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**Matric no: 17/mhs07/009**

QUESTIONS

1. Draw and explain the life cycle of malaria parasite.

2. Mention two major classification of antiamoebic drugs.

3. Highlight the names of the drugs used under each group and give appropriate examples.

4. Explain vividly the mechanism of action of metronidazole.

1. **Life cycle of malaria parasite.**

The malaria parasite develops both in humans and in the female Anopheles mosquitoes. The size and genetic complexity of the parasite mean that each infection presents thousands of antigens (proteins) to the human immune system.

Malaria infection begins when an infected female Anopheles mosquito bites a person, injecting Plasmodium parasites, in the form of sporozoites, into the bloodstream.

The sporozoites pass quickly into the human liver. The sporozoites multiply asexually in the liver cells over the next 7 to 10 days, causing no symptoms. In an animal model, the parasites, in the form of merozoites, are released from the liver cells in vesicles, journey through the heart, and arrive in the lungs, where they settle within lung capillaries. The vesicles eventually disintegrate, freeing the merozoites to enter the blood phase of their development.

 In the bloodstream, the merozoites invade red blood cells (erythrocytes) and multiply again until the cells burst. Then they invade more erythrocytes. This cycle is repeated, causing fever each time parasites break free and invade blood cells. Some of the infected blood cells leave the cycle of asexual multiplication. Instead of replicating, the merozoites in these cells develop into sexual forms of the parasite, called gametocytes that circulate in the blood stream.

When a mosquito bites an infected human, it ingests the gametocytes, which develop further into mature sex cells called gametes. The fertilized female gametes develop into actively moving ookinetes that burrow through the mosquito's midgut wall and form oocysts on the exterior surface. Inside the oocyst, thousands of active sporozoites develop. The oocyst eventually bursts, releasing sporozoites into the body cavity that travel to the mosquito's salivary glands.

 The cycle of human infection begins again when the mosquito bites another person.

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2 A. Tissue amoebicide

 B. Luminal amoebicide

3**. Tissue amoebicide**

 Nitroimidazole: - metronidazole, timidazole

Alkaloids: - imitine, dihydroimitine.

**Luminal amoebicide**

Amide: diloxanide furate,nitazoxanide

8-hydroxylquinolols:-di-iodohydroxy, quinidochlor

**4. Mechanism of action of metronidazole**

Metronidazole is of the nitroimidazole class. It inhibits nucleic acid synthesis by disrupting the DNA of microbial cells this function only occurs when metronidazole is partially reduce and because this reduction usually happens only in anaerobic bacteria and protozoans. Exerts action on susceptible in four successive stage; entry of the drug into the organism, its reductive activation, interaction of the reduced intermediate products with intracellular targets, and breakdown of the toxic intermediated products.