Medical Technology Board Exam Reviewer 16: HEMATOLOGY

1. Haptoglobin may become depleted in:
a. Inflammatory conditions
b. Acute hemolytic anemia
c. Infectious diseases
d. Kidney disease

2. This form of hemoglobin has iron in the ferric state:
a. Sulhemoglubin
b. Methemoglobin
c. Carboxyhemoglobin
d. Deoxyhemoglobin

3. Which of the following is a cause of neutrophilia:
a. Viral infection
b. Acute bacterial infection
c. Allergic reaction
d. Myeloperoxidase deficiency

4. Which of the following findings would be most typical of severe septicemia?
a. Toxic granulation
b. Auer rods
c. Hypersegmentation
d. Alder-Reilly anomaly

5. The plasma cell develops from the:
a. Basophil
b. T lymphocyte
c. B lymphocyte
d. Monocyte

6. In the neutrophil series of leukocyte development, the earliest stage to normally appear in the peripheral blood is the:
a. Myeloblast
b. Promyelocyte
c. Myelocyte
d. Band

7. The primary function of neutrophils is:
a. A mediator of hypersensitivity
b. Control of parasitic infections
c. Initiation of the immune response
d. Phagocytic defense against microorganism

8. Sézary cells are:
a. Lipid-filled histiocytes
b. Abnormal plasma cells
c. Abnormal cells in Hodgkin's disease
d. Abnormal T lymphocytes

9. This is the first heavy immunoglobulin chain produced in the maturing B-lymphocyte:
a. α
b. β
c. g
d. μ

10. A peripheral blood smear that has a mixture of macrocytes, microcytes and normal erythrocytes present can be best described by which term?
a. Polkilocytosis
b. Polychromatophilia
c. Megaloblastosis
d. Anisocytosis

11. What is the iron transport protein?
a. Ferritin
b. Transferrin
c. Hemosiderin
d. Albumin

12. What are DÖhle bodies?
a. Aggregates of rough endoplasmic reticulum
b. Primary granules
c. Fat globules
d. Liposomes containing partially degraded mucopolysaccharides

13. Multiple myeloma is a disorder of:
a. T lymphocytes
b. Plasma cells
c. Megakaryocytes
d. Erythrocytes

14. The cells considered to be distinctive of Hodgkin's disease is:
a. Turk's cells
b. Ferrata cells
c. Reed-Sternberg cells
d. Flame cells

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15. Alder-Reilly anomaly has effect on leukocytes that closely resembles:
a. Toxic granulation
b. Hyposegmention
c. Dohle-like inclusion bodies
d. Hypersegmentation

16. Aleukoerythrobalstic reaction is characterized by the presence of ___ in the peripheral blood:
a. Immature leukocytes and nucleated erythrocytes
b. Lymphocytosis and neutropenia
c. Leukocytosis and erythrocytosis
d. Pseudo-Pelger Huet cells

17. An increased in basophils is associated with:
a. Chronic myeloproliferative diseases
b. Parasitic infection
c. Chronic infection
d. Administration of glucocorticoids

18. HIV (Human immunodeficiency virus) infects:
a. B lymphocytes
b. Suppressor T lymphocytes
c. Helper T lymphocytes
d. Cytotoxic T lymphocytes

19. A 2-year old child has a total leukocyte count of 10 x 10^9/L and 60% lymphocytes. The following best describes this blood picture:
a. Absolutely lymphocytosis
b. Relative lymphocytosis
c. Normal lymphocyte count for a given age
d. Absolute lymphocytopenia

20. Auer rods are inclusions found in:
a. Myeloblasts
b. Lymphoblasts
c. Erythrocytes
d. Prolymphocytes

21. Extensive bone marrow fibrosis, leukoerythroblastic peripheral blood and the presence of anisocytosis with dacyocytes are most characteristic of:
a. CML
b. PV
c. ET
d. MMM

22. What is the minimum number of bone marrow blasts needed for the diagnosis of acute leukemia?
a. 29%
b. 50%
c. 5%
d. 30%

23. In addition to the number of blasts, what other criterion is essential for the diagnosis of RARS?
a. More than 15% ringed sideroblasts
b. More than 30% ringed sideroblasts
c. Dyshematopoiesis in all three cell lineages
d. Pancytopenia

24. The FAB classification of a leukemia with large blasts that are myeloperoxidase and specific esterase negative but have strong Positivity for nonspecific esterase inhibited by sodium fluoride is:
a. M1
b. M4
c. M5
d. M7

25. The highest levels of serum and urine muramidase are found in this leukemia:
a. M0 AML
b. M2 AML
c. CML
d. M5 AML

26. When Auer rods (bodies) are found in blasts of a case of acute leukemia, the leukemia is most probably:
a. Undifferentiated leukemia
b. B lymphocytic leukemia
c. T lymphocytic leukemia
d. Myelocytic leukemia

27. The normal lifespan of the platelets in the peripheral blood is:
a. 8 hours
b. 1 day
c. 10 days
d. 100 days

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28. Platelet dense granules are storage organelles for ___, which are released after activation.
a. Calcium, ADP and serotonin
b. Fibrinogen, glycoprotein Ib, and von Willebrand factor
c. ADP, thromboxane A_2, and fibrinogen
d. Lysosomal granules, ATP, and factor V

29. Which of the following is needed for platelets to aggregate?
a. Thrombin
b. Actin
c. von Willebrand factor
d. Fibrinogen

30. Platelet glycoprotein IIb/IIIa complex is:
a. Membrane receptor for fibrinogen
b. Secreted from the dense bodies
c. Secreted by endothelial cells
d. Also called actin

31. The formation of thromboxane A_2 in the activated platelet:
a. Is needed for platelets to adhere to collagen
b. Is caused by the alpha granule proteins
c. Requires the enzyme cyclooxygenase
d. Occurs *via* a pathway involving von Willebrand factor

32. A humoral factor which regulates platelet production by speeding up the maturation time of megakaryocyte is called;
a. Thrombocyte
b. Thrombopoeitin
c. Interleukin 3
d. prostaglandin

33. which of the following is true about relationship between ADP and platelets?
a. ADP is necessary for platelet adhesion
b. ADP released from the granules is required for platelet aggregation
c. ADP is synthesized in the platelet from arachidonic acid
d. ADP is released from the alpha granule of the platelet

34. Thrombocytopenia may be associated with all of the following, EXCEPT:
a. Prolonged bleeding time
b. Prolonged clotting time
c. Poor clot retraction
d. Positive tourniquet test

35. Approximately ___ of the total number of platelets circulate in the systemic circulation?
a. One-fourth
b. One-third
c. One-half
d. Two-thirds

36. Clot retraction is a function of:
a. Thromboxane A_2
b. Factor XIII
c. Thrombosthenin
d. Thromboplastin

37. A patient with Bernard Soulier disease will probably have:
a. Increased bleeding time
b. Increased prothrombin time
c. Increased platelet count
d. Abnormal aggregation with ADP and collagen

38. A patient with Glanzmann thrombasthenia has:
a. A mutation in the gene for fibrinogen
b. An acquired abnormality of von Willebrand factor
c. A genetic abnormality of glycoprotein IIb or IIIa

d. An acquired vascular disorder

39. A patient with hereditary telangiectasia has:
a. Abnormal platelet adhesion t collagen
b. Thrombocytosis
c. A deficiency of platelet dense bodies
d. Dilated capillaries on mucous membranes that are likely to cause bleeding

40. The bleeding time is expected to be normal in:
a. Hemophilia
b. Drug-induced thrombocytopenia
c. Uremia
d. Bernard-Soulier disease

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41. Platelet adhesion is abnormal in Bernard-Soulier disease because:
a. Glycoprotein Ib of the platelet membrane is defective
b. A plasma factor needed for platelet adhesion is absent
c. Antibodies to phospholipid are present
d. Abnormal proteins in the plasma coat the platelet membrane

42. An elevated platelet count is associated with:
a. Hemorrhage
b. Megaloblastic anemia
c. Myelodysplastic syndromes
d. Immune thrombocytopenic purpura

43. Platelet aggregation studies revealed normal aggregation curves with collagen, epinephrine, and ADP, but an abnormal aggregation curve with ristocetin. Based on these findings, what is the differential diagnosis?
a. Von Willebrand disease and Bernard-Soulier syndrome
b. Glanzmann's thrombasthenia and von disease
c. Storage pool disease and Glanzmann's thrombasthenia
d. Bernard-Soulier syndrome and storage pool disease

44. Bleeding disorder/s in which platelets fail to aggregate with ristocetin:
1. von Willebrand's disease
2. Glanzmann's disease
3. Bernard-Soulier syndrome
4. Storage pool disease
a. 1 and 3
b. 2 and 4
c. 1, 2 and 3
d. 1, 2, 3 and 4

45. Which of the following platelet responses is most likely associated with Glanzmann's thrombasthenia?
a. Decreased platelet aggregation to ristocetin
b. Defective ADP release; normal response to ADP
c. Decreased amount of ADP in platelets
d. Markedly decreased aggregation to epinephrine, ADP and collagen

46. Platelet function is impaired after ingesting aspirin because:
a. Aspirin blocks certain glycoprotein receptors on the surface of the platelet
b. Aspirin interferes with liver synthesis of a number of coagulation factors
c. Aspirin alters the structure of the glycocalyx
d. Aspirin decreases thromboxane A_2 formation by inhibiting cyclooxygenase

47. Aspirin ingestion has the following hemostatic effect in a normal person:
a. Prolonged prothrombin time
b. Prolonged bleeding time
c. Prolonged APTT
d. All of the above

48. Using manual techniques, the most reproducible test of the following is:
a. Leukocyte count
b. Erythrocyte count
c. Hemoglobin determination
d. Hematocrit determination

49. Hemoglobin is measured spectrophotometrically at which of the following wavelength:
a. 340 nm
b. 440 nm
c. 450 nm
d. 540 nm

50. Which of the following may be confused with reticulocytes in a brilliant cresyl blue stained smear:
a. Hemoglobin C crystal
b. Basophilic stipplings
c. Hemoglobin H bodies