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CLASS: **BS MLT**
SEMESTER: **2ND**
SECTION: **B**
SUBJECT: **General Pharmacology**
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Date; **26th June, 2020**

Note:
Attempt all questions
Each question carry equal marks
Pay attention to every point of question
Give to the point answers
Extra detail may leads to marks deduction

Q1.

(a) What does drug interactions mean and enumerate its various types.

ANSWER;

Def;- A drug interaction is a reaction between two or more drugs or between a drug and a food, beverage, or supplement. Taking a drug while having certain medical conditions can also cause a drug interaction.

For example, taking a nasal decongestant if you have high blood pressure may cause an unwanted reaction

TYPES

- Drug-drug: A reaction between two or more drugs.
- Drug-food: When food or beverage intake alters a drug's effect.
- Drug-disease: Drug-condition interactions occur when a drug worsens or exacerbates anexisting medical condition

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(b) Write down a detail note on pharmacodynamic drug interaction.

ANSWER;

- **Pharmacodynamics drug interaction**

Are those in which the activity of the object drug at its site of action is altered by the precipitant. Such interactions may be direct or indirect.

These are of two types

- Direct pharmacodynamics interactions.
- Indirect pharmacodynamics interactions.

- **Direct pharmacodynamics interactions.**

in a direct model, the drug is directly responsible for the pharmacodynamics response that is measured,
In which drugs having similar or opposing pharmacological effects are used concurrently. The three consequences of direct interactions are
1.Antagonism. 2.Addition or summation. 3.Synergism or potentiation.

Indirect pharmacodynamic interaction:

In the indirect model, the drug is "indirectly" responsible for the PD response measured,

In Which both the object and the precipitant drugs have unrelated effects. but the latter in Some way alerts the effects but latter in some
way alerts the effects of the former.
Example: salicylates decrease the ability of the platelets to aggregate
thus impairing the Homeostasis if warfarin induced bleeding occurs.

Q2.

(a) Differentiate between hypoglycemic and hyperglycemic agents with examples.

ANSWER;

Hyperglycemia indicates excess glucose in the blood.
Hypoglycemia refers to abnormally low presence of glucose in the blood.

Hypoglycemia

As discussed above when the blood glucose level gets a decline from the standard characterized level that is 126 mg per deciliter, especially when it gets below **70 mg per decilitre,** this conditions is said to be Hypoglycemia. That's why this disease is called **'**insulin reaction.'

EXAMPLE

- Sulfonylureas (glipizide, glyburide, gliclazide, glimepiride)
- Meglitinides (repaglinide and nateglinide)
- Biguanides (metformin)

Hyperglycemia

Hyperglycemia is the indication of diabetes and prediabetes. Diabetes is the most common cause of hyperglycemia. Sometimes other conditions may also result in Hyperglycemia like Cushing's syndrome, pancreatitis, hormone-secreting tumors.

(b) What is emesis and antiemetic drugs, give examples

ANSWER;

Emetic drug

An emetic is a medicine or potion that makes you vomit, which you might be given if you've taken poison or some other harmful substance.

EXAMPLE

strong solution of salt, mustard water, powdered ipecac, and ipecac syrup

Antiemetic drugs;

Antiemetic drugs are types of chemicals that help ease symptoms of nausea or vomiting. Antiemetic drugs may also be used to treat nausea and vomiting caused by other medications, frequent motion sickness, infections, or stomach flu

Example, the antihistamine meclizine hydrochloride (Bonine)

(c) What kind of drugs are used for cough and sputum, give examples

Answer

There are many drugs which is used for cough and sputum some examples are

1. Actifed
2. Allersoothe Tablets
3. Benadryl Chesty Forte
4. Codral Cold & Flu
5. Difflam Anti-Inflammatory Cough
6. Nurofen Cold
7. MUCUS & PHLEGM
8. Corflex Corezcol
9. Rondec
10. Reltus

Q3.

(a) Enumerate different targets for antibiotics

ANSWER;

There are three main antibiotic targets in bacteria:

- The cell wall or membranes that surrounds the bacterial cell.
- The machineries that make the nucleic acids DNA and RNA.
- The machinery that produce proteins (the ribosome and associated proteins)

(b) Explain viral replication process in detail

ANSWER;

 Viral replication involves six steps:

1. Attachment,
2. penetration,
3. uncoating,
4. replication,
5. assembly, and
6. release.

 During attachment and penetration, the virus attaches itself to a host cell and injects its genetic material into it.

 During uncoating, replication, and assembly, the viral DNA or RNA incorporates itself into the host cell's genetic material and induces it to replicate the viral genome.
 During release, the newly-created viruses are released from the host cell, either by causing the cell to break apart, waiting for the cell to die, or by budding off through the cell membrane.

Q4.

(a) Classify antihypertensive drugs with example

ANSWER;

Classification of Antihypertensive Drugs

1) Diuretics
- Thiazides and congeners.
- Loop diuretics.
- Potassium-sparing diuretics.

2) Sympatholytic drugs
- Centrally acting antiadrenergic agents.
- Alpha adrenergic blockers.
- Beta adrenergic blockers.
- Alpha-beta adrenergic blockers.

3) Vasodilators
- Nitric oxide releasers.
- Potassium channel openers.
- Calcium channel blockers
- D1-dopamine receptor agonists.

4) Angiotensin inhibitors and antagonists
- Angiotensin Converting Enzyme (ACE) inhibitors.
- Angiotensin receptor antagonists.

(b) What are the causes and drug therapy of various kinds of angina pectoris

ANSWER;

Angina pectoris is the medical term for chest pain or discomfort due to coronary heart disease. There are 4 types

CAUSES AND TREATMENT

1. Angina pectoris

It occurs when the heart muscle doesn't get as much blood as it needs. This usually happens because one or more of the heart's arteries is narrowed or blocked, also called ischemia.

Drug therapy for angina pectoris

The vasodilator drugs used as antianginal agents are of two types:
(1) those which act rapidly to relieve paroxysmal attacks of angina pectoris,
(2) drugs with a slower onset and longer duration of action which are intended to prevent attacks of acute pain.

2. Unstable Agina

Coronary artery disease due to atherosclerosis is the most common cause of unstable angina. Atherosclerosis is the buildup of fatty material, called plaque, along the walls of the arteries. This causes arteries to become narrowed and less flexible. The narrowing can reduce blood flow to the heart, causing chest pain.

Medication

1. One of the first treatments your doctor may recommend is a blood thinner, such as aspirin, heparin, or clopidogrel. ...
2. Surgery. If you have a blockage or severe narrowing in an artery, your doctor may recommend more invasive procedures. ...
3. Lifestyle changes.

Variant (Prinzmetal) Angina:

The pain from variant angina is caused by a spasm in the coronary arteries which supply blood to the heart muscle.

Treatment of Variant Angina (Prinzmetal) Angina

Medicines can help control the spasms. Drugs such as calcium antagonists and nitrates are the mainstays of treatment. The spasms tend to come in cycles – appearing for a time, then going away.

Microvascular angina:

Spasms within the walls of these very small arterial blood vessels causes reduced blood flow to the heart muscle leading to a type of chest pain referred to as microvascular angina.

Treatment of microvascular

Endothelial dysfunction (statins, angiotensin-converting enzyme inhibitor, low dose aspirin)

Q5.

(a) Differentiate between general and local anesthetics, explain various stages of general anesthesia

ANSWER;

General anesthesia;

General anesthesia is a combination of medications that put you in a sleep-like state before a surgery or other medical procedure. Under general anesthesia, you don't feel pain because you're completely unconscious. General anesthesia usually uses a combination of intravenous drugs and inhaled gasses (anesthetics)

Local anesthesia

Local anesthesia is any technique to induce the absence of sensation in a specific part of the body, generally for the aim of inducing local analgesia, that is, local insensitivity to pain, although other local senses may be affected as well.

STAGES OF GENERAL ANESTHESIA

There are four stages of general anesthesia

- stage 1, delirium

- stage 2, surgical anesthesia

- stage 3 and respiratory arrest

- stage 4. As the patient is increasingly affected by the anesthetic his anesthesia is said to become 'deeper'.

(b) Write down the mechanism of action of narcotic and non-narcotic analgesics

ANSWER;

Narcotic analgesics

Opioid drugs, typified by morphine, produce their pharmacological actions, including analgesia, by acting on receptors located on neuronal cell membranes. The presynaptic action of opioids to inhibit neurotransmitter release is considered to be their major effect in the nervous system

Non Narcotic analgesics

Non-opioid analgesics can be classified due to their chemical characteristics as acid (NSAIDs = non-steroidal anti-inflammatory drugs such as ASA, ibuprofen, diclofenac, naproxen) and non-acid (paracetamol, metamizole).

The common mechanism of action of these substances is their effect on prostaglandin synthesis.

THANK YOU