Complete Haemostasis and Coagulation - 30 MCQ Questions

1. Which of the following correctly describes the primary purpose of haemostasis according to the lecture?

A. Permanent conversion of blood into a solid state within all blood vessels regardless of injury

B. Prevention of blood loss while maintaining blood in a fluid state inside intact blood vessels

C. Continuous activation of platelets and clotting factors throughout systemic circulation

D. Suppression of fibrin formation to avoid platelet activation during vascular injury

2. Which of the following represents the correct sequence of the major haemostatic mechanisms discussed in the lecture?

A. Blood coagulation → platelet destruction → vascular dilation → clot dissolution

B. Platelet aggregation → vasodilation → erythrocyte destruction → fibrinolysis

C. Vascular spasm → platelet reaction → platelet plug formation → blood coagulation

D. Platelet activation → anticoagulation → vasoconstriction → plasma protein degradation

3. Which of the following BEST explains the physiological role of vascular spasm after vessel injury?

A. Increasing blood flow to accelerate platelet destruction within damaged vessels

B. Reducing blood loss through transient vasoconstriction of the injured vessel wall

C. Activating fibrinolysis before platelet plug formation occurs

D. Preventing platelet adhesion by increasing endothelial permeability

4. Which of the following substances released from activated platelets contributes directly to vasoconstriction during vascular spasm?

A. Histamine and bradykinin

B. ADP and fibrinogen

C. TXA2 and serotonin

D. Protein C and antithrombin

5. Which of the following statements regarding platelet production is correct?

A. Platelets are synthesized mainly within lymph nodes through erythrocyte fragmentation

B. Platelets are produced in bone marrow from megakaryocyte cytoplasmic fragmentation

C. Platelets originate from mature neutrophils after activation by thromboplastin

D. Platelet production occurs exclusively in the spleen under the influence of fibrinogen

6. Which of the following BEST describes the role of thrombopoietin?

A. It suppresses megakaryocyte maturation and reduces platelet release into circulation

B. It stimulates platelet destruction within splenic macrophages during inflammation

C. It increases the number and maturation rate of megakaryocytes

D. It converts fibrinogen directly into fibrin during coagulation

7. Which of the following receptors is primarily involved in platelet adhesion to von Willebrand factor?

A. GPIIb/IIIa receptor

B. GPIb receptor

C. Insulin receptor

D. β■-adrenergic receptor

8. Which of the following BEST explains the importance of von Willebrand factor in haemostasis?

A. It directly degrades fibrin to prevent excessive clot formation

B. It binds platelets to exposed collagen and stabilizes factor VIII in circulation

C. It inhibits platelet aggregation by blocking fibrinogen receptors

D. It activates plasminogen to initiate fibrinolysis within the clot

9. Which of the following platelet granules contains serotonin and ADP according to the lecture?

A. Alpha granules

B. Lysosomal granules

C. Dense granules

D. Nuclear granules

10. Which of the following platelet granule contents is MOST associated with wound healing and fibrin stabilization?

A. ADP and ATP

B. Serotonin and calcium

C. Platelet-derived growth factor and factor XIII

D. Histamine and thrombomodulin

11. Which of the following BEST describes platelet aggregation?

A. Binding of platelets directly to collagen through tissue thromboplastin only

B. Interaction of fibrinogen with GPIIb/IIIa receptors linking adjacent platelets together

C. Destruction of activated platelets by splenic macrophages during clot formation

D. Conversion of fibrin into fibrinogen through thrombin inhibition

12. Which of the following factors requires vitamin K for hepatic synthesis according to the lecture?

A. Factors I, III, and VIII only

B. Factors II, VII, IX, and X

C. Factors V, XI, XII, and XIII

D. Factors VIII, IX, XI, and fibrinogen only

13. Which of the following BEST describes the intrinsic coagulation pathway?

A. It is activated mainly by tissue factor released from damaged tissues external to blood vessels

B. It begins with activation of factor XII following exposure to collagen beneath damaged endothelium

C. It requires histamine release from mast cells to activate factor VII directly

D. It bypasses factor X and converts fibrinogen directly into fibrin monomers

14. Which of the following statements regarding the extrinsic coagulation pathway is correct?

A. It is initiated by factor XII activation following exposure to glass surfaces

B. It depends primarily on platelet aggregation without tissue factor involvement

C. It is triggered by tissue thromboplastin that activates factor VII

D. It functions independently of calcium ions and platelet phospholipids

15. Which of the following represents the ultimate step in blood coagulation according to the lecture?

A. Conversion of prothrombin into factor XIII

B. Activation of tissue thromboplastin by collagen fibers

C. Conversion of fibrinogen into fibrin

D. Activation of factor XII by exposed endothelial cells

16. Which of the following BEST explains clot retraction?

A. Complete dissolution of fibrin meshwork by plasmin within seconds after clot formation

B. Shrinkage of the fibrin clot due to contraction of platelets trapped inside the clot

C. Vasodilation around the clot to improve oxygen delivery to damaged tissues

D. Degradation of fibrinogen by activated macrophages within the spleen

17. Which of the following proteins is directly responsible for clot retraction according to the lecture?

A. Elastin and collagen

B. Histamine and serotonin

C. Actin, myosin, and thrombosthenin

D. Albumin and fibrinogen

18. Which of the following BEST describes hypercoagulability states?

A. Conditions characterized by decreased clotting activity leading to hemorrhage exclusively

B. Exaggerated haemostatic activity predisposing to thrombosis and vessel occlusion

C. Disorders caused only by hereditary deficiencies of clotting factors

D. Physiological suppression of platelet function during inflammation

19. Which of the following conditions is associated with increased platelet function according to the lecture?

A. Severe vitamin C deficiency

B. Splenectomy and atherosclerosis

C. Hemophilia A and von Willebrand disease

D. Liver failure and gallbladder disease

20. Which of the following inherited abnormalities is strongly associated with accelerated clotting activity?

A. Mutation in factor V Leiden gene

B. Deficiency of factor VIII only

C. Vitamin K deficiency caused by malabsorption

D. Reduced platelet adhesion secondary to vWF deficiency

21. Case: A 24-year-old man presents with recurrent bleeding into joints, severe pain, and swelling after minor trauma. Laboratory testing reveals deficiency of factor VIII. Which disorder BEST explains this presentation?

A. Von Willebrand disease

B. Hemophilia A

C. Disseminated intravascular coagulation

D. Reactive thrombocytosis

22. Case: A patient develops prolonged bleeding time despite a normal platelet count. Further testing reveals defective platelet adhesion due to abnormal binding between platelets and exposed collagen. Which disorder is MOST likely responsible?

A. Hemophilia A

B. Vitamin K deficiency

C. Von Willebrand disease

D. Polycythemia vera

23. Case: A hospitalized patient receiving prolonged heparin therapy develops thrombocytopenia associated with abnormal bleeding. According to the lecture, this condition is BEST classified as:

A. Drug-induced thrombocytopenia

B. Hypercoagulability secondary to platelet excess

C. Disseminated intravascular coagulation exclusively

D. Hereditary factor XIII deficiency

24. Case: A patient with chronic liver disease develops prolonged bleeding after minor injury. Which mechanism BEST explains this haemostatic defect?

A. Excessive activation of factor XII within the intrinsic pathway

B. Impaired synthesis of clotting factors and reduced vitamin K storage

C. Increased thrombopoietin secretion causing platelet aggregation

D. Overproduction of fibrin stabilizing factor XIII within hepatocytes

25. Case: A patient with severe thrombocytopenia develops spontaneous mucosal bleeding and pinpoint hemorrhages. Which platelet count is MOST likely associated with spontaneous bleeding according to the lecture?

A. Above 400,000/μL

B. Around 250,000/μL

C. Below 20,000/μL

D. Between 100,000–150,000/μL

26. Case: A patient experiences widespread clot formation within the microcirculation accompanied by simultaneous bleeding due to consumption of platelets and clotting factors. Which condition BEST explains this presentation?

A. Hemophilia A

B. Disseminated intravascular coagulation

C. Isolated vitamin C deficiency

D. Reactive thrombocytosis

27. Case: A woman with prolonged immobilization after surgery develops venous thrombosis. Which mechanism BEST explains her condition according to the lecture?

A. Accelerated activity of the clotting system associated with acquired hypercoagulability

B. Deficiency of factor XIII resulting in unstable fibrin clot formation

C. Severe thrombocytopenia causing spontaneous microvascular hemorrhage

D. Impaired platelet aggregation due to defective GPIIb/IIIa receptors

28. Case: An elderly patient develops easy bruising despite normal platelet count and coagulation tests. Examination reveals structurally weak vessel walls due to impaired collagen support. Which condition BEST explains this presentation?

A. Senile purpura

B. Hemophilia A

C. Reactive thrombocytosis

D. Factor V Leiden mutation

29. Case: A patient with severe vitamin C deficiency presents with easy bruising and pinpoint hemorrhages despite normal clotting factors. Which mechanism BEST explains these findings?

A. Defective collagen synthesis causing vascular wall weakness

B. Accelerated platelet destruction by splenic macrophages

C. Excess activation of the intrinsic coagulation pathway

D. Increased fibrin stabilization by factor XIII deficiency

30. Case: A trauma patient develops extensive tissue injury followed by activation of coagulation through tissue factor release. Which coagulation pathway is activated FIRST according to the lecture?

A. Intrinsic pathway through factor XII activation

B. Extrinsic pathway through factor VII activation by tissue factor

C. Common pathway through direct fibrin formation

D. Fibrinolytic pathway through plasmin activation immediately

Model Answers

1. B
2. C
3. B
4. C
5. B
6. C
7. B
8. B
9. C
10. C
11. B
12. B
13. B
14. C
15. C
16. B
17. C
18. B
19. B
20. A
21. B
22. C
23. A
24. B
25. C

26. B

27. A

28. A

29. A

30. B