction
E) Circulatory overload

ANSWER : A

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28. Blood transfusion risks include all of the following except:

A) Iron overload
B) Secondary hemochromatosis
C) hypokalemia
D) Acute hemolytic transfusion reaction
E) Post-transfusion purpura

ANSWER : C

29. which of the following is the definitive test to distinguish hemophilia A from B:

A) PTT
B) factor assay
C) Bleeding test
D) X linked
E) PT

ANSWER : B

30. 37 yr old lady was admitted with high fever, seizure and confusion for 3 days.P/E shown. Temp 40.5,BP 80/50, Pulse: 122 regular, low volume. Bleeding from needle puncture sites and bruising. Hb 9g/dl, retcs 6%, bilirubin 5 (d1), WBC 19k, Plt 25k, LDH 1400, PT 14/12s, PTT 35/32s, TT 13/11s, Creatinine 2.3. Bld film shown.Fibrinogen. 140mg/dl. All of the following regarding this case is correct except :

A) If untreated, mortality may exceed 90%
B) Initial Treatment involves plasma exchange daily until recovery
C) On MRI, leukoencephalopathy and brain infarcts may be detected
D) VWF cleaving protease levels are severely reduced
E) On blood film, spherocytes are expected to be seen.

ANSWER : E

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31. Wrong about glanzman thrombasthenia:

A) normal platelet count
B) There's a defect in platelet plug formation.
C) abnormal clot retraction test
D) del ch (17)
E) abnormal flowcytometry due to lack of expression of CD19 + CD3

ANSWER : E

32. A patient presented to the ER with a sudden onset of dyspnea and unilateral calf swelling. On exam, respiratory and heart rates were increased. Which of the following would least likely be present in this patient.

A) acute respiratory acidosis
B) pitting edema
C) pleuritic chest pain
D) Normal chest X-ray.
E) increased pulmonic sound (P2)

ANSWER : A

33. All of the following are acute complications of blood transfusion except:

A) iron overload
B) TRALI
C) WBC reaction
D) ABO incombitability hemolysis
E) Anaphylactic transfusion

ANSWER : A

34. Which of the following goes more with ALL than AML

A) TdT and CD10
B) Auer rods
C) a subtype of ALL is more commonly associated with DIC
D) t(15;17)
E) ATRA syndrome

ANSWER : A

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35. All of the following are features of Symptomatic myeloma distinguishing it from smoldering myeloma except:

A) bone lytic lesion
B) recurrent bacterial infections
C) renal insufficiency
D) bone marrow plasma cells 15%
E) normocytic anemia

ANSWER : D

36. Patient with multiple myeloma, what makes him stage 3?

A) β2 microglobulin above 5.5 mg/dl
B) serum albumin > 3.5 g/dl
C) serum β2 microglobulin between 3.5-5.5 mg/dl
D) BM biopsy revealing 8% abnormal plasma cells
E) Elevated monoclonal immunoglobulin spike

ANSWER : A

37. A 63-year-old woman has a 6-month history of increasing fatigue, weakness, and anorexia. Physical examination reveals splenomegaly and pale conjunctiva, and laboratory studies show leukocytosis and anemia. Karyotyping of suspicious cells reveals a t(9;22) translocation Which of the following is the most likely diagnosis ?

A) CML
B) CLL
C) ALL
D) Multiple myeloma
E) Hodgkin lymphoma

ANSWER : A

38. Poor prognosis in AML

A) NMP1 mutaion
B) t (15;17)
C) inv(16)
D) t (8;21)
E) chromosome 7 deletion

ANSWER : E

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39. One of the following findings in a patient with multiple myeloma is NOT a distinctive feature of symptomatic disease (related organ or tissue damage):

A) Serum calcium of 12 mg/dI (8.6-10.2)
B) Creatinine of 2.4 mg/dI (0.6-1.2)
C) Haemoglobin of 9 gm/dI (13.5-16.5)
D) Multiple lytic bony lesions
E) Bone marrow plasma cells of 15%

ANSWER : E

40. A 72 year old male is seen with a new diagnosis of Chronic Lymphocytic Leukaemia. Diagnosis was made by flow cytometry of peripheral blood and after reviewing his full blood count. Which of the following is NOT an expected finding?

A) Lymphadenopathy
B) Bone lytic lesions
C) Reduced immunoglobulins
D) An absolute lymphocytic count of more than 5x 109/1
E) Splenomegaly

ANSWER : B

41. A 62-year-old male with a white blood count of 120 x109/I is seen in the clinic. He has been feeling weak and excessively fatigues recently. He has no infective or bleeding symptoms and looks well overall while being interviewed in the clinic. Physical exam is notable for splenomegaly that is felt 3 cm below costal margin. Blood tests: Hemoglobin 14 gm/dI(12-15.5), WBCs 120x109/1 (4-10) , Platelets: 800 x9/1 (150-450). Blood film: Leukocytosis with granulocytes showing different stages of maturation (from myeloblasts to neutrophils). Basophilia

is noted. The most appropriate test to send to establish the correct diagnosis is:

A) Protein electrophoresis
B) Cytogenetics for Philadelphia chromosome: t(9;22)
C) Bone marrow aspiration and biopsy
D) Spleen biopsy
E) Flowcytometry (immunophenotyping)

ANSWER : B

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42. A patient diagnosed with Hodgkin lymphoma after further investigations was found to have LN involvement of cervical and inguinal groups, with no involvement of the spleen, liver, bone marrow or mediastinum. The patient complains of sweating, weight loss and fever. According to Ann Arbor staging system, the patient is in stage:

A) IIA
B) IIIA
C) IIIIA
D) IIB
E) IIIB

ANSWER : E

43. all of the following are indicated to stage a patient with NHL except:

A) brain CT
B) bone marrow biopsy
C) chest, abd, pelvic CT
D) LDH
E) bone scan

ANSWER : D

44. One of the following is NOT an expected finding in the marrow of a patient with newly diagnosed AML:

A) Decreased erythropoiasis
B) Hyper-cellular marrow
C) 60% blast cells
D) Auer rod cells
E) 15% plasma cell

ANSWER : E

45. A 22-year-old college student presents to the clinic complaining of fever, fatigue, and sore throat that have not improved for the last 2 weeks. Physical examination reveals painful lymphadenopathy. Further investigations were done and patient was found to have EBV infection. Most commonly, the route of transmission of EBV in this case is:

A) Feco-oral (ingestion)
B) Aerosol
C) vector borne
D) close contact (Oral secretions)
E) Blood transfusion

ANSWER : D

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46. which of the following is associated with an increase in RBCs, WBCs and platelets:

A) Polycythemia Rubra Vera
B) Essential thrombocythmia
C) Myelofibrosis
D) CML
E) Glanzmann Thrombasthenia

ANSWER : A

47. A 25 year old male patient was reffered with the diagnosis of acute myeloid leukemia. He was found to have Hb 8gm/dl, WBC 80000/ul, platelets count 17000/ul. Blood film showed 80% blasts with bilobed appearance. BM was heavily infiltrated by blasts with abundant cytoplasmic granles and aur rods. Granules were positive for myeloperoxidase, but negative for butyrate esterase. Blasts were CD33 and CD13 positive. Cytogenetics studies were done. Which of the following cytogenetic abnormalities is most likely in this patient:

A) T(15;17}
B) T(8;16)
C) T(8:21)
D) T(1;22)
E) T(9;22)

ANSWER : A

48. A 65 year old healthy male was incidentally found to have on his labs: WBC of 70K with lymphocyte predominance, platelets of 250k, Hb 12. He does not have any lymph node enlargement or splenomegaly or hepatomegaly. Cytoanalysis of lymphocytes showed 5% of cd38 (ZAP) positive cells. The rest were cd 19 and cd 20 positive. Smudge cells were seen. Which of the following is true about this case:

A) The patient will survive for years
B) The patient will develop generalized lymphadenopathy and splenomegaly in a year
C) The Patient should receive initial therapy with fludarabine
D) The patient has an advanced stage disease
E) P53 loss/mutation is an expected genetic abnormality in this specific patient.

ANSWER : A

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49. patient with recurrent viral, fungal, & protozoal infection. This patient most likely has a defect In:

A) B cell
B) T cell
C) macrophage
D) neutrophil
E) immunoglobulin

ANSWER : B

50. A 54 year old male complains of abdominal discomfort , weight loss, sweating and headache. P/E: showed splenomegaly. Platelets 800k.WBC 120K neutrophils 80% and basophils 2%.Uric acid elevated.Hb 13. What is the diagnosis?

A) ALL
B) CLL
C) CML in chronic phase
D) Richter transformation

ANSWER : C

51. long case scenario (heme-arthrosis, painful, tenderness knee joint + swelling and redness) what is special; markedly elevated PTT,PT normal,WBC normal,Platelet normal,decreased Hb(forgot the number),what to do next:

A) Factors X,V,II
B) Factors VII,IX,XI,XII
C) Mixing study

ANSWER : C

52. Long case scenario (pregnant lady ; fatigue, SOB, MCV= 60, low MCH, HbF<1% (normal level),HbA2 4.5%(normal 1.5-3.5%) ,what is the diagnosis:

A) Iron deficiency anemia
B) Beta thalassemia trait
C) Sickle cell anemia

ANSWER : B

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53. which one is Not considered a variable in MDS classification according to IPSS:

A) Percentage of blasts
B) Creatinine
C) Anemia
D) Thrombocytopenia
E) Karyotype

ANSWER : B

54.Wrong about IDA

A) High reticulocyte count
B) High TIBC
C) Low ferritin
D) Low serum iron
E) Low MCV

ANSWER : A

55. 21 year old female with purpura on chest and back and low platelet count with hx of recent URI (There is a similar case in the slides)

A) ITP
B) HSP

ANSWER : D LEC 2

56. Patient with fever and drenching sweats,red steenberg cells,has enlarged lymph nodes on both sides of the diaphragm and hypodense liver lesion,what is her ann arbor stage:

A) II
B) III A
C) III B
D) IV A
E) IV B

ANSWER : E

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58. A 55 year old male patient suffers from itching after taking hot shower baths,all of the following are cause to his presentation except:

A) Polycythemia rubra vera
B) Hemochromatosis
C) Renal cell carcinoma
D) Dehydration

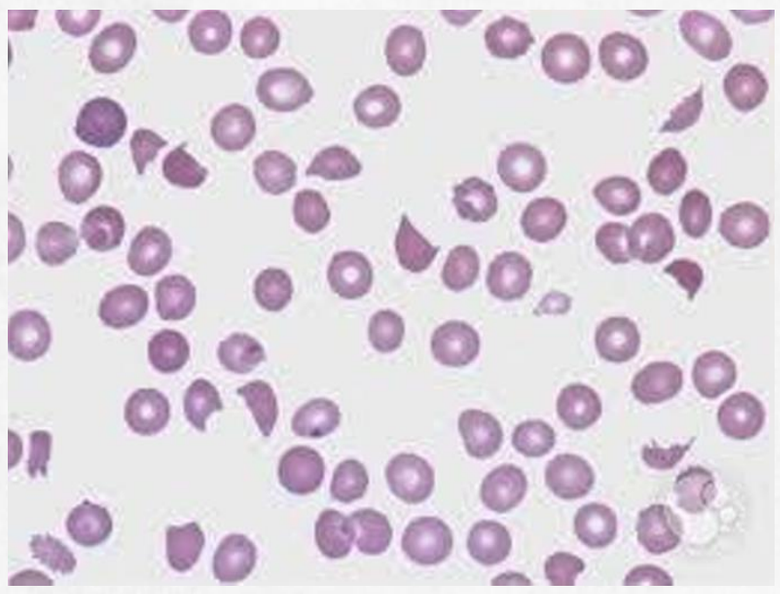
ANSWER : B

59. which is not a risk factor of IDA?

A) vegan
B) old age
C) multiparity
D) menorrhagia

ANSWER : B

60. A 30 year old woman was brought to the ER by her husband and was disoriented to surrounding,decreased Hb,normal WBCs,decreased platelets,Cr 4,LDH 859,haptoglobin low,bilirubin 3,peripheral blood smear is shown,what is the diagnosis:



ANSWER : TTP

62. Long case with image for Aure bodies:

ANSWER : acute leukemia

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63. A mutation that indicates severe hemophilia?

ANSWER : inversion 22

64. True about hemophilia:

ANSWER : actor 8 level correlates with severity.

65. Most common cause of severe hemophilia A in Jordan is?

ANSWER : Intron 22 inversion

66. Pt with pneumonia and anemia, reticulocytes 8%, Which is wrong:

ANSWER : LDH is usually within normal

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67. G6PD Mediterranean is associated with:

ANSWER : mutation (563 C—>T)

68. patient post.op, develop drug induced ischemic signs in his hands, what do u expect to find in labs?

ANSWER : decrease >50% in platlet count

69. seen in HIT?

ANSWER : skin necrosis at site of injection

70. True in DIC:

ANSWER : increased PT

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71. wrong in TIP case:

ANSWER : give platelets.

72. A female patient with headache bleeding from mucosal surface was found to have low platelet count. Hb is decreased with schistocytes on blood smear.Her temperature is 38.5. WBC are normal,PT and PTT are normal. What's the most probable explanation:

ANSWER : autoantibodies to plasma protease ADAMTS13 (TTP)

73. Which of the following doesn't occur in blood transfusion?

ANSWER : hypokalemia

74. patient with recurrent 2nd tri. pregnancy loss, Which of the following is least likely going to be changed:

ANSWER : PT

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75. a jordanian soldier was given anti malarial prophylaxis, then he developed symptoms of anemia, on blood smear was found to have heinz bodies. what is the most likely dx :

ANSWER : G6PD deficiency

76. which of the following is the characteristic cell seen in the peripheral blood in patients with autoimmune hemolytic anemia warm antibodies:

ANSWER : densely hemoglobinated spherocytes

77. Worst lymphoma:

ANSWER : Burkitts lymphoma

78. lymphoma with best prognosis

ANSWER : Follicular lymphoma

Hematology & Oncology

79. AML (M3) treatment:

ANSWER : all-trans retinoic acid

80. Multiple myeloma stage 3 treatment

ANSWER : Chemotherapy and Bone marrow transplant

81. CLL case, treatment of autoimmune hemolytic anemia:

ANSWER : CLL case, treatment of autoimmune hemolytic anemia:

82. CML case: wrong...

ANSWER : positive globulin test.

Hematology & Oncology

83. What is the genetic abnormality in CML?

ANSWER : t(9.22)

84. Hb 14.5 , WBC 56000 , plts 960,000 , 80% neutrophils, 3% basophils In this case, the diagnosis most likely is :

ANSWER : CML

85. Not used for Dx of NHL

ANSWER : B2 microglobulin

86. wrong about polycythemia vera?

ANSWER : 50% transform into AML

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87. AML with myelomonocytes, what do you see in cytogenetics:

ANSWER : inv 16

اللهم سلم غزة وأهلها من كل سوء وشر,اللهم انصرهم وثبت أقدامهم وكن لهم ناصرًا ومعينًا

لا تنسوني من صالح دعائكم

Malek Abu Rahma

The End
Good Luck シ