Chapter 13 - Why Do We Fall Ill

1. Health and its Failure

The significance of Health

Health is a state of complete physical, mental and social well-being of an individual. Anything that prevents proper functioning of cells and tissues will lead to a lack of proper activity of the body.

Personal and community issues both matter for health

The health of all organisms will depend on their surroundings or their environment. The environment includes the physical environment. Our social environment, public cleanliness, good economic conditions and jobs, social equality and harmony are also important for individual‘s health.

Distinctions between “Health” and “Disease Free”

Disease means being uncomfortable. A person affected by the disease will have improper functioning of the organ systems. Healthy is a state wherein a person’s is fit and fine from all aspects, including all his physical, mental, psychological and emotional state. Being healthy refers to being free from any diseases. But, being diseases free does not refer to be healthy, i.e. a person who is disease free does not have any diseases but, they might not be stable from inside as that of a healthy person.

2. Disease and Its causes

What does disease look like?

When there is a disease, either the functioning or the appearance of one or more systems of the body will change for the worse. These changes give rise to symptoms and signs of disease. Symptoms of disease are the things we feel as being wrong. Different symptoms which could be established during the diseased condition include headache, cough, loose motion and wounds with pus. These symptoms indicate there may be a disease, but they don’t indicate what the disease is.

Acute and chronic diseases and poor health

Acute and chronic diseases are the diseases based on duration. Acute diseases last for a short time without posing adverse effects on the health. e.g. common cold. Chronic diseases last for prolonged period with drastic effects on health. e.g. Diabetes. Chronic diseases have very drastic long term effects on people’s health as compared to acute diseases.

Cause of diseases

Most diseases will have many causes, rather than one single cause which include poor nourishment, genetic defects, lack of public services and microorganisms. All diseases will have immediate causes and contributory causes.

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Infectious and non infectious causes

Infectious diseases are the diseases based on occurrence or spread and duration. These are the diseases caused by micro-organisms like bacteria, virus, fungi and protozoa. These are spread from one person to another through air, food, water etc.

Non-infectious diseases are caused by genetic abnormalities. They are called non-communicable diseases as they do not spread from one person to another. e.g. cancer.

3. Infectious diseases

Infectious agents

Organisms which cause disease are called as infectious agents. They obtain nourishment from the host. e.g. Bacteria, Viruses, Fungi, Protozoa, Helminths. Bacteria cause diseases like typhoid, cholera, tuberculosis, anthrax, pimples and peptic ulcers. Common cold, influenza, dengue fever, SARS and AIDS are caused by virus. Fungi cause skin infections. Protozoa causes malaria, kala – azar and sleeping sickness. Helminth worms cause intestinal infections or elephantiasis.

Means of Spread

Infectious diseases are spread through microbial organisms from an infected person to a healthy person. So they are also called communicable diseases. Microorganisms are transmitted through physical contact, air, water and vectors.

Air borne diseases: These are the diseases transmitted through air. Microorganisms are transmitted in the form of droplet in the air. e.g. common cold, pneumonia and tuberculosis.

Waterborne diseases: this occurs if the excreta from someone suffering from an infectious gut disease such cholera get mixed with the drinking water used by people living nearby.

Physical contact: These are the diseases transmitted through direct contact. e.g. AIDS is transmitted through blood- blood contact with infected people or from an infected mother to her child during pregnancy. AIDS is also transmitted through intimate contact between partners.

Vectors: The most common carriers or vectors that transfer micro-organisms from one human being to another are female mosquitoes, dogs, hens, etc. e.g. Rabies virus transmitted by dogs and cats bite.

Organ specific and tissue specific manifestations

There are many places, organs or tissues where these microorganisms could go. Symptoms tell us about the target organ infected. Malaria causing microbes, entering through a mosquito bite, will go to the liver, and then to the red blood cells.

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The signs and symptoms of a disease will depend on the tissue or organ which microbe targets. If the liver is targeted, there will be jaundice. If the brain is the target, we will observe headaches, vomiting, fits or unconsciousness.

An active immune system recruits many cells to the affected tissue to kill off the disease-causing microbes. This recruitment process is called inflammation. The severity of disease manifestations depend on the number of microbes in the body. The immune system is a major factor that determines the number of microbes surviving in the body.

Principles of treatment and Prevention:

There are two ways to treat an infectious disease. One would be to reduce the effects of the disease and the other to kill cause of the disease. Antibiotics are the drugs used to treat the diseases caused by bacteria, fungi and protozoans. e.g. penicillin. Anti-viral drugs are the medicines used to treat diseases caused by viruses. These drugs are difficult to be prepared when compared to anti-bacterial drugs. Despite this limitation, there are now effective anti-viral drugs, for example, the drugs that keep HIV infection under control.

There are two ways one general and one specific to prevent diseases. The general ways of preventing infections mostly relate to preventing infections. Airborne micro-organisms can be prevented by providing living conditions which are not over crowded. Water-borne micro-organisms can be prevented by providing safe drinking water. Vector-borne diseases can be prevented by providing clean environment. Public hygiene is one basic step in the prevention of infectious diseases. Availability of proper and sufficient food can prevent infectious diseases. Immunization through vaccines is specific way of preventing diseases. Eg: vaccines against tetanus, diphtheria, whooping cough, measles and polio etc.

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