

## Chapter 2. From Hematopoiesis to the Complete Blood Count

### Multiple Choice

1. What is the average M:E ratio for normal adult bone marrow?

- A. 1:3
- B. 4:1
- C. 1:4
- D. 6:1

ANS: B

OBJ: 2.6

2. The key organs involved in extramedullary hematopoiesis include the:

- A. Kidney and thymus
- B. Lymph nodes and heart
- C. Liver and spleen
- D. Kidney and liver

ANS: C

OBJ: 2.5

3. Which of these assays is the best test to assess the bone marrow's response to anemic stress?

- A. Hemoglobin value
- B. MCV value
- C. Reticulocyte count
- D. Hematocrit

ANS: C

OBJ: 2.12

4. All of the following splenic functions are related to hematopoiesis, *except*:

- A. Production of opsonizing antibodies
- B. Production of WBCs, if necessary
- C. Filtering out of old or deformed cells
- D. Storage of platelets and granulocytes

ANS: A  
OBJ: 2.4

5. Which of the following is a primary site for hematopoiesis in a fetus of 4 to 5 months' gestation?

- A. Yolk sac
- B. Spleen
- C. Distal long bones
- D. Axial skeleton

ANS: B  
OBJ: 2.2

6. A patient with the following values—RBC =  $4.01 \times 10^{12}/L$ , Hgb = 12.5 g/dL, and Hct = 37.2%—will most likely have which of the following RBC indices?

- A. MCV = 92.8 fL, MCH = 31.2 pg, MCHC = 33.6%
- B. MCV = 92.8 fL, MCH = 33.6 pg, MCHC = 31.2%
- C. MCV = 107.8 fL, MCH = 32.1 pg, MCHC = 33.6%
- D. MCV = 132.2 fL, MCH = 32.1 pg, MCHC = 33.5%

ANS: A  
OBJ: 2.9

7. The hormone responsible for red blood cell development in the bone marrow is:

- A. Thyroxin
- B. Insulin
- C. Leukopoietin
- D. Erythropoietin

ANS: D  
OBJ: 2.1

8. Which of the following sites is the most preferable for bone marrow aspiration and biopsy in adults?

- A. Sternum
- B. Iliac crest
- C. Fibula

D. Vertebra

ANS: B

OBJ: 2.7

9. A patient's hemoglobin is 12.3 g/dL. On the peripheral smear, the red cells appear normochromic and normocytic. The hematocrit value that correlates with these data is:

A. 34%

B. 37%

C. 40%

D. 43%

ANS: B

OBJ: 2.10

10. A Wright-stained smear of a patient's bone marrow would effectively reveal all the following cells *except*:

A. Iron-containing cells

B. RBC precursor cells

C. WBC precursor cells

D. Mature WBCs

ANS: A

OBJ: 2.7

11. Erythropoietin is produced by the:

A. Kidneys

B. Liver

C. Spleen

D. Thymus gland

ANS: A

OBJ: 2.1

12. Bone marrow aspiration is usually required in conditions of:

A. Anemia

B. Hypoxia

C. Leukemia

D. Hepatosplenomegaly

ANS: C

OBJ: 2.7

13. Opsonizing antibodies produced by the spleen serve to:

- A. Strip the capsule from bacterial pathogens
- B. Recycle erythrocyte byproducts
- C. Aid in extramedullary hematopoiesis
- D. Fight viral infection

ANS: A

OBJ: 2.4

14. The spleen harbors \_\_\_\_\_ of the circulatory platelet mass.

- A. one-quarter
- B. one-third
- C. one-half
- D. three-quarters

ANS: B

OBJ: 2.4

15. Mature red blood cells leave the bone marrow and enter the circulation via the:

- A. Reticuloendothelial system
- B. Osteoclasts
- C. Spleen
- D. Bone marrow sinuses

ANS: D

OBJ: 2.1

16. Which of the following is a site of extramedullary hematopoiesis in an adult?

- A. Spleen
- B. Liver
- C. Iliac crest
- D. Both A and B

ANS: D  
OBJ: 2.5

17. The \_\_\_\_\_ is one of the most stable parameters in a CBC.
- A. MCV
  - B. Hct
  - C. MCHC
  - D. MCH

ANS: A  
OBJ: 2.10

18. The CBC parameter that gives insight into the amount of anisocytosis present in a specimen is:
- A. RDW
  - B. MCHC
  - C. MCV
  - D. Hgb

ANS: A  
OBJ: 2.8

True/False

19. The CFU-GEMM is a multipotential stem cell, capable of differentiating into a lymphoid or nonlymphoid precursor committed cell.

ANS: False  
OBJ: 2.3

20. Patients with moderate anemias (7 to 10 g/dL) may be asymptomatic.

ANS: True  
OBJ: 2.10