

TROPICAL DISEASES

1. What is a disease and what is the process of disease?

- Disease is a condition in which normal body functions are disturbed either temporarily or permanently.
- They are several stages from the time the disease causing organisms enter our body and the person becomes sick. These stages together are called process of disease.

2. What is infection?

- The entry of a disease causing organism into our body is called infection. It is a beginning stage of a disease.

3. How tetanus germs are transferred into the body?

- Tetanus is a disease produced by the toxins of some soil bacteria.
- The disease is transferred into the body by direct physical contact when the disease causing organisms enter the body through a wound.

4. What is incubation period?

- The gap or period between infection by a pathogen (disease causing organism) and appearance of disease symptoms is called incubation period.

5. What is a symptom?

- The occurrence of any change in normal function or activity in the body associated with a particular disease is called symptom.

6. In which part of the blood schizonts develop?

- Schizonts develop from the red Blood Cells. Each Schizont breaks and gives 6-24 merozoites.

7. What are the symptoms of mumps?

Symptoms of Mumps:

1. There will be a pain in opening the mouth.
2. Ear ache
3. Fever
4. Swelling of Cheeks.

8. What are the symptoms of malaria?

1. Extreme chill or cold
2. High temperatured fever (106°F)
3. Profuse sweating
4. Severe headache
5. Body pains

9. What are the methods by which diseases are transmitted. Give two examples for each infection?

- There are several methods by which a disease causing organism can be transferred from the reservoir to the host organism. They are:

1. **Direct Contact:** Disease causing organisms may be transferred immediately from reservoir or carrier to a health person by direct physical contact. This type of transfer is seen in diseases where the disease-causing organism can't live for longer time outside the body of human host.
Ex: AIDS, Skin and Eye infections, Tetanus.
2. **Droplet Infection:** Droplets of saliva which contains disease causing organism are sprayed out when sick persons cough, sneeze or spit.
Ex: Whooping cough, Tuberculosis, Chicken pox, Common Cold.
3. **Vehicle Borne transmission:** In this mode of transmission the disease causing organism is transmitted through another living animal which is called as vector. The most common insect vectors are flies, mosquitoes, cockroaches etc.
Ex: Plague, malaria, Elephantiasis.
4. **Air borne transmission:** Air acts as carrier or vehicle for transferring some of the disease causing organisms.
Ex: T.B., influenza, chicken pox, measles etc.
5. **Unhygienic Habits:** Eating food without washing hands, eating food or drinking water from unhygienic sources also causes the transfer of disease causing organisms.
Ex: Mad Cow disease.

10. Give different causes for the occurrence of Jaundice?

Causes of "Jaundice":

1. Excessive production of bilirubin causes "Jaundice". This "Excessive production of bilirubin" occurs in some disease due to destruction of large number of red blood cells in the liver.
2. Jaundice may be caused due to "obstruction to the flow of bile". This may occur when bile is flowing from liver to gall bladder or from gall bladder to intestine.
3. Jaundice may occur when stones are formed in the gall bladder.
4. Jaundice may occur due to improper functioning or death of liver cells. Liver cells are destroyed by "hepatitis virus".
5. In "infants", the disease jaundice is transmitted from mother to child during child birth. It may also be transmitted through contaminated food, water and milk.
6. Another reason for jaundice are taking food that is contaminated with hepatotoxins, improper nutrition and drinking alcohol etc.

11. What care is to be taken for the patient suffering with Jaundice?

General care for jaundice:

1. Patient must be given strict bed rest.
2. Patient must be under constant supervision of a doctor.
3. Utensils, clothing etc. used by the patient should be kept separate and should be washed separately.
4. Small quantities of food should be given at a time.
5. Food should include plenty of fruits, fruit juices, glucose and maltose.
6. Foods that are rich in calories such as rice, bread etc. should be given.
7. Tea, Coffee, spices and fried foods should not be given.
8. Before giving blood transfusion, the donor's blood must be tested for the presence of hepatitis virus.
9. Injection needles and syringes must be changed for every injection.

12. Why encephalitis is a fatal disease? How it is caused?

Encephalitis:

1. Encephalitis is caused by a group of viruses known as "Arboviruses".
2. Encephalitis mostly spreads from one animal to another animal or from animal to man through the "culex" mosquitoes.
3. Incubation period for encephalitis is 5 to 15 days.
4. Encephalitis starts with mild fever and headache, slowly increases the intensity of disease. Later there will be high fever and convulsions (fits). Central nervous system is affected and this may lead to "coma" and "death". Due to this, encephalitis is a "fatal disease".
5. Encephalitis virus also affects several animals and birds. Pigs, Cattle, poultry and other birds are the major vertebrate hosts for this virus.
6. Infected animals do not show any signs of illness. However, they act as reservoir and mosquitoes are the carriers.
7. There is no specific cure for encephalitis. Reducing population of pigs and mosquitoes and use of mosquito nets are the methods to control the spread of this disease.

13. Describe the changes in the life cycle of malarial parasite, that occur in man?

Life cycle of malarial parasite in man:

1. The malaria parasite proliferates in man by "asexual reproduction".
2. Malarial parasite spends its life cycle both in liver and erythrocytes of man. Life cycle in liver is called "Pre-erythrocytic cycle" and life cycle in erythrocytes is called "Erythrocytic cycle".
3. **Pre-erythrocytic cycle:**
 - i) When infected female anopheles mosquito bites, infectious stage of the parasite called "sporozoites" enter into the blood of host.
 - ii) The stage of the life cycle, which is ready to infection is called "infectious stage"
 - iii) Sporozoite spends about 30 minutes in blood and enters to the liver cells.
 - iv) Sporozoites feed on the contents of liver cell and fill the entire cell. This stage is called "Crypto-schizonte" state.
 - v) "Crypto-schizonte" Stage.
 - vi) The liver cell ruptures and crypto-merozoites are released into blood. Some of the crypto merozoites invade new liver cells and proliferate more in number. As these changes occur in the liver cells are called as "pre-erythrocytic cycle".
 - vii) Time period for pre-erythrocytic cycle is 7 to 17 days.

Sporozoite → Crypto-Schizonte → CRYPTOMEROZOITE

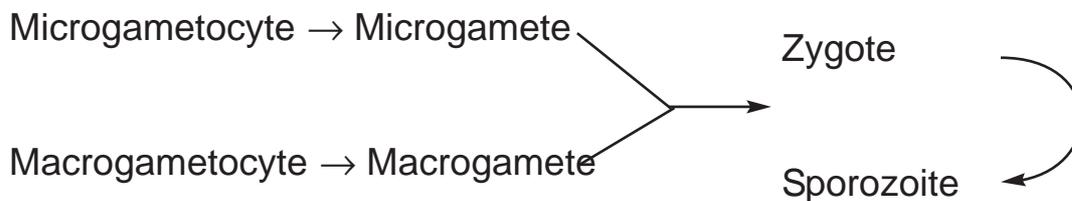
4. Erythrocytic Cycle:

- i) Life cycle of malarial parasite in RBC is called "Erythrocytic cycle".
- ii) Cryptomerozoite feeds on the contents of red blood cells and grows in size. When fully grown, they occupy the entire inner space of RBC and are called "Schizontes".
- iii) The schizontes divide repeatedly and produce 6 to 24 merozoites.
- iv) The red blood cell ruptures and releases the "merozoites" into the blood.
- v) The merozoites again attack new red blood cells and produce more number of merozoites. This phase of the cycle is called "Erythrocytic cycle", as it occurs in RBC.
- vi) After few generations, some of the merozoites develop into "gametocytes" in the red blood cells. There are two types of gametocytes-Macrogametocytes and Microgametocytes.

Criptomerozoite → Schizonte → Merozoite → Gametocytes

14. Describe changes in the malarial parasite, that occur in mosquito?

1. The part of the malarial parasite life cycle in mosquito is called "sexual cycle", as the parasite proliferates by sexual reproduction.
2. When the mosquito sucks the blood from infected person, gametocytes enter its digestive system.
3. Gametocytes migrate into the walls of the digestive system of mosquito and undergo further development.
4. Macrogametocyte develops into macrogamete, which is equivalent to unfertilized ovum.
5. Microgametocyte divides further and gives rise to microgametes, which are equivalent to sperms.
6. Both macrogamete and microgamete fuse to give to a "zygote"
7. The zygote migrates to the outer layers of the wall (wall of the digestive system). It grows in size and divides to produce a large number of "sporozoites".
8. The sporozoites migrate to the salivary glands of mosquito and settle in the tubules.



Fill up the blanks

1. Common cold, chicken pox are spread by _____ infection.
2. During stage of _____ parasites release toxin and interfere with normal functioning of the host.
3. Mumps mostly effects _____ glands.
4. Measles caused by _____
5. The primary host of malarial parasite is _____
6. Gametocytes are developed from the stage of _____
7. Merozoites are released by the rupture of _____ cells
8. _____ is only the drug to treat elephantiasis or Filariasis.
9. In the mosquito, sporozoites are present in _____
10. The incubation period of encephalitis _____

Answers:

1. Drop let
2. Manifestation
3. Parotid
4. Paramyxovirus
5. Mosquito
6. Merozoites
7. Red blood
8. Diethyl Carbamazone
9. Salivary Glands

10. 5-15 days