



PTS Reading Week Question Series 2020

Day 1-Introduction to Clinical Sciences

Andrew Maud

Pathology QUESTIONS /23

1. What is the definition of inflammation (1)
2. Name 3 processes that can happen at the end of acute inflammation? (3)
3. Give the most common cause/type of chronic inflammation and 2 others. (3)
4. Define a Granuloma. (1)
5. You suspect a patient has Sarcoidosis, which blood marker do you investigate? (1)
6. What are the 3 components of Virchow's Triangle? (3)
7. Give the classes of drug used to treat i) arterial thrombosis ii) venous thrombosis (2)
8. Give the names of a benign neoplasm of the secretory epithelium and a malignant neoplasm of connective tissue? (2)
9. What are the most common cancers that spread to bone? (3)
10. What is the sequence of events that take place for metastasis to occur? (4)

Immunology QUESTIONS /23

1. What are the 5 classes of antibodies? (2)
2. Give 3 examples of antigen-presenting cells? (3)
3. Describe how you would identify a bacteria as Salmonella using Microbiology tests including differentiating it from Shigella? (3)
4. HIV can be diagnosed by measuring the level of a specific white blood cell. Which type of cell is measured? What level indicates AIDS? (2)
5. HIV is a global condition. Name 3 at risk groups for HIV and the age group for which 50% of all new infections worldwide occur. (4)
6. Name the different types of polymorphonuclear leukocytes which is the most abundant? (2)
7. Give 2 differences between innate and adaptive immunity? (2)
8. What is the role of the Major Histocompatibility Complex (MHC) (1)
9. Eosinophils, Basophils and Mast Cells are mainly associated with what type of infection (1) and what type of reaction? (1)
10. Describe stages of Phagocytosis? (3)

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Pharmacology QUESTIONS /23

1. Name 3 drug targets. (3)
2. The action of a drug can be either receptor-related or tissue-related, which of these do the principles of affinity and efficacy influence? What do agonists / antagonists show? (2)
3. Describe the difference between tolerance and desensitisation? (2)
4. What class of drug is Candesartan? (1)
5. Which common condition often diagnosed in childhood is a contraindication of beta blockers and why? (2)
6. What do NSAIDs inhibit and what is the result? (2)
7. Approximately 60% of the body is comprised of water. In an average 70Kg male this constitutes 42 L of water. Approximately how many liters of water would you expect to find in the following compartments of this patient: Intracellular, Extracellular, Plasma? (3)
8. What are 3 ways in which drugs can move between these compartments? (3)
9. What are the 4 stages of Pharmacokinetics? (4)
10. What is the definition of bioavailability? (1)



Pathology ANSWERS:

1. *What is the definition of inflammation?*
 - A local physiological response to injury (1)
2. *Name 3 processes that can happen at the end of acute inflammation?*
 - Resolution // Suppuration // Organisation // Progression to Chronic Inflammation (1 mark per correct answer- max 3)
3. *Give the most common types/causes of chronic inflammation and 2 others.*
 - Most common=Primary Chronic Inflammation (1)
 - Others=Transplant Rejection // Progression from acute // recurrent episodes of acute inflammation (1 mark per correct answer- max 2)
4. *Define a Granuloma*
 - An aggregate of epithelioid histiocytes (1)
5. *You suspect a patient has Sarcoidosis, which blood marker do you investigate?*
 - ACE – released by granulomas (1)
6. *What are the 3 components of Virchow's Triangle?*
 - Stasis of blood flow // Endothelial Injury // Hypercoagulability (1 mark per correct answer- max 3)
7. *Give the classes of drug used to treat i) arterial thrombosis ii) venous thrombosis*
 - Arterial Thrombosis- Anti-Platelets e.g Aspirin/Clopidogrel (1)
 - Venous Thrombosis- Anti-Coagulants e.g Warfarin, Heparin, NOAC (1)
8. *Give the names of a benign neoplasm of the secretory epithelium and a malignant neoplasm of connective tissue?*
 - Benign neoplasm of secretory epithelium= Adenoma (1)
 - Malignant neoplasm of connective tissue= Sarcoma (1)
9. *What are the most common cancers that spread to bone?*
 - Breast // Prostate // Lung // Thyroid // Kidney (1 mark per correct answer)
10. *What is the sequence of events that take place for metastasis to occur?*
 - Invasion –erosion of tissue boundaries by enzymes secreted by
 - Intravasation- gain access to metastatic routes e.g. blood/lymph
 - Evasion of host defence
 - Adherence- to endothelium
 - Extravasation- colonisation of new site
 - Angiogenesis- develops its own bloody supply

(1 mark per key term or words that describe its action- max 4)



Pharmacology ANSWERS:

1. Name 3 drug targets.
 - Receptors, enzymes, transporters, ion channels (1 per correct answer)
2. The action of a drug can be either receptor-related or tissue-related, which of these do the principles of affinity and efficacy influence? (1) What do agonists / antagonists show?
 - Affinity and efficacy relate to receptors (1).
 - Agonists show affinity & efficacy / antagonists show affinity only (1)
3. Describe the difference between tolerance and desensitisation?
 - Tolerance - reduction in drug effect over time (continuously repeated high conc) (1)
 - Desensitisation - receptors become degraded / uncoupled / internalised (1)
4. What class of drug is Candesartan?
 - Angiotensin II Receptor Blocker (1 for Angiotensin RB) (2 marks if stated Angiotensin II RB)
5. Which common condition often diagnosed in childhood is a contraindication of beta-blockers and why?
 - Asthma (1)
 - Beta-Blockers cause bronchoconstriction (1) (note that salbutamol is a bet-AGONIST)
6. What do NSAIDs inhibit and what is the result?
 - Inhibit Cyclooxygenase enzyme (COX) (1)
 - Prevents the conversion of arachidonic acid to prostaglandin H₂ (1)
7. Approximately 60% of the body is comprised of water. In an average 70Kg male this constitutes 42 L of water. Approximately how many liters of water would you expect to find in the following compartments of this patient: Intracellular, Extracellular, Plasma?
 - Intracellular ~ 28L (2/3),
 - Extracellular~ 14L (1/3).
 - Plasma ~3 L (a component of the extracellular compartment)(1 mark per correct answer- max 3)
8. What are 3 ways in which drugs can move between these compartments?
 - Simple diffusion / Facilitated diffusion / Non-Ionic Diffusion / Active Transport / (1 per correct answer- max3 3)
9. What are the 4 stages of Pharmacokinetics? (1 mark per correct answer – max 4)
 - Absorption
 - Distribution
 - Metabolism
 - Excretion
10. What is the definition of bioavailability?
 - Amount of drug taken up into systemic circulation a proportion of the amount administered (1)



Immunology ANSWERS:

1. *What are the 5 classes of antibodies?*
 - IgG, IgM, IgA, IgE, IgD (1 mark for 3 correct) (2 marks if all correct)
2. *Give 3 examples of antigen-presenting cells?*
 - Macrophages / Dendritic cells / B cells (1 mark per correct answer)
3. *Describe how you would identify a bacteria as Salmonella using Microbiology tests including differentiating it from Shigella?*
 - Salmonella is a gram-negative bacilli. Gram Stain= Pink. (1)
 - Bacilli Appearance= Rod shaped. (1)
 - MacConkey Agar tests for fermentation of lactose, Salmonella does not therefore plate remains clear (fermenters go pink). (1)
 - Do serotyping (API strip) to confirm Salmonella vs Shigella. (1)
4. *HIV can be diagnosed by measuring the level of a specific white blood cell. Which type of cell is measured? What level indicates AIDS?*
 - CD4+ count (1) <200 (1)
5. *HIV is a global condition. Name 3 at risk groups for HIV and the age group for which 50% of all new infections worldwide occur.*
 - At risk Groups= Men who have sex with men, IVDU, Commercial sex workers. (1 mark per correct answer)
 - Age group 50% all new infections occur worldwide: 19-24yo (1)
6. *Name the different types of polymorphonuclear leukocytes and which is the most abundant.*
 - Polymorphonuclear Leukocytes: Neutrophil, Basophil, Eosinophil. (1)
 - Most abundant = Neutrophil. (1)
7. *Give 2 differences between innate and adaptive immunity? (2)*
 - 'Specific' – Innate is non-specific whereas adaptive is specific/acquired (1)
 - 'Lymphocytes (LCs)'- Innate not dependent on LCs, Adaptive requires LCs (1)
 - 'Memory'- Innate: no memory, Adaptive: leads to memory/immunity (1)
8. *What is the role of the Major Histocompatibility Complex? (1)*
 - To present a peptide (antigen) showing self or non-self on the cell surface.
9. *Eosinophils, Basophils and Mast Cells are mainly associated with what type of infection and what type of reaction?*
 - Parasitic Infection (1) Hypersensitivity reactions (1)
10. *Describe the stages of Phagocytosis? (Up to 3 marks for any of)*
 - Binding of insult e.g bacterium to macrophage
 - Engulfment
 - Phagosome formation
 - Lysosomal fusion and digestion
 - Antigen presentation (MHC II)
 - Secretion of waste products.



Summary Page

Set Goals.

**Work smart to tackle those goals. Reflect on
and your adapt your learning.**

Succeed.

Pathology	Theme	Correct
1	Inflammation	
2	Acute inflammation	
3	Chronic Inflammation	
4	Granuloma	
5	Granuloma Ix	
6	Virchow's Triangle	
7	Thrombosis Mx	
8	Naming Neoplasm	
9	CA Metastasis	
10	CA Metastasis	

Total /23:

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Key area to focus on next:

Immunology	Theme	Correct
1	Antibody Classes	
2	Antigen-Presenting Cells	
3	Microbiology Tests	
4	HIV/AIDS Ix	
5	HIV epidemiology	
6	WBCs	
7	Immunity types	
8	MHC	
9	Immune cell associations	
10	Phagocytosis	

Total /23:

UPLOAD YOUR SCORE TO GOOGLE FORM

Key area to focus on next:

Pharmacology	Theme	Correct
1	Drug Targets	
2	Affinity/Efficacy	
3	Tolerance/Desensitisation	
4	Candesartan	
5	Beta-Blocker Cis	
6	NSAIDs	
7	Body Fluids	
8	Drug Movements	
9	Pharmacokinetics	
10	Bioavailability	

Total /23:

UPLOAD YOUR SCORE TO GOOGLE FORM

Key area to focus on next:

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