

Name Farwad Ahmad

ID ~~13~~ 13784.

Program BS D.T.

Dep AHS.

Paper Final Term
Summer.

Subject Pharmacology 4th
Semester

Instructor Mam Nadra.

Semester 4th.

(7)

Q = (1)

Ans: Defin Anthelmintic :

→ Anthelmintic are a group of antiparasitic drugs that expel parasitic worms (helminths) and other internal parasites from the body by either stunning or killing them and without causing significant damage to the host.

→ These drug are also used to treat infected animal.

→ These drugs as Nematodes, Trematodes and cestodes are three major group of (helminths) worms that infect humans.

Most anthelmintic target eliminating the organism from the host, as well as controlling the spread of infection.

(a) Mebendazole ::

Mebendazole is a synthetic benzimidazole compound is a first-line agent for the treatment for of infections caused by whipworms (*Trichuris trichiura*), pinworms and hookworms and round worms.

→ Mebendazole acts by inhibiting the assembly of the microtubule in the parasites and also by reversibly blocking glucose uptake.

→ Adverse affect include Abdominal pain, and diarrhea.

→ Mebendazole should not be used in pregnant women

(b) Praziquantel :

→ Praziquantel is an agent of choice for the treatment of all forms of schistosomiasis, other trematode infection such as taeniasis.

→ praziquantel is also used of label in the treatment of cysticercosis.

(c) Piperazine Citrate

→ Piperazine, Hydrate, piperazine adipate and piperazine citrate (used to treat ascariasis and enterobiasis) are the most common anthelmintic piperazine compounds. These drug is also referred to simply as piperazine compound.

4

MOA of Mebendazole:

- Mebendazole works by selectively inhibiting the synthesis of microtubule via binding to colchicine binding site of β -tubulin,
- thereby blocking polymerization of tubuline dimers in intestinal cell of parasites

Side effect of Mebendazole:

→ Fever with or without chill.

- Convulsions,
- Nausea and vomiting.
- General feeling of tiredness or weakness
- itching or skin rash.
- light colored stool.
- Large-like swelling on the face, eyelids, throat, lips, tongue, feet.

(15) Parziquentel MOA.

→ Parziquentel increase the permeability of the membrane of Schisto'some cells forwards. Calcium ions

→ These drug induced contraction at the parasites, muscles resulting in paralysis in the contracted state.

:: Side effects of Parziquentel.

- Stomach pain.
- Weakness, joint/muscle pain,
- Headach, Nausea, flatness,
- dizziness,
- loss of appetite, sweating,

∴ MOA of Pepsazine ∴

→ Their mode of action is generally by paralyzing parasites which allow the host body to easily removed, or expel the invading organisms

∴ Side effects of pepsazine ∴

- irregular, twisting movements, especially of the face, legs and arms,
- Blurring of vision.
- Skin rash or itching.

Q = (2): Part 1.

Ans.: Type 1 diabetes..

→ Diabetes most commonly affects children, adolescents, or young adults but some latent forms occur later in life. The disease is characterized by an absolute deficiency of insulin due to destruction of β -cell. The loss of β -cell function results from autoimmune mediated process that may be triggered by viruses or other environmental toxins.

8

(B) Type 2 Diabetes:

- Type-2 diabetes accounts for greater than 90% of cases
- The Type-2 diabetes is influenced by genetic factors, aging, obesity, and peripheral insulin resistance. ~~rather~~ The autoimmune process
- The metabolic alterations are generally milder than those observed with Type 1 ~~example~~ For example, patient with Type-2 diabetes typically are not ketotic) but the long term clinical consequences are similar.

Q = (2) Part-B

Ans: (B-part)

→ There are different ways to inject insulin into your body. This is called delivery of insulin.

→ pumps, syringe, pens, and jet injector. That give many person with diabetes option for their insulin delivery.

∴ Why ∴

→ Shorter Needle mean less injection discomfort
injection depth that effects quickly insulin take.

→ Do not reuse a syringe.

→ Do not share a syringe.

10

→ Coordinate syringe size,

→ (e.g. 1cc, ~~1/2cc~~,
3/10cc) to match insulin
dose.

→ Dispose of used syringe in
a sealable and puncture
resistance container.

Q = (3) :-

Ans: Local Anesthesia :-

→ Local Anesthesia as the drugs as used to prevent pain by inhibiting the conduction of Nerve impulses along a Nerve Fiber.

→ Local Anesthesia are the drugs which can apply Topically, injected locally area, block Nerve conduction and cause reversible loss of all sensation in the part supplied by the Nerve.

→ Local anesthesia as an anesthetize a specific organ or part of the body and give in minor surgery and procedure.

B General Anesthesia

→ These are : Anesthesia which can Anesthetize overall body and give in surgical procedure.

→ They are reversible loss of consciousness

→ Reversible loss of sensation.

∴ Stages of Anesthesia:

• Stage-1:

→ "Stage of Analgesia"
patient is conscious but drowsy.

• Stage-2:

stage of excitation:

→ These stage is dangerous.

13

→ Patient less in consciousness.

→ Sympathetic activity increase

→ In The sympathetic system

→ Increase Heart rate, Increase blood

→ pressure, Pupil dilated, Muscle

→ tone increase,

→ breathing is irregular.

• Stage-3

≡ This stage is desired stage.

→ Respiration become regular.

→ Muscle relax

→ Reflexes are gradually lost

→ Intercostal muscle paralysed.

14

→ When this stage is achieved so can start surgical procedure.

● Stage - 4 :

Stage Medullary paralysis

→ This is also dangerous stage.

→ Respiration + vasomotor center is depressed

→ Death cause within few minutes.

❖ MOA Local Anesthesia.

- Weak base
- Unionized Form ($\text{pH} \uparrow$)
- Penetrates Nerve membrane.
- Enters The Axon ($\text{pH} \downarrow$)
- Ionization of local Anesthetics
- Local Anesthetics gain access to receptor.
- Local Anesthetics blocked Voltage gated Na^+ channel.
- (It prolongs The Inactivated state)
- Prevent entry of Na^+ Ions to Neuron.

16

↓
prevent generation of Action Potential

↓
No generation and conduction of impulses

↓
Effects / Responses

Q = (4) :-

Ans: ANTIMETABOLITES ∞ ∞

- Antimetabolites are structurally related to normal compound that exist within the cell.
- They can generally interfere with the availability of normal purine or pyrimidine nucleotide precursors. They inhibit the synthesis of by competing with them in "DNA" or "RNA" synthesis.
- Example as - Methotrexate, pemetrexed, and pralatrexate.
because they are vitamin folic acid play a central role in a variety of metabolic reactions.

❖ Mechanism of Action:

MTX is structurally related to Folic acid, and acts as an antagonist of the vitamin by inhibiting mammalian dihydrofolate reductase (DHFR).

The enzyme that converts folic acid to its active, coenzyme form tetrahydrofolic acid.

Adverse Effects:

Pemetrexed should be given with folic acid and vitamin-B₁₂ supplements to reduce hematologic and GI toxicities.

one use The most common side effects of pemetrexate is mucositis. Doses must be adjusted or withheld based on the severity of mucositis.

ALKYLATING AGENT:

- Alkylating agent exert their cytotoxic effects by covalently binding to Nucleophilic group on various cell constituent.
- Alkylation of "DNA" is probably the crucial cytotoxic reaction that is lethal to the tumor cells.
- In the first mechanism an Alkylating agent attaches alkyl group to DNA bases.
- Examples
 Example of Alkylating agent are Nitrogen Mustard (Cyclophosphamide), cisplatin.
- Alkylsulfonates (busulfan).
- ethylenimines (thiotepa).

∴ Monoclonal Antibodies.

→ The monoclonal Antibodies have become an active area of drug development for anticancer therapy and other non-neoplastic disease because they are directed with specific target and often have few adverse effects.

∴ MOA of Monoclonal Antibodies:

→ Monoclonal Antibodies can trigger an immune system response that can destroy the outer wall membrane of a cancer cell.

→ Blocking cell growth.

→ Some monoclonal antibodies block the connection b/w a cancer cell and protein that promote cell growth.

→ Examples:

→ Trastuzumab, rituximab, bevacizumab, and cetuximab in the treatment of cancer is describe below,

Q = (5) is

Ans: Role of Vitamin-K.

→ vitamin-K is involved in the synthesize of many factor of the coagulation cascade,

→ Calcium and phospholipids are needed to activate tenase, which convert prothrombin to thrombin.

Vitamin-K is antagonized inhibited by the anticoagulant drug warfarin.

∴ Treatment of bleeding disorder

→ There are three general treatment for bleeding disorder.

- 1 Risk Reduction
- 2 Medication
- 3 Replacement Therapy.

1 Risk Reduction:

→ patient with bleeding disorder should avoid medication that thin the blood. They also make to some changes in lifestyle or activities to reduce the risk of bleeding. For patient who require surgery, physicians can take step to reduce the risk of operative and post operative bleeding.

(2) Medications :

→ There are several drugs as available that improve blood coagulation and help to prevent clots from dissolving.

Your physician will develop a treatment plan to your individual disease and health needs.

(3) Replacement Therapy :

Patient with moderate to severe bleeding disorders may require transfusion of blood platelets or clotting factors.

~~The~~ patient with severe bleeding disorders may receive clotting factor transfusion as a preventive measure.

Q. (5) Part - B

Ans. Thrombolytic agent:

A drug that is able to dissolve a clot (thrombus) and re-open an artery or vein.

The Thrombolytic agent may be used to treat a heart attack, deep vein thrombosis (clot in a deep leg vein), stroke, pulmonary embolism, and occlusion of a peripheral artery.

Examples:

streptase (streptokinase, Kabikinase).

Eminase (anistreplase).

TNKase (Tenecteplase).

Retavase (reteplase).

t-PA (class of drug that include Activase).