

## FLUID AND HAEMODYNAMIC DERANGEMENTS

1. In normal haemostasis
  - a. Factor V inhibits thrombosis
  - b. A-2 microglobulin is antithrombotic
  - c. PGI<sub>2</sub> favours platelet aggregation
  - d. Platelet aggregation is inhibited by vWF
  - e. tPA is responsible for prothrombotic events
2. normal endothelial cells decrease platelet aggregation by secreting
  - a. interleukin -1
  - b. vWF
  - c. prostacyclin
  - d. factor V
  - e. thromboplastin
3. Thrombosis is potentiated by all of the following except
  - a. vWF deficiency
  - b. protein S deficiency
  - c. Antithrombin III deficiency
  - d. Thrombotic thrombocytopenia
  - e. Acute leukaemia
4. Acute compensatory mechanisms in shock include all except
  - a. Baroreceptor reflex
  - b. Reverse stress-relaxation of vascular smooth muscle
  - c. The effects of increased aldosterone secretion
  - d. Activation of renin-angiotensin system
  - e. CNS ischaemic response
5. prothrombotic characteristic of endothelium include
  - a. plasminogen activator
  - b. prostacyclin
  - c. vWF
  - d. thrombomodulin
  - e. heparin like molecules
6. Shock in burns patients is primarily due to
  - a. Neurogenic factors
  - b. Hypovolaemia
  - c. Acute RBC haemolysis
  - d. Myocardial depression factor
  - e. All of the above

7. Mediators of septic shock include all of the following except
  - a. IL6
  - b. C5a
  - c. PAF
  - d. Catecholamines
  - e. TNF antibodies
  
8. Prothrombotic factors include all of the following except
  - a. PAF
  - b. vWF
  - c. nitric oxide
  - d. tissue factor
  - e. tPA inhibitor
  
9. Regarding septic shock
  - a. Endotoxin is the only cause
  - b. Marked vasoconstriction occurs in the non-infected tissue
  - c. Cardiac output is as low as 75% in some places
  - d. Endotoxin entering the circulation causes an effect very similar to anaphylaxis
  - e. Blood viscosity is unchanged
  
10. Thrombus formation is inhibited by
  - a. vWF
  - b. IL-1
  - c.  $\alpha$ 2 macroglobulin
  - d. TNF
  - e. Endothelial cell injury
  
11. Oedema can be caused by
  - a. Raised capillary hydrostatic pressure
  - b. Reduced colloid osmotic pressure
  - c. Vitamin C deficiency
  - d. Elevated angiotensin II levels
  - e. All of the above
  
12. The process of blood coagulation involves
  - a. Prothrombin activator converting fibrinogen to fibrin
  - b. The removal of peptides from each fibrinogen molecule
  - c. The action of plasmin on fibrin
  - d.  $\alpha$ 2 macroglobulin
  - e. the action of ATIII to promote clotting

13. The first vascular response to injury is
- Slowing of the circulation
  - Arteriolar vasoconstriction
  - Capillary engorgement
  - Recruitment of vascular beds
  - Venular dilation
14. White infarcts occur in the
- Small intestines
  - Kidney
  - Lung
  - Sigmoid colon
  - Oesophagus
15. Air embolism
- Cannot occur in bone
  - Affects only skeletal muscle and joints
  - Causes focal ischaemia
  - Is unlikely to occur with 10cc of air
  - Is due to dissolved oxygen in divers
16. Oedema can be caused by
- Decreased hydrostatic pressure
  - Sodium retention
  - Hyperproteinaemia
  - Polycythaemia
  - Hypertension
17. regarding the types of shock
- cardiogenic shock is most commonly due to tamponade
  - septic shock is caused by gram negative bacteria endotoxin in 70% cases
  - anaphylactic shock is IgG mediated
  - septic shock is caused by a low CO
  - neurogenic shock can follow brachial plexus injury
18. tPA
- inactivates antithrombin
  - is inactivated by thrombin
  - converts plasminogen to thrombin
  - is blocked by plasminogen activator
  - is most effective when bound to fibrin meshwork

19. Regarding oedema
- Hypoproteinaemia is the commonest cause of systemic oedema
  - Hepatic cirrhosis is the commonest cause of hypoproteinaemia
  - Facial oedema is a prominent feature of anasarca
  - Hereditary angioneurotic oedema involves skin only
  - Infection does not cause pulmonary oedema
20. Concerning thrombosis which is false
- Endothelial injury can induce thrombosis
  - Hypercoagulable states such as ATIII deficiency increases tendency to thrombosis
  - Arterial thrombi contain Lines of Zahn
  - Rheumatic fever predisposes arterial thrombi
  - Thrombi are commonly seen in pancreatic or gastrointestinal carcinoma
21. Septic shock causes all except
- Myocardial depression
  - Vasoconstriction
  - DIC
  - ARF
  - ARDS
22. regarding infarction
- tumour obstruction accounts for a significant amount of cases
  - all vascular occlusions lead to infarction
  - they can be classified as either haemorrhagic or septic
  - white infarcts occur in the testis
  - most infarcts are wedge shaped
23. with regard to embolism
- arterial emboli most often lodge in viscera
  - pulmonary emboli are rarely multiple
  - amniotic fluid emboli are associated with the greatest percentage mortality
  - most PEs produce clinical signs and symptoms of respiratory distress
  - all emboli consist of either gas or solid intravascular mass
24. natural anticoagulants include
- vWF
  - protein C
  - protein P
  - antithrombin IV
  - TXA<sub>2</sub>

25. peripheral oedema
- is caused by decreased hydrostatic pressure
  - is caused by increased renin-angiotensin-aldosterone secretion
  - is characterized by a fluid with specific gravity of 1.020
  - is commonly caused by protein-losing gastroenteropathy
  - is increased by salt restriction in the diet
26. With regard to amniotic fluid embolisation, which is false
- It can occur as a complication of labour
  - There is lanugo hair in the pulmonary circulation
  - Has a mortality of 70%
  - DIC can occur
  - It is characterized by severe dyspnoea, hypotensive shock and seizures
27. Infarction
- In tissues with a double circulation will be of the white type
  - thromboembolic events accounts for 60% of the cause of all types of infarct
  - usually has characteristic cytologic changes of liquefaction
  - of anaemic type is initially darker than surrounding tissue
  - of bland type is due to bacterial activity
28. With regard to shock
- There are 3 main types – cardiogenic, septic and anaphylactic
  - Gram positive bacteria and fungi cannot induce septic shock
  - Higher dose LPS directly injures endothelial cells, triggering coagulation cascade
  - Superantigens are a major cause of septic shock
  - Most young, healthy patients survive septic shock
29. In regard to coagulation
- The extrinsic and intrinsic pathways converge at the point where factor VII is activated
  - The extrinsic and intrinsic pathways converge at the point where factor XII is activated
  - The intrinsic pathway is activated in vitro
  - The extrinsic pathway is activated in vitro by contact activation of Hageman factor
  - Antithrombin is activated by the therapeutic administration of Vit K
30. concerning systemic thromboembolism
- the majority are secondary to MI
  - aortic aneurysms are the commonest site of origin
  - most end in the lungs
  - deep leg veins are the commonest site of origin
  - most end in the brain

31. With regards to oedema
- It is caused by increased interstitial osmotic pressure
  - It results in gross cell swelling
  - It is characterized by increased plasma volume
  - Nephritic syndrome results in more severe oedema than cardiac dysfunction
  - Outflow of fluid is from the venules
32. With regards to infarction
- The characteristic cytologic change of all infarcts is ischaemic coagulative necrosis of affected cells
  - Is caused only by the occlusion of arterial supply
  - Haemorrhagic infarcts are typically seen in solid tissues
  - In most cases the necrotic focus is replaced with scar tissue
  - Inflammatory exudates usually begins at the margins of an infarcted area within a few minutes
33. White infarcts
- May be transiently red
  - Occur in the intestine
  - Result from venous occlusion
  - Are always septic
  - Occur predominately in the liver
34. Which best defines the pathophysiology of shock
- Widespread tissue hypoxia as a result of decreased blood volume
  - Lactic acid production
  - Low CO
  - Decreased blood volume
  - Cellular hypoxia resulting from impaired tissue perfusion
35. regarding air embolism, what amount is required to produce symptoms
- 10ml
  - 20ml
  - 100ml
  - 1000ml
  - 1ml
36. post mortem features of a clot include
- lines of Zahn
  - the absence of RBC in supernatant
  - adherence to vascular walls

37. non-inflammatory oedema

- a. has a high protein content
- b. has a SG greater than 1.012
- c. is caused by low levels of aldosterone
- d. is caused by elevated oncotic pressure
- e. is associated with elevated levels of ANP

38. DIC is associated with

- a. Thrombocytosis
- b. A bleeding diathesis presentation in a patient with malignancy

39. Fat embolism syndrome is associated with

- a. Mortality of >20%
- b. A non-thrombocytopenic petechial rash

Answers

1. B
2. C
3. A
4. C
5. C
6. E
7. E
8. C
9. D
10. C
11. E
12. B
13. B
14. B
15. C
16. B
17. B
18. E
19. C
20. C
21. B
22. E
23. C
24. B
25. B
26. C
27. D
28. C
29. C
30. A
31. D
32. D
33. ?
34. E
35. C
36. B
37. E
38. B
39. B
- 40.