

13. Why Do We Fall Ill?

Assess Yourself

1. Question

Name the protozoans that cause:

(a) Sleeping sickness and (b) Kala-azar

Answer

(a) The disease is caused by protozoa '*Trypanosoma brucei*'. The protozoa are transmitted by tse-tse fly. It is known as sleeping sickness because of disturbed sleeping cycle. Early symptoms of this disease include fever, headache, joints pain and itching.

(b) Kala azar disease is caused by a protozoan parasite called *Leishmania donovani*. Because of the protozoa the disease is also known as Leishmaniasis.

2. Question

Name two diseases spread by mosquitoes.

Answer

The two diseases spread by mosquitoes are:

(i) **Malaria**: It is caused by two species of Plasmodium, *Plasmodium falciparum* or *Plasmodium vivax* and transmitted by female **Anopheles** mosquito. The symptoms for this disease include fevers, chills, sweating, headaches and other flu-like symptoms. If not treated, it can be fatal.

(ii) **Dengue fever**: It is a viral disease caused by dengue virus and transmitted by **Aedes** mosquito. The symptoms for this disease includes high fever, headaches, back and joint pain, rashes and eye pain.

3. Question

Name the organisms which cause typhoid.

Answer

Typhoid is a bacterial infection caused by the bacteria '*Salmonella typhi*'. Symptoms of the disease may include high fever, headache, stomach pain, muscle weakness, fatigue, weakness, vomiting and loose stools.

4. Question

Against which disease BCG vaccine is employed?

Answer

BCG vaccine is employed against the disease **Tuberculosis** (TB). It is an acronym for **Bacille Calmette-Guerin**.

5. Question

How does vaccination protect a person suffering from a disease?

Answer

Vaccination cannot protect a person who is already suffering from a disease. Vaccination is an injection given during early stage of life, which has killed or weakened microbes in it in order to stimulate the immune system of the baby so that if the pathogen again attacks the person, the pre formed antibodies can fight and kill the disease causing microbe. So if a person is already suffering from the disease we cannot vaccination will not help.

6. Question

Write the symptoms and disease associated with the following:

(a) When the microbe attacks the lungs.

(b) When the virus enters the liver.

Answer

(a) When a microbe attacks the lungs, the disease might be **tuberculosis** (TB). The disease is caused by bacteria *Mycobacterium tuberculosis*. There are times when symptoms do not occur but when they do they are usually cough, chest pain, shortness of breath, fatigue, fever, weight loss and night sweats.

(b) When a virus enters the liver, the disease might be **Hepatitis B** (Hep b). The disease is caused by Hepatitis B virus. The symptoms of the disease may include yellowing of eyes and lips, abdominal pain, fatigue and dark urine may occur.

7. Question

Sweety suffered from chicken-pox this year. Her grandmother told her that now she would not suffer from this disease again. What are the reasons for such a saying?

Answer

When sweety suffered from chicken-pox, antibodies were prepared by her body in response to the action of chicken pox virus. This is an example of **active immunity** in which body prepares antibodies against the disease

causing microbe and store it for a very long period. When the person encounters the same disease again, the **pre-formed antibodies** present in the blood come for rescue. Hence, Sweetie will not encounter chicken pox again.

8. Question

What are the major sites of infection for tuberculosis?

Answer

The major site of infection of tuberculosis is **lungs** (pulmonary tuberculosis). Though this is the most common and can be cured in the initial to mid stages, but these bacteria can infect other major organs of the body as well. Different organs may include **brain, bones** (tuberculosis of bone), **lymph nodes, kidneys, urinary tract, sexual organs** or even **skin**.

9. Question

How are diseases causing microbes spread through the air?

Answer

The diseases which spread through air are known as **air borne diseases**. Airborne diseases are commonly spread by **sneezing** and **coughing**, and can sometimes also spread by **touching** a common thing like a pen, keyboard or by handshake. It might be possible that a person just covered his mouth while sneezing or coughing, the microbes are transmitted to his hands and when he touches different things he might infect them and in turn infect a disease free person.

10. Question

List the names of three diseases caused by virus stating their mode of communication in each case.

Answer

Viruses are very small organisms living on the Earth and can infect both plants and animals. The three diseases caused by viruses and their mode of communication are as follows:

(i) **Dengue**: It is a viral disease caused by dengue virus and transmitted by **Aedes mosquito**. The symptoms for this disease includes high fever, headaches, back and joint pain, rashes and eye pain.

(ii) **AIDS**: Acquired immunodeficiency syndrome or AIDS is a viral disease caused by Human Immunodeficiency Virus or HIV. It is a **sexually transmitted disease** which means it can be transmitted through exchange of body fluids like saliva, semen or even blood.

(iii) **Rabies**: A viral disease spread to people from the **saliva of infected animals**. Symptoms of the disease may include fever, fatigue, dizziness, nausea, vomiting, headache, excess salivation, muscle spasms, paralysis and mental confusion.

11. Question

Give reasons:

- (a) Majority of children in many parts of India are already immune to Hepatitis A.
- (b) Chronic diseases cause more harm to the body than acute diseases.
- (c) Infectious diseases are called communicable diseases.

Answer

(a) The virus of Hepatitis A spread through **contaminated water** and there are many children below the age of 5 who get infected to this disease through the polluted water. The infection of this disease is mild during early stages of life i.e. childhood and by the time they reach adulthood their bodies develop large number of antibodies for this disease as a result majority of children in many parts of India are already immune to Hepatitis A. This is an example of **active immunity**.

(b) **Acute diseases** are the ones which are severe, have a sudden onset but last for a short period of time, example, a broken bone. While **chronic diseases** are the ones which are long lasting and kill the person from inside, example, osteoporosis. Osteoporosis is definitely more harmful than a broken bone. This is why, it is said that chronic diseases cause more harm to the body than acute diseases.

(c) The diseases which can be **transmitted** from one individual to another are known as **infectious diseases** or **communicable diseases**. These diseases can be of different type depending upon the infecting microorganism like bacteria, fungi or virus. Example of infectious diseases are cholera, common cold, typhoid, HIV/AIDS, malaria, tuberculosis, etc.

12. Question

- (a) Why making anti-viral medicine is harder than making anti bacterial medicine?
- (a) In which do the following acute or chronic cases do you think the long term effects on your health are caused?

Answer

(a) Anti- bacterial medicines function by destroying the cell walls of the bacteria while in case of viruses, they **do not have a mechanism of their own**, and they need some host cell to replicate themselves. They attach their

DNA with the DNA of the host cell for replication, so if we want to kill the viral DNA we will have to kill own cell.

(b) If a disease occurs for a short period of time but has a sudden onset and is severe, then it is termed as acute disease, example, a broken bone while chronic cases are the ones which last for a long period of time, example, osteoporosis. So, **chronic diseases cause more harm to the body than acute diseases.**

13. Question

What are the causes, symptoms and methods of prevention and cure of AIDS?

Answer

Acquired immunodeficiency syndrome or AIDS is a viral disease caused by **Human Immunodeficiency Virus** or HIV.

MODE OF TRANSMISSION:

It is a sexually transmitted disease which means it can be transmitted through exchange of body fluids like saliva, semen or even blood of HIV infected person.

SYMPTOMS:

In the initial stages of the infection of HIV, only flu like symptoms occur like cold, fever, nausea, sore throat and fatigue. After these symptoms the disease remains asymptomatic for a longer period till it turns acute. The later symptoms may include pain in the abdomen along with swelling, coughing, fatigue, fever, loss of appetite, night sweats, nausea, vomiting and difficulty in swallowing.

PREVENTIVE MEASURES:

As said prevention is better than cure, one must always be cautious of their doings. HIV spread through exchange of body fluids like blood, semen, vaginal fluids or by mother to child by breast milk. Some of the preventive measures for AIDS are as follows:

- always using sterilised needle
- getting clinically tested atleast once or twice a year
- using condom while intercourse
- limiting the number of sexual partners and knowing if they have any sort of history of disease

TREATMENT:

As AIDS is a viral disease and no permanent cure for viral diseases have been discovered yet so there is no treatment for AIDS as well. We must take proper precautions before getting infected.