

JRG COLLEGE OF PHARMACY

UNIVERSITY SOLVED QUESTION WITH ANSWER

Year : 2022-23

Subject : Pathophysiology

Subject Code : 23PBP204

Subject In-Charge : Mr. Pankaj Kumar Rout and Ms. Monali Padhi



Registration No:

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Total Number of Pages: 02

Course: B.Pharm
Sub_Code: BP204T

2nd Semester Regular/Back Examination: 2022-23

SUBJECT: Pathophysiology

BRANCH(S): B.Pharm

Time: 3 Hour

Max Marks: 75

Q.Code: M659

Answer Question No.1 (Part-1) which is compulsory, any seven from Part-II, and any two from Part-III.

The figures in the right hand margin indicate marks.

Part-I

Q1 Answer the following questions :

(2 x 10)

- Write various causes of cell injury.
- What is opsonin? Write its role in inflammation.
- What do you mean diapedesis?
- Write down the causes of megaloblastic anaemia.
- Define chemotaxis. Write down the example of chemotactic agent.
- Define and classify epilepsy.
- What are the symptoms of acute renal failure?
- What is the difference between atherosclerosis and arteriosclerosis?
- Name the causative agent for Gonorrhea. Write down its symptoms.
- Name the disorder associated with hypothyroidism.

Part-II

Q2 Focused-Short Answer Type Questions- (Answer Any Seven)

(5 x 7)

- What is necrosis? Write different classes of necrosis.
- Define hypertrophy. Write down the causes of hypertrophy.
- What is hyperbilirubinemia. Describe the pathogenesis of Jaundice.
- Define and classify Angina. Write its pathogenesis.
- What is Rheumatoid Arthritis and Osteoarthritis? Briefly Explain the pathogenesis of Rheumatoid arthritis.
- Classify Diabetes mellitus. Write the pathogenesis and symptoms of IDDM.
- What is Parkinson's disease? Describe its pathogenesis.
- Describe the etiopathogenesis of peptic ulcer. Write down its symptoms.
- Classify cancer; Write its causes and pathogenesis.

Part-III

Long Answer Type Questions (Answer Any Two)

- Q3 Define and classify cell injury and describe pathogenesis of reversible type of cell injury due to hypoxia and Ischemia. (10)
- Q4 Discuss about the Vascular events of inflammation and cell derived mediators of inflammation. Write a short outline on process of healing. (10)
- Q5 What is pulmonary and non pulmonary tuberculosis? Discuss about the transmission, pathogenesis, sign and symptoms of Tuberculosis. (10)
- Q6 Define Hypertension. What are the types of Hypertension? Discuss the pathogenesis and symptoms of hypertension. (10)



① Q write various causes of cell injury?

Ans → The cell injury is of 2 types.

① Reversible & ② Irreversible.

In Reversible :- cellular swelling, fatty changes.

② In Irreversible :- It divided into 2 types
 a) Necrosis :- unregulated cell death.
 Apoptosis :- programmed cell death.

③ what is opsonin? write its role in Inflammation.
 Ans → opsonins are proteins (like antibodies & complement proteins) that tag foreign invaders for destruction by immune cells.

④ what do you mean diapedesis?

Ans → diapedesis is the process where white blood cells squeeze through the walls of blood vessels to reach the site of an infection or injury.

⑤ write down the causes of megaloblastic anemia?

Ans → megaloblastic anemia is mainly caused by deficiencies in vitamin B₁₂ and/or folate, crucial for healthy red blood cell production.

⑥ Define Chemotaxis. write down examples of chemotactic agents.

Q7) chemotaxis is the movement of cell towards or away from a chemical substance. ②

Example:- Immune cells:- white blood cells move towards the site of an infection, attracted by chemicals released by damaged tissue.

Q1) Define & classify epilepsy!

A7) Epilepsy:- A brain disorder characterized by recurrent seizures.

classification

focal:- seizures originate in one specific area of the brain.

Generalized:- seizures involve both hemispheres of the brain. / brain injuries

Q8) what are the symptoms of acute renal failure?

A7) reduced urine output:- less urine production than usual, or no urine production at all.

Swelling:- fluid build up in legs, ankles & feet

fatigue:- feeling unusually tired.

Nausea and vomiting.

Chest pain or pressure.

Q9) what is the difference between arteriosclerosis & atherosclerosis?

A7) Arteriosclerosis:- A general term for the hardening & thickening of artery walls.

A7) Atherosclerosis:- A specific type of arteriosclerosis characterized by the buildup of plaque within the artery walls.

(3)

Q1) Name the causative agent for Gonorrhea
write down its symptoms.

Ans-1) Causative Agent :- Gonorrhea is caused by the bacterium *Neisseria gonorrhoea*.

Symptoms :-
men :- painful urination, discharge from the penis.
women :- painful urination, vaginal discharge, abnormal bleeding, rectal pain etc.

Q2) Name the disorder associated with hypothyroidism.

Ans-1) Hashimoto's disease :- This is the most common cause ~~of~~ of hypothyroidism, an autoimmune disorder where the body's immune system attacks the thyroid gland.

Q2

part - II

Q1) What is necrosis? write different classes of necrosis.

A) Necrosis is the premature death of cells in living tissue due to injury or disease.

-> Classes of Necrosis :-

Coagulative necrosis :- This is the most common type, typically caused by ischemia.

-> The affected tissue becomes firm & pale due to protein denaturation. It's seen in heart, kidneys & spleen.

(9)

fat necrosis :- This occurs in fatty tissues, typically due to the release of ~~the~~ fat digesting enzymes it's often seen in pancreatitis.

→ ischemia :- Insufficient blood supply to tissues, depriving them of oxygen & nutrients.

toxins :- Exposure to harmful chemicals or substances.

Necrosis can have significant consequences for the body including. Inflammation, organ dysfunction etc.

⑥ Define hypertrophy, write down the cause of hypertrophy?

→ hypertrophy means an increase in the size of existing cells. This leads to an enlargement of the tissue or organ.

causes :-

Increased workload :- like muscles getting bigger with exercise.

→ hormonal stimulation :- hormones like estrogen cause the uterus to grow during pregnancy.

→ compensation :- If one kidney is removed

disease :- High blood pressure can cause the heart to enlarge abnormally.

cells get bigger, not more numerous.

- can be normal or a sign of disease.

5

Q Define & classify angina. write its pathogenesis of ~~an~~

Angina :- It is also known as angina pectoris, is chest pain or discomfort that occurs when the heart muscle doesn't get enough oxygen-rich blood.

Classification

Stable angina :- The most common type. chest pain or discomfort typically occurs with exertion like exercise or physical activity & it is relieved by rest or medication.

Unstable angina :- A more serious type that can occur at rest or with minimal exertion. The pain is often more severe, just like heart attack.

Pathogenesis :-

The primary cause of angina is coronary artery disease. (CAD)

- > reduced blood flow.
- > myocardial ischemia.

-> Triggers Angina can be triggered by various factors including physical exertion, emotional stress, exposure to cold & heavy meal. etc.

⑥
Q. Classify Diabetes mellitus. write the pathogenesis & symptoms of IDDM.

Ans → Diabetes :- It is a autoimmune destruction of pancreatic beta cells. The body's immune system mistakenly attack and destroys the insulin-producing cells in the pancreas.

→ Absolute insulin deficiency. As a result, the body produces little to no insulin.

→ Diabetes mellitus is a chronic metabolic disorder characterized by elevated levels of blood sugar.

→ Diabetes is into 2 types ① Type-1 & ② Type-2

→ specific types :- monogenic diabetes: Rare forms of diabetes caused by genetic mutations.

→ Diabetes due to other causes:- can be associated with certain disease eg:- measles, infection, Cystic fibrosis, or infections.

Pathogenesis of Type-1 Diabetes (IDDM)

Autoimmune attack :- The immune system mistakenly identifies pancreatic beta cells as foreign invaders.

→ Insulin deficiency.

→ Hyperglycemia.

⑧ What is Parkinson's disease? Describe its pathogenesis?

Ans → Parkinson's Disease :-

→ Parkinson's Disease (PD) is a progressive neurodegenerative disorder characterized by the loss of dopamine-producing / producing neurons in the substantia nigra.

Pathogenesis

Dopamine deficiency :- The core of PD lies in the degeneration of dopamine-producing neurons within the substantia nigra.

→ Dopamine is a neurotransmitter essential for smooth, coordinated movement of its deficiency disrupts the balance of neurotransmitters in the brains.

→ Lewy bodies :- Abnormal protein clumps called lewy bodies accumulate within the surviving neurons.

Oxidative stress :- Increased levels of reactive oxygen species can damage neurons & contribute to their degeneration.

⑨ Describe the etiopathogenesis of peptic ulcer write down its symptoms?

ans) peptic ulcers are sores that develop on the lining of the stomach or small intestine. They are a common condition that can cause significant discomfort and complications.

Etiopathogenesis :-

The development of peptic ulcers is a complex process involving an imbalance between aggressive factors that damage the mucosal lining & protective factors that help to maintain its integrity.

Aggressive factors :-

Helicobacter pylori infection: This bacteria is the most common cause of peptic ulcers. It weakens the mucosal lining, making it more susceptible to damage from stomach acid.

Symptoms :-

- Abdominal pain.
- ~~heart~~ heartburn.
- nausea & vomiting.
- Bloating & gas.
- loss of appetite.
- Black or bloody stools.
- vomiting blood.

① classify cancer write its causes and pathogenesis?

ans-→ cancer is classified based on the type of cell it originates from and the part of the body where it starts.

Carcinomas :- These are the most common type of cancer, arising from epithelial tissue which covers the body's surfaces and line internal organs. ex:- lung cancer, breast cancer, colon cancer.

→ Sarcomas :- These cancers develop in connective tissues, such as bone, cartilage, fat & muscle.

~~Leuk~~ Leukemias :- These cancer affect the blood-forming cells in the bone marrow, leading to an abnormal increase in white blood cells.

causes of cancer :-

Cancer develops due to uncontrolled cell growth and division. This can be triggered by various factors, including genetics, lifestyle factor, Environmental factors, viruses & infections.

pathogenesis of cancer :-

(10)

- 1) Initiation:- Exposure to carcinogens can damage DNA, leading to mutations in genes that control cell growth.
- 2) Promotion. Certain factors can promote the growth of mutated cells, allowing them to proliferate.
- 3) Progression:- over time, mutated cells accumulate further genetic changes, leading to uncontrolled growth, invasion of surrounding tissue, & the ability to spread to other parts of the body.

part - III

Q3) Define and classify cell injury and describe pathogenesis of reversible type of cell injury due to hypoxia and ischemia.

Ans-1) cell injury:-

cell injury is a condition in which a cell experiences stress or damage that exceeds its ability to adapt.

This can lead to a variety of changes in the cell's structure and function, ranging from reversible changes to irreversible cell death.

classification of cell injury:-

cell injury can be broadly classified into two categories.

① Reversible cell injury : In this type of injury the cell undergoes changes but can still recover its normal structure and function if the injurious stimulus is removed.

• pathogenesis of reversible cell injury due to hypoxia and ischemia.

→ Hypoxia and ischemia are two common causes to cell injury. Hypoxia refers to a deficiency of oxygen, while ischemia refers to a reduction in blood flow, which can lead to both oxygen deficiency and nutrient deprivation.

→ The pathogenesis of reversible cell injury due to hypoxia and ischemia involve a series of biochemical & morphological changes.

① decreased ATP production.

② cellular swelling.

③ mitochondrial damage.

④ membrane damage.

⑤ Ribosomal detachment.

Q-6 Define hypertension. what are the types of hypertension? Discuss the pathogenesis and symptoms of hypertension.

Ans-)

Hypertension

Hypertension, also known as high blood pressure, is a condition where the force of blood pushing against the artery walls is consistently too high.

Types of Hypertension:-

→ primary hypertension:- This is the most common type, affecting about 90-95% of people with hypertension.

→ secondary hypertension:- This type is caused by an underlying medical condition, such as,

- kidney disease.
- Adrenal gland disorders.
- obstructive sleep apnea.
- certain medications.

Pathogenesis of hypertension

The exact mechanism underlying primary hypertension are complex and not fully understood. However, several factors are believed to play a role.

- Increased vascular resistance.
- Increased to blood flow.
- Increased to blood volume.

Symptoms of Hypertension

- Heart Attack
- Stroke.
- Heart failure
- Kidney disease
- vision loss.
- Headache.
- Nosebleeds.
- Dizziness.
- Fatigue.