

CLASS 8

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SUBJECT BIOLOGY

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Chapter 16 - Diseases - Cause and Control

Diseases caused by parasitic worms

1. Ascariasis -

Causal organism - Round worm - Ascaris

Symptoms - These worms may be found in the intestines where they absorb the digested food from the host. Host becomes weak.

Transmission - Female lays several thousand eggs per day that pass out along with patient's faeces. Eggs get scattered in soil. Through vegetables growing in fields infection can reach us by eating unwashed raw vegetables. Sometimes children playing on ground may carry these eggs on their hands and infection can occur by eating with unwashed hands.

2. TAENIASIS

Causal organism Tapeworm - Taenia solium

Symptoms - Tapeworm remains in intestine. It may absorb most of the host's digested food and makes the patient terribly weak.

Transmission - There are two common tapeworms. One is transmitted by eating infected pork and the other by infected beef. The mature worm (in the intestine of patient) breaks off a small segment from its tail end which passes out with the faeces. These segments contain eggs. These eggs may be ingested by pig or cow. Inside their bodies eggs hatch and form larval stage which settle in the muscles of their new host. When man eats raw or imperfectly cooked pork or beef, man also gets infected.

3

Filariasis- or Elephantiasis

Causal organism Wuchereria bancrofti

Vector Culex mosquito

Symptoms These tiny worms lie in the lymphatic system and connective tissues of the human body mainly limbs. Legs become swollen resembling those of the elephant.

The swelling is due to the blockage of lymph circulation by the worms resulting in inflammation of lymph glands and lymph vessels. Its symptoms are enlargement of limbs/ankle, fever with chills in acute cases.

Treatment Eradication of vector and use of antibiotics and anti-inflammatory analgesics.

VIRAL DISEASES-

Viruses- These are extremely small substances made of nucleic acids (RNA) and proteins

- They can live only inside other living cells [host]
- They take over metabolism of their host cell in their own favour producing more viruses and usually killing host cells.
- Outside living host body, viruses can be crystallized and stored on the shelf
- Viruses are highly specific. They attack only one kind of host and only certain tissues.
- Virus is like a gene with no cell of its own. It dictates host cell to produce more of its own kind of virus particles only. The host cell ultimately dies and the liberated virus particles attack new host cells.

Common viral Diseases. Eg poliomyelitis, common cold, influenza, smallpox, mumps and rabies. Few viral diseases are discussed below-

1) HIV / AIDS [Human Immunodeficiency Virus / Acquired Immune Deficiency syndrome]

Causal organism HIV Human Immunodeficiency virus

Incubation period may be more than 10-12 years

During this period, the infected persons show positive results for HIV and are called HIV positive.

Symptoms - It attacks immune system and person suffers seriously from minor infections of other diseases. Even cancers appear when the immune system fails.

Most individuals, when AIDS is fully developed, die within 3 years from other infections or cancers. Symptoms during this period may include swollen lymph nodes, fever, night sweats and weight loss.

Transmission - It has been detected in body fluids like blood, semen, saliva, tears and urine.

Modes of transmission include -

1. Sexual intercourse between man and woman or even homosexual intercourse, when one of the two is infected.
2. Contaminated blood transfusions - Blood transfusion is required in case of injury, surgery, blood cancer patients etc. A healthy person may get AIDS if the person receives blood from a donor who is HIV positive (infected person).
3. Mother to child transmission Mother may transmit the germs (from the body of HIV positive mother) to the growing embryo/baby in her womb.
4. Injection needles if shared by more than one person may transmit HIV from one person to another.

2. Chicken pox

Causal organism Herpes virus 'Varicella zoster'

Incubation period 14-21 days

Symptoms - Highly irritating rashes that appear on body starting near the chest and back and gradually spread to arms, legs, face and head. The rashes first appear as a pink spot and rapidly changes to watery blister. The blister gradually shrivels up and soon dries forming scabs, this time is infectious period.

Treatment - Bed rest, keeping the rashes clean and dry, do not prick the blister, calamine lotion can be applied to reduce itching, use of neem leaves also help. Vaccine is given to children of the age of 12-18 months.

3. HEPATITIS -

Causal organism - caused by 5 strains of viruses - Hepatitis A, Hepatitis B, Hepatitis C, Hepatitis D, Hepatitis E

Symptoms - It causes inflammation of the liver.

Transmission - It is caused by contaminated food, water, contaminated syringes and blood transfusions

a) Hepatitis A

Incubation period 14-45 days

It is most common in children and young adults mainly transmitted by contaminated food and water

b) Hepatitis B

Incubation period 6-26 weeks

It affects individuals of any age mainly transmitted through contaminated syringes and transfusion equipment.

It produces cirrhosis and cancer of liver

Hepatitis C and D

Symptoms - high temperature, headache, joint pains, loss of appetite with a general feeling of illness, nausea and vomiting. After 3-10 days jaundice may develop with deep yellow urine and light coloured stools.

[Methods of transmission and effect on liver are similar to Hepatitis B]

Treatment

Bed rest until fever has settled. Take high calorie diet with limited or no protein and fat. Wash hands after handling patient's bed, pan and clothes.

Note for students

Kindly go through the notes and the chapter as discussed in your text book. To understand and learn the causal organism, symptoms, mode of transmission and control of various diseases you may need to give multiple readings to all the topics given in the chapter.

Home Assignment

Q1 Draw a well labelled diagram of HIV [Fig 16.4 given on Page 163 of Text book] in your notebook.

Q2 Do the following 'Review Questions' (given on Page 165 of text book) in your notebook.

C Short Answer type

Q No 4

D Long Answer type

Q No 2.