

Shock Pathophysiology - 30 MCQ Questions

1. Which of the following correctly describes the fundamental definition of shock according to the lecture?
 - A. A transient increase in blood flow to peripheral tissues resulting in excessive oxygen delivery and metabolic alkalosis
 - B. A progressive condition characterized by inadequate tissue perfusion leading to decreased oxygen delivery and a shift toward anaerobic metabolism
 - C. A localized vascular disorder affecting only skeletal muscles without systemic consequences
 - D. A permanent elevation in cardiac output associated with enhanced aerobic metabolism and reduced lactic acid production
2. Which of the following is considered an early manifestation of compensated shock?
 - A. Severe hypotension with absent peripheral pulses and irreversible organ damage
 - B. Increased respiratory rate, anxiety, and restlessness before significant blood pressure reduction occurs
 - C. Complete failure of compensatory mechanisms associated with cardiac arrest
 - D. Profound bradycardia caused by suppression of sympathetic nervous activity
3. Which of the following structures is primarily responsible for maintaining perfusion by functioning as the “pump” of the cardiovascular system?
 - A. Blood vessels
 - B. Plasma proteins
 - C. Heart
 - D. Kidneys
4. Which of the following types of shock is primarily caused by low circulating blood volume?
 - A. Cardiogenic shock
 - B. Neurogenic shock
 - C. Hypovolemic shock
 - D. Septic shock
5. Which of the following conditions may directly lead to hypovolemic shock according to the lecture?

- A. Arrhythmias and congestive heart failure
 - B. Burns, diarrhea, and severe hemorrhage
 - C. Spinal cord injury and hypoglycemia
 - D. Allergic hypersensitivity reactions associated with histamine release
6. Which of the following BEST explains cardiogenic shock?
- A. Failure of blood vessels to maintain vascular tone due to autonomic dysfunction
 - B. Systemic infection causing generalized vasodilation and intravascular clotting
 - C. Failure of the heart as a pump resulting in impaired cardiac output
 - D. Severe dehydration leading to reduced venous return and plasma volume loss
7. Which of the following is MOST strongly associated with neurogenic shock?
- A. Massive release of histamine after exposure to allergens
 - B. Loss of vascular tone due to spinal cord injury or anesthesia
 - C. Severe blood loss caused by trauma and gastrointestinal bleeding
 - D. Acute myocardial infarction with ventricular dysfunction
8. Which of the following statements correctly describes anaphylactic shock?
- A. It results from bacterial toxins causing pyrexia and microvascular clotting
 - B. It develops because of chronic renal hypoperfusion and activation of RAAS
 - C. It is caused by allergic hypersensitivity reactions leading to histamine release, vasodilation, and increased capillary permeability
 - D. It occurs due to excessive parasympathetic stimulation causing severe bradycardia and vasoconstriction
9. Which of the following BEST describes septic shock?
- A. A systemic infection associated with bacterial toxins, generalized vasodilation, and possible intravascular micro-clotting
 - B. A localized inflammatory reaction confined to the respiratory tract without circulatory consequences
 - C. A condition caused exclusively by fungal infections in immunocompetent individuals
 - D. A type of shock resulting from acute allergic hypersensitivity and mast cell degranulation

10. Which of the following equations correctly represents the relationship discussed in the lecture regarding blood pressure regulation?
- A. $BP = HR \div SVR$
 - B. $BP = CO \times SVR$
 - C. $BP = SV \div CO$
 - D. $BP = RR \times HR$
11. Which of the following BEST defines cardiac output?
- A. The resistance encountered by blood flow through peripheral arteries
 - B. The volume of blood ejected from each ventricle per minute
 - C. The amount of oxygen extracted from blood by tissues each minute
 - D. The pressure exerted by blood against arterial walls during systole only
12. Which of the following physiological changes occurs during compensated shock due to activation of the sympathetic nervous system?
- A. Decreased heart rate and peripheral vasodilation
 - B. Increased force of cardiac contraction and increased peripheral resistance
 - C. Complete suppression of baroreceptor activity
 - D. Decreased respiratory rate associated with reduced oxygen demand
13. Which of the following is considered a late sign of shock according to the lecture?
- A. Restlessness
 - B. Tachypnea
 - C. Falling blood pressure
 - D. Anxiety
14. Which of the following clinical findings is most characteristic of progressive shock?
- A. Normal mental status with stable perfusion
 - B. Flushed warm skin with bounding pulses only
 - C. Tachycardia with weak thready pulse and marked hypotension

D. Enhanced ventricular filling with increased myocardial contractility

15. Which of the following may occur during irreversible shock?

A. Restoration of perfusion with complete recovery of organ function

B. Reversible metabolic changes without tissue injury

C. Multiple organ system failure and death despite resuscitation

D. Improved renal blood flow and normalization of systemic vascular resistance

16. Case: A 22-year-old patient presents after severe trauma with massive external bleeding. He develops tachycardia, cool extremities, delayed capillary refill, and decreased blood pressure. Which type of shock is MOST likely responsible for this presentation?

A. Neurogenic shock

B. Septic shock

C. Hypovolemic shock

D. Cardiogenic shock

17. Case: A 65-year-old patient with a history of acute myocardial infarction suddenly develops hypotension, weak pulses, pulmonary congestion, and decreased cardiac output. Which type of shock BEST explains these findings?

A. Cardiogenic shock

B. Anaphylactic shock

C. Neurogenic shock

D. Hypovolemic shock

18. Case: A patient undergoing spinal anesthesia suddenly develops severe hypotension and warm flushed skin due to loss of vascular tone. Which type of shock is MOST likely present?

A. Septic shock

B. Cardiogenic shock

C. Neurogenic shock

D. Hypovolemic shock

19. Case: A young woman develops sudden respiratory distress, generalized flushing, hypotension, and edema shortly after receiving a blood transfusion. Which mechanism BEST explains her shock state?
- A. Acute pump failure resulting in decreased stroke volume
 - B. Histamine-mediated vasodilation with increased capillary permeability
 - C. Systemic bacterial toxin release causing microvascular clotting
 - D. Severe plasma volume loss caused by dehydration
20. Case: A hospitalized immunocompromised patient develops fever, hypotension, warm skin, and evidence of systemic infection associated with bacterial toxins. Which type of shock is MOST likely occurring?
- A. Septic shock
 - B. Cardiogenic shock
 - C. Neurogenic shock
 - D. Hypovolemic shock
21. Case: A patient in compensated shock demonstrates increased respiratory rate despite relatively preserved blood pressure. According to the lecture, what is the primary purpose of this respiratory response?
- A. To decrease oxygen uptake and reduce metabolic demand
 - B. To increase oxygen delivery by enhancing ventilation in response to reduced tissue perfusion
 - C. To suppress baroreceptor activity and decrease cardiac output
 - D. To promote respiratory acidosis for improved tissue oxygen extraction
22. Case: A patient with prolonged tissue hypoperfusion develops lactic acidosis due to anaerobic metabolism. Which physiological response is MOST likely triggered to compensate for this acid-base disturbance?
- A. Suppression of ventilation to conserve carbon dioxide
 - B. Increased respiratory rate stimulated by central chemoreceptors
 - C. Decreased medullary respiratory center activity
 - D. Reduced oxygen delivery to tissues to minimize metabolic stress
23. Case: A patient in shock develops decreased renal blood flow, leading to activation of the renin-angiotensin-aldosterone system (RAAS). Which of the following effects is MOST likely produced?

- A. Peripheral vasodilation with sodium loss in urine
- B. Increased sodium and water reabsorption with peripheral vasoconstriction
- C. Complete inhibition of aldosterone secretion
- D. Reduced blood volume secondary to osmotic diuresis

24. Case: A dehydrated patient experiences increased plasma osmolarity, stimulating osmoreceptors within the hypothalamus. Which hormone is released as part of the compensatory response?

- A. Insulin
- B. ACTH
- C. ADH
- D. Thyroxine

25. Case: A patient with progressive shock becomes confused and develops slow speech, cold gray waxy skin, and peripheral pooling of blood. Which stage of shock BEST corresponds to this presentation?

- A. Compensated shock
- B. Progressive shock
- C. Irreversible shock
- D. Recovery phase of shock

26. Which of the following organs has the shortest tolerance to ischemia according to the lecture?

- A. Skin
- B. Skeletal muscle
- C. Brain
- D. Liver

27. Which of the following findings is characteristic of cold shock rather than warm shock?

- A. Flushed skin with bounding pulses
- B. Pale cool skin associated with peripheral vasoconstriction
- C. Increased capillary permeability due to histamine release
- D. Generalized vasodilation with warm extremities

28. Which of the following BEST explains why anaerobic metabolism contributes to acidosis during shock?

- A. Anaerobic metabolism consumes excessive bicarbonate directly from plasma
- B. Anaerobic metabolism produces lactic acid as a metabolic byproduct
- C. Anaerobic metabolism permanently inhibits ventilation and carbon dioxide elimination
- D. Anaerobic metabolism suppresses all renal compensatory mechanisms immediately

29. Which of the following clinical findings is most characteristic of irreversible shock?

- A. Tachycardia with preserved mental status
- B. Slow irregular respirations with dilated sluggish pupils
- C. Mild anxiety with increased respiratory rate
- D. Bounding pulses with generalized skin flushing

30. Which of the following complications may result from irreversible shock according to the lecture?

- A. Enhanced myocardial contractility and increased renal perfusion
- B. Reversible electrolyte imbalance without organ dysfunction
- C. Adult respiratory distress syndrome and multiple organ failure
- D. Permanent normalization of systemic vascular resistance

Model Answers

1. B

2. B

3. C

4. C

5. B

6. C

7. B

8. C

9. A

10. B

11. B

12. B

13. C

14. C

15. C

16. C

17. A

18. C

19. B

20. A

21. B

22. B

23. B

24. C

25. B

26. C

27. B

28. B

29. B

30. C