

DISEASES AND THEIR TREATMENT

Diseases can be classified into two classes : (a) congenital, i.e., those present from birth which are due to some metabolic disorder or defect in the development and (b) acquired, i.e., those developed after birth. Acquired diseases may be : (i) infectious, (ii) degenerative, (iii) deficiency, (iv) allergy, and (v) cancerous.

Congenital Diseases

Congenital diseases and defects may be inherited or caused by environmental factors. A defect due to chromosomal disorder is mongolism (found in man). In man the well-known hereditary defects include colour blindness, harelip, cleft palate, club foot, hole in the heart, absence of hands, feet, arms or legs, etc. A number of disease producing organisms, chemical substances, drugs, X-rays, other radiations and antibodies produce harmful effects on the embryo or the foetus but they may not affect the mother so much.

Colour Blindness : Genetic defects causing imperfect perception of colours, e.g. red-green colour blindness. The molecular defects in colour blindness involve absence of or defects in one of the three visual pigments that absorb green, red and blue light.

Down's syndrome : (Mongolism) is a type of developmental disability historically known as mongolism because of characteristic appearance of the eyes. This condition is due to an abnormality in the number or structure of the chromosomes. Commonly it is due to having an extra chromosome. The probability of a Down's syndrome birth increases with maternal age after 35 and in advanced paternal age.

Haemophilia : This is a rare, hereditary blood disorder marked by a tendency for excessive bleeding. It is almost restricted to males only, and is transmitted as a sex-linked mendelian recessive trait passing from an affected male through an unaffected or very mildly affected daughter to appear again in a grandson.

Harelip : This defect is marked by abnormal cleft between the upper lip and the base of nose. Corrective measures (surgery) should be undertaken

before the child begins to talk since phonation, or speech is severely affected.

Sickle-Cell Anaemia. This is a common disease of Black Africans in which red blood cells have a tendency to assume a spiked or sickle-like shape when the blood is deprived of oxygen. This is due to the production of abnormal type of haemoglobin (sickle haemoglobin) due to some physiological defect resulting in anaemia.

Phenylketonuria : Phenylpyruvic acid is an amino acid which is poisonous in large quantities to our body. In this defect due to some physiological defect this amino acid can not be metabolised. The accumulation results in retarded growth of body and mind.

Albinism. This is the failure of development of pigments in skin, hair and eyes.

INFECTIONS OR COMMUNICABLE DISEASES

(i) Diseases caused by Bacteria

Cholera : Caused by *Vibrio cholerae* : transmitted through contaminated food and water : incubation period—few hours to 2 to 3 days : symptoms are vomiting, acute diarrhoea, muscular cramps ; preventive measures include hot food, boiled drinking water, careful disposal of waste ; Vaccine gives short term immunity.

Diphtheria : Transmission through droplets sprayed from mouth during talking, coughing : incubation period—3 to 5 days ; symptoms are mild fever, sore throat, patches of false membrane in the throat ; prevention and treatment by immunization vaccine and infection of diphtheria antitoxin within 12 to 24 hours of appearance of symptoms.

Tuberculosis : Transmission through air or milk, nose and throat discharge of the patient ; symptoms are fever, cough sputum containing blood, chest pain, weight loss ; prevention by BCG vaccine ; Treatment includes rest, controlled diet, streptomycin and surgery.

Leprosy : Transmission by prolonged contact with diseased parts ; Symptoms include skin lesion, numbing of infected area, ulcer nodules, scaly scaps, deformity of fingers, toes ; treatment by streptomycin sulphones.

Tetanus : Transmission by direct or indirect inoculation of wound ; Incubation period varies from 3 to 4 weeks ; Symptoms are painful contraction of muscles, usually of the neck and jaw, followed by the paralysis of thoracic muscles ; Infection occurs only on direct contact ; Prevention includes anti-tetanus injection in case of injury or cut contaminated with road dust.

Typhoid : Transmitted by contaminated food and water ; symptoms are fever, slow pulse, abdominal tenderness, rose coloured rash ; Prevented by proper community sanitation, protection of food from flies ; vaccine available, treatment by chloromycetin.

Plague : Transmitted by flea-bite or accidental contact with infected rats ; Symptoms are acute body pain, reddish eyes, sudden rise of temperature, inflammation of glands in neck, armpits and thighs, delirium ; Prevention by rat destruction ; Vaccine available , Treatment by sulpha drugs and streptomycin.

Whooping cough : Transmitted through air ; Symptoms are cough usually at night which becomes diurnal after sometime. The spell finally ends in the loud inspiratory crow (the whoop) as the child attempts to regain his breath. It occurs chiefly in infants and children ; Serum and vaccine available.

(ii) Diseases caused by Virus

Chickenpox : Transmitted by contact with infected person, clothing or other articles ; Symptoms are headache, fever, appearance of reddish spots turning into pearly blisters on chest, abdomen, back and face, itching scabs form about 4th day of fever. Infectivity continues till skin becomes clear ; Treatment by applying calamine lotion on skin and isolating the patient.

Measles : Transmitted by air and direct contact ; Symptoms include fever, inflammation of respiratory mucous membranes, sensitivity to light, loss of appetite, vomiting, rash on skin which goes after 10 days ; Incubation period is of 10 to 12 days ; serum and vaccine available (gamma globulin).

Polio myelitis : Transmitted by intestinal discharges, contaminated food and drink, flies ;

Symptoms include signs of paralysis, difficulty in bending the head forward. Paralysis follows and reaches to maximum within two to three days . Vaccination available.

Rabies (Hydrophobia) : Transmitted by bite of rabid animals, e.g. dogs ; Incubation period of 10 days to several months ; Symptoms are severe headache, high fever with alternating stages of excitement and depression, difficulty in swallowing, paralysis and convulsions ; Prevented by vaccination of dogs. There is no vaccine for the patient. Treated by a series of injections to form antibody for 14 days.

Mumps : Transmitted through direct contact with patient. Symptoms include fever and swelling of glands or organs (where the virus is localized). In case of the swelling of parotid glands, a severe pain is caused when mouth is opened ; Vaccination contains attenuated live virus.

Influenza : It is an acute respiratory infection, and usually epidemic ; Transmitted by entering of virus in respiratory tract in air borne droplets, Incubation period of 1-2 days ; Symptoms include inflammation of respiratory tract with fever, chill and muscular aches , Vaccination by attenuated live virus vaccine.

Jaundice or Hepatitis : It is an infectious, inflammatory disease of liver ; Symptoms include yellowing of skin, saliva, urine, etc. ; Transmitted by contaminated water or other food, receiving transfusion of contaminated blood ; The initial symptoms are fever, weakness, lethargy, chronic nausea, stomach pains and swelling in the area of the liver, liver's ability to filter blood is hampered, and building bile in the blood stream ; Treatment by careful regulation of diet and rest.

Herpes : This is a mild vesicular eruption of the skin or mucous membrane. Primary infection occurs early, 70-90% of adults have antibodies. However, the virus may be carried throughout life ; Transmission is by contamination from saliva or stools.

(iii) Some other Diseases

Allergy : It is a condition in which a person reacts in a hypersensitive manner to any substance. It affects mostly the skin, mucous membrane may

be in reaction to specific food stuffs, drugs, fabrics, dust, pollen grains, plants, animals, heat and cold. The major types of allergy are hay fever (seasonal or perennial), asthma and eczema, or allergic dermatitis. The other types of allergy include severe localized itching (pruritis), recurrent boils, canker sores, periodic vomiting, colic, repeated inflammation of the eyes, chronic sinusitis and recurrent headaches. The treatment can be done by means of hyposensitization. An extremely small amount of offending substance is injected into the patient's system initially, gradually the amount is increased and in time, the patient's body becomes accustomed to accepting large amounts of material without experiencing any allergic effect.

Cancer. Cancer is the abnormal growth of cells, often resulting in a malignant tumour. Symptoms include wounds that do not heal, unusual bleeding or discharge, lump or thickening in the breast or elsewhere, a sore that does not heal, change in bowel or bladder habits, hoarseness or cough, indigestion or difficulty in swallowing, change in size or colour of wart or mole.

(iv) Degenerative Diseases

Heart Attack : Heart can refer to a wide variety of coronary ailments from arterial blockages to uncontrolled heart beats to congestive heart failure which impedes the heart's ability to deliver blood (and thus oxygen and other critical substances) to the rest of the body. Such ailments can often result in death.

Fatal heart attack involves arrhythmia (irregular heart beats) and congestive heart failure when the left ventricle (the chamber of the heart that pumps blood through the body) becomes weak. e.g., blood tends to back up into the lungs, and the congestion leads to a build up of watery fluid in the lungs. The presence of this fluid in turn impedes the oxygen/carbon dioxide exchange in the lungs, which can lead to rapid death.

Diabetes mellitus : This is a disease of abnormal carbohydrate metabolism in which the sugar glucose cannot enter the body's cells to be utilized and therefore remains in the blood in high concentration. The excess of sugar in the blood leads

to the excretion of sugar in urine, one of the important signs of this disease. This causes the excretion of large amounts of urine, which results in dehydration and intense thirst. Although blood glucose is high, glucose cannot enter the appetite-regulating cells of the brain, and the hunger is therefore great, so that diabetic person tends to eat constantly. But body tissues are subjected to the equivalent of starvation conditions and rapid weight loss occurs. Diabetes mellitus occurs because of faulty functioning of islets of Langerhans in the pancreas which secrete insulin. Insulin is not given as a cure but as a replacement.

Arthritis : The word arthritis means joint inflammation, painful, swollen joints are one of the major characteristics of different arthritis related conditions that include osteoarthritis, rheumatoid arthritis, and gout.

(v) Deficiency Diseases

Deficiency diseases can be defined as pathological states with characteristic clinical signs, which are due to deficiency in the diet of a nutrient and can be cured by providing the missing nutrient.

Kwashiorkor disease is common in tropical Africa and some parts of India. Symptoms are—deficiency of amino-acids which are needed for proteins synthesis. Growth is arrested or bone growth may be delayed. Both linear and transverse growth is slowed down and the density of bone is much lower than in healthy individuals.

Night-blindness or Xerophthalmia : Vitamin A takes part in the formation of the pigment rhodopsin in retina layer of the eye ball. If there is no sufficient formation of rhodopsin pigment it leads to night-blindness. Night-blindness is the early symptom of vitamin A deficiency and leads to dry cornea and conjunctiva. Xerophthalmia is the advanced stage of the eye disease due to the deficiency of vitamin A.

Beriberi : It occurs mainly in the communities whose staple food is milled rice, as milled rice is devoid of thiamine. The symptoms of the disease are—pneumogastric nerves are affected, liability to oedema of the connective tissues and heart failure often occurs. Yeast extract, wheat and groundnut are good for curing the disease.

Pellagra : This is associated with the cereal maize. The symptoms of the disease are diarrhoea, mental laziness and symmetrical dermatitis. The disease can be controlled by taking milk, meat, liver and green vegetables and nicotinic acid.

Rickets : It is the disease of children in the first two years of life due to calcium and phosphorous metabolism which occurs when there is deficiency of vitamin D. The symptoms of rickets are sleeplessness, face being extremely pale, diarrhoea, deformities in the skull, ribs, spine, pelvis, and limbs. The vitamin D anti-rachitic is obtained by ingestion directly or by the action of ultra-violet light on the skin which synthesises this vitamin from ergosterol.

Osteomalacia : It generally occurs in women who live on poor cereal diets lacking calcium and vitamin D, and who remain indoors most of the time. The disease is commonly occurring in Europe, USA, Africa and Asia. The disease is more common in Muslim communities. The disease can be cured by taking cod-liver oil, liver, eggs, milk and meat.

Scurvy : Scurvy is due to the deficiency of vitamin C or ascorbic acid. Ascorbic acid plays an important part in tissue oxidation, formation of collagen, which provides a supporting matrix for the blood vessels, connective tissue cartilage and bone. The symptoms of disease are swollen gums, haemorrhages into the skin and delayed wound healing.

Endemic goitre : Goitre is the swelling of the thyroid in the neck. It is due to the deficiency of iodine for the synthesis of thyroxine hormones of thyroid gland. There is a close association between goitre and hard drinking water. The disease can be cured by adding iodine to the table salt or by adding potassium iodide.

Nutritional anaemia : In some cases, the red blood cells are seriously reduced in number or else they are deficient in haemoglobin. Because of haemoglobin deficiency, less oxygen reaches the tissues and the cells cannot function normally. Among the symptoms are fatigue, headache, general weakness, black spots before the eyes, palpitation of the heart, and an increased pulse rate. In severe cases, breathing may be shallow and difficult. The

pernicious anaemia is due to short supply of vitamin B₁₂ and folic acid. The anaemia due to the deficiency of folic acid and vitamin B₁₂ or megalocytic anaemia is characterized by an increase in the size of red blood cells. Pernicious anaemia can be cured by giving the patient large quantity of liver, legumes, spinach and potatoes. Iron deficiency also causes anaemia. Iron deficiency leads to the disease in India where daily intake of iron is 20-40 mg.

COMMON TYPES OF DRUGS

Anaesthetics : The drugs administered during surgical operations of all kinds to prevent the feeling of pain by the patient. General anaesthetics cause complete loss of consciousness, and are used in major operations. The example of this kind are laughing gas (nitrous oxide), chloroform, ether, and sodium pentothal. Local anaesthetics deaden the nerve in one part of the body only, e.g., used by dentist. The local anaesthetics include lignocaine and procaine.

Antibiotics : They are the drugs that have the power to destroy body germs quickly and to prevent germs from growing. They are the compounds produced by bacteria and moulds, tiny plant organisms.

Antihistamines : Relieve the symptoms of asthma, hayfever and other allergies. They counter excess production of the substances (in the body) called histamines, which cause sneezing and streaming nose.

Antipyretics : These drugs are used to lower the body temperature.

Hormones : Hormones are used as drugs when the body has a hormone deficiency that causes a disease. Insulin is probably the best-known hormone drug (diabetes). The other important hormone drugs are adrenaline, cortisone and ACTH.

Narcotics : They deaden the whole nervous system and prevent a person from any feeling of pain. They may make one sleep, or go into a coma. Opium and the drugs derived from it, codeine, heroin and morphine, are the most widely used narcotics.

Sedatives are soothing drugs that generally send a person to sleep. Common sedatives are barbiturates and bromides. Narcotics and anaesthetics have sedative effect too.