

Major Health Problems: Communicable and Non-communicable Diseases

** Ganapathy*

Introduction

India is a country that has a population of one-sixth of the humanity living in the world. Hence, any problem to people of India is the problem of humankind. Health is one of the major indicators that are historically used to understand and acknowledge the well-being of any society. The health of a nation can best be judged by the health status of its people. Diseases are one among the major factors that determine the health status of people. This chapter will look at human disease and its kinds. Some diseases pose a major health problem in India and in other parts of the world. These are classified into communicable and non-communicable diseases. The Indian government implements National Health Programmes to fight against each of the important diseases respectively. We shall also deal with those programmes and suggest further measures to be taken.

Human Disease and Kinds of Disease

A disease is a condition that impairs the proper function of the body or of one of its parts and also the social and economic roles of people. Every living thing, both plants and animals, can succumb to disease. Hundreds of different diseases exist. Each has its own particular set of symptoms and elements,

** Ganapathy, JNU, New Delhi*

clues that enable a physician to diagnose the problem. A symptom is something patient can detect, such as fever, bleeding, or pain. A sign is something a doctor can detect, such as swollen blood vessel or an enlarged internal body organ.

Every disease have causes and these include the biological and social aspects, although the causes of some remain to be discovered. Every disease also displays a cycle of onset, or beginning, course, or time span of affliction, and end, when it disappears or it partially disables or kills its victim. An epidemic disease is one that strikes many persons in a community. An endemic disease refers to the constant presence of a disease within a geographic area or a population without importation from outside and the occurrence is within the usual or expected frequency. An acute disease has a quick onset and runs a short course. A chronic disease has a slow onset and runs sometimes years-long course.

Kinds of Disease

Infectious or communicable diseases are those that pass between persons by means of airborne or waterborne droplets from cough or sneeze. Tiny organisms such as viruses, bacteria, fungi, and worms can produce infectious diseases. Whatever the causative agent, it survives in the person it infects and is passed on to another. Sometimes, a disease-producing organism gets into a person who shows no symptom of the disease. The symptomatic carrier can then pass the disease on to someone else without even knowing he has it. Various agents such as virus, bacteria, fungi, protozoa, and worms cause infectious diseases. (a) Diseases caused by Bacteria: Cholera, Diphtheria, Tuberculosis, Leprosy, Tetanus, Typhoid, Plague, Whooping Cough, Sore Throat, Pneumonia, Bacillary Dysentery, Gonorrhoea, Syphilis and Botulism. (b) Diseases caused by Viruses:

Chickenpox, Measles, Poliomyelitis, Rabies, Mumps, Influenza, Hepatitis, Herpes, Viral Encephalitis, and AIDS. (c) Diseases caused by Fungi: Ringworm, Athlete's foot, Dhobi itch. (d) Diseases caused by Protozoan: Amoebiasis, Malaria, Sleeping sickness, Kalazar, Diarrhoea. (e) Diseases caused by Helminthes or Worms: Filariasis, Tapeworm and Hookworm transmission.

Non-infectious or non-communicable diseases are caused by malfunctions of the body. These include organ or tissue degeneration, erratic cell growth, and faulty blood formation and flow. Also included are disturbances of the stomach and intestine, the endocrine system. Some diseases can be caused by diet deficiencies, lapses in the body's defense system, or a poorly operating nervous system. Non-communicable diseases (NCDs) include cardiovascular, renal, nervous, and mental diseases, musculo-skeletal conditions such as Arthritis and allied diseases, chronic non-specific respiratory diseases such as Chronic Bronchitis, Emphysema, and Asthma. Furthermore non-communicable diseases include permanent results of accidents, senility, blindness, cancer, diabetes, obesity, and various other metabolic and degenerative diseases and chronic results of communicable diseases.

Deficiency diseases also part of non-communicable diseases are due to deficiency in the diet of a nutrient and they can be generally cured by providing the missing nutrients.

Degenerative diseases occur due to malfunctioning of some organ or organ system in the body. The incidence and prevalence of degenerative diseases in non-communicable diseases is observed to be growing alarmingly. This transition is principally due to a combination of demographic and lifestyle changes which result from socio-economic development.

Communicable Diseases

Tuberculosis

Tuberculosis is a serious public health problem in India. India accounts for nearly one-third of the Global tuberculosis burden. Every year, approximately 22 lakhs new cases are diagnosed in the country of which approximately 10 lakhs are highly infectious. An infectious case on an average infects 10-15 persons in a year. One person dies of tuberculosis in India every minute and more than 1,000 people every day. In India, tuberculosis kills 14 times more people than all tropical diseases combined, 21 times more than malaria and 400 times more than leprosy.

Tuberculosis is a major barrier to social and economic development. Every year, the direct and indirect costs of tuberculosis to the country amount to Rs. 12,000 crores. Every year, 300,000 children are forced to leave schools because their parents have tuberculosis, and 100,000 women lose their status as mothers and wives because of the social stigma of tuberculosis. HIV and multi-drug-resistant tuberculosis threaten to make this situation even worse.

Tuberculosis is a specific infectious disease caused by an intercellular parasite known as *M. tuberculosis*. The disease primarily affects lungs and causes pulmonary tuberculosis. It can also affect intestine, meninges, bones and joints, lymph glands, skin and other tissues of their body. The disease is usually chronic with varying clinical manifestations. The disease also affects animals like cattle; this is known as “bovine tuberculosis”, which may sometimes be communicated to man. However here we will focus on pulmonary tuberculosis, the most important form that affects man.

Social Factors

Tuberculosis is a social disease with medical aspects. The social factors include many non-medical factors such as poor quality of life, poor housing, and overcrowding due to population density, under nutrition, lack of education, early marriages, lack of awareness of causes of illness, etc. All these factors interrelate and contribute to the occurrence and spread of tuberculosis. In fact, tuberculosis began to decline in the western world long before the advent of chemotherapeutic drugs. This has been attributed to improvements in the quality of life.

The control of Tuberculosis: The control of any infectious disease has three components namely prevention, promotion and curative. The preventive component is the BCG vaccination. However, the preventive component becomes successful in the end unless it combined with the promotion component that targets the social factor, i.e., improving the quality of life. The third component, the curative aspect includes proper case finding through standardized diagnostic pattern and treating.

Diagnosis

The symptoms of tuberculosis are:

- a) persistent cough of about 3 or 4 weeks
- b) continuous fever
- c) chest pain
- d) haemoptysis (expectoration of blood or bloody mucus)

Any person who voluntarily attends any health centre with these symptoms should be taken for a sputum-smear examination. The sputum culture examination will yield the results that reveal the status of the patient and if tested tuberculosis positive, chemotherapy is administered with anti-tuberculosis

drugs. Patient compliance is critically important; the patient must take the correct drugs at the correct dosage for the correct length of time. Incomplete treatment puts the patient at the risk of relapse and the development of bacterial resistance and, the community at risk of infection with resistant organisms.

Treatment

Directly Observed Treatment Short-Course (DOTS) is a five-point strategy including the components of political and administrative commitment, diagnosis primarily through microscopy, uninterrupted supply of good quality drugs, direct observation of treatment and monitoring and supervision to track diagnosis, progress and outcome of tuberculosis. DOTS, if implemented correctly, can prevent multi-drug resistance. DOTS is also effective among HIV-infected patients. The challenge in the years ahead is to maintain the pace and quality of the programme while achieving national coverage so that tuberculosis is no longer a significant public health problem in India.

Combating Tuberculosis

India has long been at the forefront of the global battle against tuberculosis. Pioneering studies at the Tuberculosis Research Centre, Chennai and the National Tuberculosis Institute, Bangalore established the principles of tuberculosis control, which are followed even to this day the world over. These principles include the effectiveness of ambulatory treatment of tuberculosis, the effectiveness of intermittent treatment regimens, the necessity of direct observation of treatment by a trained individual who is not a family member, the usefulness and practicability of microscopy as a diagnostic tool among patients reporting to health facilities and the crushing burden of tuberculosis in our society.

To control TB, National Tuberculosis Control Programme (NTCP) was launched in the country in 1962. Since the Programme did not make any significant epidemiological impact in its almost three decades of implementation, it was reviewed by an Expert Committee in 1992. Based on the findings and recommendations of the Review, the Government of India evolved a revised strategy with the objective of curing at least 70 per cent of such patients.

Revised National TB Control Programme (RNTCP)

Revised National TB Control Programme (RNTCP) using DOTS strategy was launched in India on 26 March 1997. Overall performance of the RNTCP for the country has been excellent with cure/treatment completion rate consistently above 80 percent and death rate reduced by more than 50 per cent. The aim is to bring the entire country under RNTCP coverage by 2005 in order to meet the global targets of TB control.

HIV/AIDS

AIDS is the late stage of infection with the Human Immunodeficiency Virus (HIV). AIDS can take around 7-10 years to develop after infection with HIV. HIV is transmitted through semen and vaginal fluids, infected blood and blood products, infected mother to her baby-before birth, during birth or through breast milk.

The global situation of the disease in 2000 A.D. was an indication of a looming epidemic. People living with HIV/AIDS are 36.1 million and there has been an incidence of 5.3 million new HIV infections. Moreover, the disease has left three million people dead out of them 1.3 million were women. Almost a third of all people with HIV/AIDS are between the ages of 15 and 24-about 10 million.

The Indian Scenario: The first case of AIDS in India was reported in 1986 from Chennai. Since then there has been an increase in the number of HIV infections over the years. As reported to National AIDS Control Organisation (NACO) by 31st Dec.1998, India had a cumulative 71400 HIV positive persons from 3.2 million people who have been screened, with a seropositivity rate of 22.10 per 1000. In Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra, Manipur, Mizoram and Nagaland, the disease rate is high among the Indian states. A host of opportunistic infections is seen in increasing numbers in the AIDS patients. Tuberculosis is the major opportunistic infection accounting for about 62% of the total cases. Migration of labour, low literacy levels leading to low awareness, gender disparities, sexually transmitted infections and reproductive tract infections among the population and some of the factors attributed to the spread of HIV/AIDS in India.

Recent surveys in 34 countries found young people, particularly girls, know little about HIV/AIDS. They fail to realize that a person who looks healthy and still can be infected with the virus. Those who do recognize their risks do not know how to protect themselves from infection.

Causes of AIDS

- 1) Infected sexual fluids, saliva and blood;
- 2) Infected needles;
- 3) Multiple partners;
- 4) Infected mother to her baby before birth.

HIV can be passed on by infected people because the virus is present in the sexual fluids, saliva, and blood. If infected blood or sexual fluid gets into your blood, then you will become infected. If a man/woman with HIV has sex without a condom, infected

fluid could pass into their body. This can be so small that you do not know about it. Other sexual practices are also equally at risk of infection. If there is any contact with blood during sex, this increases the risk of infection. Recent researches have found that deep kissing where saliva is exchanged can infect the partner.

HIV is not spread by drinking water or eating food from the same utensils—cups, glasses, plates, used by infected person, 2. Sharing toilets or shaking hands, 3. Hugging, or facial kissing, 4. Donating blood, 5. Working with people who are HIV infected, 6. Massage and rub each other's bodies, 7. Swimming in pools used by people with HIV/AIDS. (HIV is not spread by sitting next to someone who is infected, coughing, or sneezing, public transportation, public telephones, restaurants, air). But if you have any cuts or sores on your hands make sure they are covered with plasters (band-aids or bandages).

HIV/AIDS could be avoided through:

- 1) Use of condoms,
- 2) Use of disposable syringes, and
- 3) By avoiding multiple sexual partners.

Diagnosis

HIV infection is diagnosed based on blood tests using three different ELISA/ Rapid tests using different antigen preparation. AIDS cases are diagnosed based on two different ELISA/Rapid tests on different antigens and presence of AIDS related opportunistic infections.

Western Blot test is used for confirmation of diagnosis of indeterminate ELISA tests. ELISA/Rapid test for HIV diagnosis is being carried out all over the country.

Further, all Microbiology departments in the Government medical colleges will provide HIV testing facilities. Moreover, they will be known Voluntary Blood Testing Centers.

National Aids Control Programme

The Government of India addresses HIV/AIDS epidemic, simply not as a health problem, but as a developmental issue, which impinges on various economic and social sectors of government and non-government activity. The programme has two key objectives: (a) Reducing the rate of growth of HIV infection in India (b) strengthening India's capacity to respond to HIV/AIDS. The programme has the following components: (i) Priority targeted interventions for groups at high risk; (ii) Preventive interventions for the general community. Under this component, the main activities are: (a) Conduction of educational and awareness campaign; (b) Promotion of voluntary counselling and testing facilities; and (c) Blood safety and prevention of occupational exposure. (iii) Low-cost AIDS care to people living with HIV/AIDS; (iv) Institutional strengthening; and (v) Inter-sectoral collaboration.

In order to track the progress of HIV epidemic in the country, NACO initiated nation-wide sentinel surveillance in August-October 1998. Since then, nationwide sentinel surveillance rounds are being conducted on regular basis. Estimates based on sentinel surveillance data indicate that there is no upsurge in spread of HIV infection.

Leprosy

History

Leprosy is probably the oldest disease known to humankind. The word *leper* comes from a Greek word meaning scaly. In India, leprosy is known since ancient times as *kustha roga* and attributed to

punishment or curse from God. During the middle ages, leprosy was widespread in almost all countries of the world. Thereafter, it declined slowly in many European countries, partly due to strict isolation and partly due to improvements in the standard of living and the quality of life of the people.

Modern-day leprosy dates from 1873 when Hansen of Norway discovered *M. leprae*. For long years, there was no effective remedy for leprosy. It seemed that the only way to handle the patients was to isolate them for life in special institutions. The introduction of sulphone drugs in the treatment of leprosy in 1943 marked the beginning of a new era – the era of case-finding and domiciliary treatment. Later decades witnessed development in the ways of treating and controlling the disease. The development of the advanced treatment process has been useful in drastically reducing the disease prevalence in most of the countries. The disease has been indeed eliminated from most of the countries. The disease is prevalent currently in fifteen countries and especially out of which only six countries have the highest concentration of the disease burden. They are India, Brazil, Myanmar, Madagascar, Nepal, and Mozambique. Among these countries, India alone represents 64 per cent of prevalence and 78 per cent of new case detection worldwide. Although leprosy is widely prevalent throughout India, its distribution is uneven. Leprosy is endemic in states of Bihar, Jharkhand, Chattisgarh, Uttar Pradesh, West Bengal, and Madhya Pradesh. These states contribute about 64 per cent of the country's case load. State of Bihar alone contributes about 24 per cent of the caseload.

Leprosy is caused by *M. leprae*. They are acid-fast bacilli and occur in the human host both intracellularly and extracellularly. The bacteria could manifest in an individual and exhibit after a long and benign

incubation period of five years. The disease infects people from already infected people. It is widely accepted that nose is a major portal of exit of the bacteria when infected people sneeze or blow their nose, it also exits through other parts of the body that are either ulcerated or broken skin or through hair follicles. The bacteria could live in the environment in dried nasal secretions for at least 9 days and in moist soil at room temperature for 46 days. The risk of transmission is also governed by spaces that are overcrowded, less ventilated, dark, and unhygienic. The risk factors that cultivate and spread disease qualifies it to be called a social disease. Poverty and poverty related circumstances create the risk factors that help the disease to spread and infect. Moreover, the social stigma attached to the disease ostracizes the patients and the already poor individual who is infected is denied a chance to get proper treatment and rehabilitation. In addition, this allows the individual to be yet another potential infector thereby the vicious circle of the disease is continued. Two things stand on the way of the disease elimination. First is creating social awareness among the public and try to remove the social stigma enabling the role of modern medicine to combat with the problem. Second is the overall socio-economic development that entails the elimination of poor and unhygienic living conditions and the high nutritional status of the individuals in the society that gives a general resilience to all communicable diseases like those that the histories of Europe and America have demonstrated.

Diagnosis

The disease is diagnosed through clinical examination and confirmed through a bacteriological examination. The clinical examination includes analyzing the family history for the disease. Other aspects of the clinical

examination are involved with physical examination of the symptoms that appear in thickening or tenderness of specific nerves, hyper-pigmented patches, loss of sensation to stimuli in the skin patches and paralysis of the muscles of the hands and feet, leading to the disabilities or deformities. In order to confirm the detection that is gathered through clinical examination it is necessary to have bacteriological examination of skin and nasal smears. The tests confirm the disease and demonstrate the stage of disease hence the necessary medication could be administered.

It is estimated that approximately 25 per cent of the patients who are not treated at an early stage of disease develop anaesthesia (absence of sensation) and/or deformities of the hands and feet. As a single disease entity, leprosy is one of the foremost causes of deformities and crippling. Rehabilitation is therefore an integral part of leprosy control. It must begin as soon as the disease is diagnosed. The cheapest and surest rehabilitation is to prevent physical deformities and social and vocational disruption by early diagnosis and adequate treatment. The measures that are taken in this direction are known as 'preventive rehabilitation'. The approach to rehabilitation should therefore begin with preventing debilitation. We should never allow debilitation to take place and afterwards take up the uphill task of rehabilitation. Rehabilitation measures require planned and systemic actions – medical, surgical, social, educational, and vocational — consistently over years with sustained counselling and health education for training or retraining of the individual to the highest possible level of functional ability. This requires the coordinated efforts by the Departments of Health, Education, and Social Welfare along with various voluntary organisations.

National Leprosy Eradication Programme

The National Leprosy Eradication Programme (NLEP) was launched in 1983 as a hundred per cent centrally sponsored scheme. The Programme was expanded with World Bank assistance from 1993-94. The second phase of World Bank supported NLEP Project was started from 1st April, 2001 for a period of three years. The objective is to achieve elimination of leprosy as a public health problem by the end of 2003-04 thereby reducing the caseload to less than 1/10,000 population. Till March 2002, 13 states, viz., Nagaland, Punjab, Haryana, Sikkim, Himachal Pradesh, Meghalaya, Tripura, Mizoram, Manipur, Jammu and Kashmir, Rajasthan, Kerala and Assam have reached level of elimination. 558 District Leprosy Societies have been created to provide free Multi-Drug Therapy (MDT) Services in all the districts of the country. About 288 Voluntary Organisations in coordination with NLEP are supplementing the Government efforts in the fight against leprosy. The Government of India provides grant-in-aid to the NGOs engaged in the survey, education, and treatment activities in the population. Anti-leprosy drugs are provided free to all States/UTs. By March 2002, 4.4 lakh patients are on record in the country, and 99.5 per cent of them are getting MDT. The prevalence of leprosy has been reduced from 57 per 10,000 population in 1981 to 4.2 per 10,000 population by March 2002.

Non-communicable diseases**Cancer**

Cancer is a general term used to describe over 200 individual diseases. These diseases progress differently over a period of time but share certain characteristics that include development within any tissue of a malignant growth derived from abnormalities of the host. The abnormal cells grow without any control,

invade through normal tissue barriers, spread to local and distant sites within the host, and reproduce indefinitely. The masses of such abnormal cells formed and spread in this way lead to the death of the host if not eradicated. The incidence of cancer is rising steadily.

Epidemiology

Estimates show that the number of new cancer cases in India is about 1,000,000 per year. The most common form of cancers seen in the males include cancers of the lung, stomach, esophagus, mouth, larynx, hypo pharynx, tongue, prostate, urinary bladder and uterus.

In females, traditionally cancer of the cervix was the leading cancer, but of late, especially in the urban areas, cancer of the breast seems to be, becoming a major problem. Cancers of the mouth are commonly seen in both the males and the females. Cancers of the larynx, hypo pharynx, esophagus and stomach are seen more in men than compared to females, while cancer of the gall bladder is seen more often in women.

Etiology

Cancer has been classified as a disease of life-style. It has been noted that a majority of the cancers are caused by living habits (smoking, alcohol consumption, and diet) and environmental factors. Tobacco cause about 35% of all cancer deaths and at least 90% of lung cancer deaths. Alcohol indirectly causes about 5% of cancer deaths worldwide. Solar Ultraviolet Radiation (UV-B) is clearly related to an increase in the risk of developing skin cancers.

Dietary Substances are associated with cancers: Fat causes Breast and Colon cancers, High Total Caloric Intake causes Breast, Endometrium, Prostate, Colon and Gall Bladder cancers, Animal protein

(particularly red meat) causes Breast, Endometrium and Colon cancers, Salt-cured Smoked or Charred Foods cause Oesophagus and Stomach cancers, Nitrate and Nitrite Additives cause Intestine cancer. Body Habits and Exercise are also causes for cancer risks. Obesity is associated with an increased risk of breast cancer in women over 40 years.

Chemical and Microbial Agents such as Drugs, Hormones, Microbes and Viruses are risk factors for cancer. Cancers are also caused due to various Genetic factors.

Occupational cancers are caused due to the prolonged exposures to various hazardous chemical agents. Bladder cancers, cancers of the lung, trachea and bronchus (amongst asbestos miners), skin cancers, etc. are some of the known cancers caused due to occupational risks.

Characteristics of Cancer Cell

Under usual circumstances, stem cell populations in body tissues can undergo one of the three changes: They can differentiate to mature forms as constituent component cells of the tissue of residence. They can self-replicate. They can die. With mutation, a fourth change can take place reproduction to a new form and they form the cancer cells.

Diagnosis

The diagnosis of cancer is required to be conformed by both an examination of a biopsy using blood tests, x-ray studies, radio nuclide scans and using C.T. Scans and M.R.I. Scans. The cancer is staged according to staging system, the Tumour Node Metasis system being widely used. On diagnosing, the stage of disease is understood and treated accordingly.

Treatment

Cancer treatment consists of surgery, radiation therapy, and systemic therapy using chemotherapy and hormones. These modalities may be used either singly or in combination. Developments and advances in imaging, coupled with better understanding and knowledge of the natural history of various cancers have led to the era of multi-modality therapy, which has changed the cancer treatment scenario.

Access to Cancer Care

A major problem facing quality cancer care in India is the access to care for the patients of cancer. Inadequate education and lack of adequate treatment facilities are major hurdles.

Disease Care and Intervention

As cancer has a high rate of mortality unless detected and treated early, the emphasis is on prevention, early detection of cases and augmentation of treatment facilities in the country. Under the National Cancer Control Programme the following schemes are under implementation: (i) Development of Regional Cancer Centres; (ii) Development of Oncology Wing in Medical Colleges; (iii) Setting up of Cobalt Therapy Units; (iv) District Cancer Control Programme; and (v) Health education and early detection activities. Nineteen Regional Cancer Centres in different states have been recognized as Referral and Research Centres.

A Modified District Cancer Control Programme has been initiated in Bihar, Uttar Pradesh, Tamil Nadu and West Bengal. Nearly ten lakh women in these states are being approached for generating awareness and collection of data about cancer and other diseases.

Diabetes

Diabetes cases worldwide are estimated to be more than 150 million. WHO predicts it to double by 2025

and to reach 300 million cases. Developing regions, particularly Asia and Africa are expected to endure the most of the increase. Studies show that the population in India has an increased susceptibility to diabetes. It is estimated that during 1997 about 102,000 persons of diabetes in India.

The rising prevalence of diabetes in developing countries is closely associated with industrialization and socioeconomic development. The major determinants for projected increase in the number of diabetics in these countries are population growth, age structure, and urbanization. With the rise in the urban/rural population ratio in all regions, and growing obesity among urban dwellers, diabetes will increasingly concentrate in the urban areas.

Most alarming, however, is the spread of diabetes across age barrier, especially among the teenagers is extremely worrying. Diabetes is a chronic disease in which the body does not produce or properly use insulin, hormone needed to convert sugar, starches, and other foods into energy necessary for daily life. Both genetics and environment appear to play roles in the onset of diabetes. The guidelines for diagnosing diabetes are lowering the acceptable level of blood sugar from 140 mg. of glucose/deciliter of blood to 126 mg/ deciliter, testing all adults 45 years and older, and then every 3 years if normal, and testing at a young age, or more frequently, in high-risk individuals. Detection at an earlier stage will help prevent or delay complications of diabetes.

There are 2 major types of diabetes (a) Type 1 (formerly known as insulin dependent. The body produces very little or no insulin; disease most often begins in childhood or early adult hood. People with Type 1 diabetes must take daily insulin injections to stay alive; (b) Type 2 (formerly) known as non-Insulin dependent. The body does not produce enough or

cannot properly use insulin. It is the most common form of the disease (90-95% of cases in people over age 20) and often begins later in life.

Kinds and warning signs of Diabetes Type 1, Diabetes (usually occurs suddenly): frequent urination; unusual thirst; extreme hunger; unusual weight loss: extreme fatigue; irritability.

Type 2 Diabetes (occurs less suddenly): any type 1 symptoms; frequent infections; blurred vision; cuts/bruises slow to heal; tingling/ numbness in hands or feet; recurring skin, gum, or bladder infections.

Complications of Diabetes

More than half of all individuals with diabetes do not know that they have the disease until one of its life-threatening complications occurs. Potential complications include:

Blindness: Diabetes is the leading cause of blindness in people aged 20-74. Each year many people lose their sight because of diabetes.

Kidney disease: Ten per cent to twenty one per cent of all people with diabetes develop kidney disease.

Amputations: Diabetes is the most frequent cause of traumatic lower limb amputations. The risk of a leg amputation is 15 to 40 times greater for a person with diabetes.

Heart disease and stroke: People with diabetes are 2 to 4 times more likely to have heart disease. In addition, they are 2 to 4 times more likely to suffer a stroke.

Combating Diabetes

Diabetes could be either prevented or controlled through the practice of normal healthy diet regularly and through altering certain life-styles such as obesity,

smoking, and drinking. Various awareness and educational programmes are necessary to combat the disease at a mass level. People who suffer from diabetes through early detection could easily control the disease if they undergo the prescribed medications and follow the necessary instructions. Regular self-care and medical care greatly helps in controlling the disease. The disease needs far more research both at epidemiological and clinical levels. Specialized clinics and voluntary agencies need to be established for the treatment and management of the patients who are suffering at a more chronic level. There should be local and national registries for diabetics so that intensity of the problem could be understood to combat promptly.

Heart Diseases

Cardiovascular diseases are conditions in which the heart and/or blood vessels have undergone pathological changes. Diseases of the heart can involve its muscles, valves, pericardium, blood vessels (especially the coronary arteries), or the electrical activities. Cardiovascular diseases are the cause of much morbidity and mortality. Heart diseases can be broadly classified as congenital (those present at birth) or acquired (which appear after birth).

Burden of Heart Disease

Global burden: In 2001, 17 million people died of cardiovascular disease. More than 7.3 million people died of heart attack. There are about 600 million patients with hypertension in the world. There are 12 million young adults and children with rheumatic heart disease of whom 8 million are of school going age.

Indian scenario: Health statistics in India as in any other developing countries are not easily available and if available it lacks precision and accuracy.

Available data gives the following information.

The incidence of coronary artery disease has been linearly increasing from 4% in 1960s to nearly 10% now. In 1980 coronary bypass surgery accounted for less than 10% of all cardiac surgeries; today it is more than 60% of all cardiac surgeries. Every year almost 25000-bypass surgeries are done. Hypertension, which is one of the important risk factors for cardiovascular disease, is also on the increase in India. Compared to the 1-3% incidence in 1950s, hypertension is now seen in 10-20% of the urban and 7-12% of the rural Indian population.

Let us begin with the heart diseases and various heart conditions that are present at birth.

Congenital heart diseases: These develop during the growth of the embryo in the uterus of the mother. The development of modern medicine allows diagnosing these diseases even before birth. Most of the conditions are very simple that do not require any treatment, whereas some are very complex and serious complications involve surgery or non-surgical methods to cure. However, some conditions do not have any complete cure.

Treatment

The treatment of congenital diseases has become easier and simpler unlike in the past. The high level of morbidity and mortality level these diseases have caused in the past has become reduced. The major reasons apart from that of the advancement of modern medicine are the increasing acceptance of the small family norm and awareness about the availability of corrective surgery for congenital diseases and the relative financial capability of the small families to meet the high costs that involve the treatment as unlike in the past.

Now we will look into the diseases that are acquired:

Rheumatic Fever and Heart Diseases

Rheumatic fever is a disease that affects children of school going age. It follows infection of the throat with bacteria called streptococci. About two weeks after the infection, the child develops pain and swelling of multiple joints (affecting one after another) along with fever. In about half of these cases, heart is also affected. Later these children may have heart diseases of the heart valves—either narrowing or leak.

Treatment

Early diagnosis of the problem and administering the prescribed drug regiment completely cures the problem. This could be practiced at mass level through regular health check-ups in all schools. The high prevalence of the disease and subsequent heart diseases in India urges a more comprehensive and efficient of implementing the school health programmes so that the problem could be controlled at an early stage without carrying on the physical, emotional and financial sufferings to the advanced stage.

Coronary Artery Disease

Coronary heart disease is usually seen in the adult and aged population. The incidence and prevalence of coronary heart disease has increased as measured through morbidity and mortality rates. The increases in life expectancies, unlike in the past, due to socio-economic development and the life-styles influenced due to increased industrialization and urbanization are widely considered to be important factors for the coronary heart disease.

Coronary arteries are the blood vessels that carry oxygenated blood to the muscles of the heart. As the age advances narrowing of these arteries occur this in medical terms is known as atherosclerosis. Though it is a normal process, it is relatively slow.

As mentioned in the earlier paragraph certain factors can accelerate the narrowing of the arteries e.g. high cholesterol in blood (life-style), high blood sugar (diabetes mellitus), high blood pressure (hypertension), and smoking (life-style) etc.

When the narrowing of the arteries reaches a critical stage, the patients develop disease manifestation. There is a severe squeezing pain that originates from the centre of the front of the chest and then may spread to other parts like arms, throat, lower jaws etc. This condition is known as myocardial infarction (heart attack) and if emergency aid and medication could not be provided it might prove to be fatal to the patient.

Hypertension

Hypertension, which is otherwise known as high blood pressure, is a major cardiovascular disease. The disease is chronic and it could cause heart attack, heart failure, stroke, kidney failure etc.

The left ventricle pumps blood to aorta, which carries the pure blood to all parts of the body. To maintain the blood flow there should be a certain amount of pressure in the blood vessels. This pressure inside the arteries is called blood pressure. Two vessels are recorded-mentioned in the form of a fraction e.g. 120/80. The value recorded above (numerator) is called systolic pressure and the one recorded below (denominator) is the diastolic pressure. Upper limit of normal blood pressure for an adult is 139/89; when the value exceeds this limit (on multiple recordings - at least three) he/she is said to have the disease called hypertension (systemic hypertension is the correct term).

This disease has multi-causal etiological factors. The physical condition that could cause the disease are attributed to various factors either independently

or a combination of them. Genetic factors that are difficult to modify and other modifiable risk factors are obesity, high salt intake, saturated fat, high alcohol intake, increased body weight, and environmental stress.

Treatment

The treatment for the cardiovascular diseases that are myocardial infarction and hypertension involve both surgeries and life long medication. The advances in modern medical technology have helped the patients to a great deal. However, the chronic nature of the disease and the huge expenditure involved require a great deal of patient compliance, resilience along with enormous social support, especially from the family and friends.

Prevention and Promotion

The cardiovascular diseases apart from the congenital ones are easily preventable. For rheumatic heart diseases, easy medication is available and it could be cured. The cardiovascular diseases of the adult population are mostly attributed to the modifiable life-style related risks. These risk factors could be modified with self-care as an individual strategy. This strategy requires routine medical check-ups and altering the personal life-styles that cause the risk factors.

There could be also population-based strategy educating the masses in creating awareness about the risk factors and alternative methods of life pattern that could be easily adopted. This could both prevent the population from the disease burden and promote the health status of the population.

Mental Health

The major groups of problems associated with mental health are psychosis, neurosis, and mental retardation.

World: About 500 million people are believed to suffer from neurotic, stress-related and somatoform (psychological problems, which present themselves as physical complaints). A further 200 million suffer from mood disorders, such as chronic and manic depression. Mental retardation affects about 83 million people, epilepsy 30 million, dementia 22 million, and schizophrenia 16 million.

India: Surveys of mental morbidity carried out in various parts of the country suggest a morbidity rate of not less than 18-20 per 1000 and the types of illness and their prevalence are very much the same as in the other parts of the world. The number of mental hospital beds in the country, as per a 1991 survey is 21147 while based on surveys carried out, the number of people needing psychiatric treatment will not be less than 11,000,000. The medical infrastructure available in the country is far from fulfilling this requirement.

Mental Illness

Mental illness is a very vast subject, broad in its limits and difficult to define precisely. There are major and minor mental illnesses. The major illnesses are called psychoses. There are three major illnesses: (1) Schizophrenia (split personality) in which the patient lives in a dream world of his own. (2) Manic Depressive Psychoses in which the symptoms vary from heights of excitement to depths of depression and (3) Paranoia which is associated with undue and extreme suspicion and a progressive tendency to regard the whole world in a framework of delusions. People suffering from the psychotic disorders are considered insane by the society.

The minor illnesses are of two groups: (1) Neurosis or Psychoneurosis: In this, the patient is unable to react normally to life situations. He/she is not considered abnormal by the society, but nevertheless

exhibits certain peculiar symptoms such as morbid fears, compulsions and obsessions, (2) Personality and character disorders: This group of disorders is the legacy of unfortunate childhood experiences and perceptions.

Treatment

The causes for mental diseases both minor and major could be attributed to multiple factors. They are organic conditions, heredity, socio-pathological conditions, and environmental factors. These factors either independently or through a combination of the other factors predispose the mental illnesses. However, there has been hardly any accurate natural history for the disease and therefore could not be any specific curative rather the patient and the disease is taken care at all levels: biological, sociological and psychological. Hence, every mental disorder needs the equal intervention of a psychiatrist, psychologist, and psychiatric social worker.

Mental health services in a community are concerned not only with early diagnosis and treatment, but also with the preservation and promotion of good mental health and prevention of mental illness. The mental health services comprise:

- 1) Early diagnosis and treatment
- 2) Rehabilitation
- 3) Group and individual psychotherapy
- 4) Mental health education
- 5) Use of modern psychoactive drugs
- 6) After-care services

National Mental Health Programme

The National Mental Health Programme was started in 1982. The District Mental Health Programme was

launched in 1996-97 as a pilot project. The programme envisaged a community based approach to tackle the mental health problems within the community at the periphery and aims at early detection and treatment of cases as well as follow-up of cases discharged from the mental hospitals at the community level. For this purpose free medicines are being given. The components of the programme are: (i) Training in basic mental health care for all primary care personnel; (ii) Provision of essential psychotropic drugs in every peripheral health care institutions located in rural areas; (iii) A simple recording and reporting mechanism; (iv) Activities aimed at community participation; (v) Continuous support and supervision to provide support for trained personnel as well as run district level referral mental health clinic. The district clinic sees patients referred by trained health personnel from the periphery. The district clinic also has an inpatient facility for about 10 patients; and (vii) Work with other sectors such as education and social welfare.

Mental Retardation

Apart from the above two classifications of mental illnesses, mental retardation is a major mental health problem.

Mental retardation, or mental handicap, is characterized by impaired intellectual functioning and a slow rate of maturation, both physical and psychological. It is also defined as 'a condition of arrested or incomplete development of the mind which is specially characterized by sub normality of intelligence'. Mental retardation is a condition and disability does not have any cure. Rehabilitation is the best way to cope with the problem.

Mentally handicapped persons may be classified based on their intelligence quotient (IQ). Individuals with less than an IQ of 70 are usually classified as mentally

retarded. However, even among the retarded there are classifications, which are very important in terms of the rehabilitation of people with mental retardation. Those with an IQ of 50 to 70 are termed mildly retarded. Nearly 75 percent of India's mentally handicapped children are only mildly retarded.

About 20 percent of mentally handicapped children are moderately retarded, with an IQ ranging between 35 and 50. Such children can achieve partial independence in self-care, can learn acceptable behaviour, and can be economically useful within the family by taking on sheltered employment. About 20 to 30 per 1,000 of the mentally handicapped population of India are mildly to moderately retarded, with 2 to 3 per 1,000 being severally retarded. Those with severe (IQ 20 to 30) are profound retardation. IQ 14 to 20 and below require constant supervision and custodial care for the duration of their lives.

There are several causes of mental retardation. Poor maternal health, maternal and foetal infections such as rubella and toxemias of pregnancy can lead to the birth of a retarded child. Excessive intake of drugs by the mother during pregnancy can also result in the birth of a mentally handicapped child.

Iodine deficiency during pregnancy and the lack of iodine in diets is another major and important cause of mental retardation. It can also occur due to faulty delivery methods, which lead to birth trauma, birth asphyxia, and bacterial and parasitic infections of the central nervous system. In children, diseases like encephalitis and meningitis can also cause retardation. It has been noted that social and cultural deprivation, coupled with malnutrition, can also lead to mental retardation.

Rehabilitation

Rehabilitation is the best way of dealing with the problem of mental retardation. However there are

hardly any facilities available both at the public and voluntary sector. The present scenario requires an understanding of the problem at a level involving of the family and the community. A holistic rehabilitation including social, psychological, and vocational aspects should emerge to integrate the isolated and stigmatized individuals to become part of the mainstream society rather than creating special environments. The rehabilitation has to be accessible, affordable, and appropriate.

Rheumatoid Arthritis

The problems due to the ageing process are numerous but the attention that it has received is not satisfying. The process of ageing leads to deterioration in the vitality or the lowering of the biological efficiency. This process is called senescence. With the passage of time, certain changes take place in an organism. These changes are, for the most part deleterious and eventually lead to the death of the organism. Our knowledge about the ageing process is incomplete. There is not much knowledge about the disabilities incident to the ageing process. However, the following are some of the disabilities considered as incident to it; (a) senile cataract, (b) glaucoma, (c) nerve deafness, (d) bony changes affection mobility, (e) emphysema, (f) failure of special senses, (g) changes in mental outlook.

Diseases of locomotors system: A wide range of articular and non-articular disorders affects the aged. Rheumatoid arthritis is a disorder whose conditions cause more discomfort and disability than any other chronic disease in the elderly.

Health Status of the Aged in India

A few hospital-based studies have been made in India on the health status of the aged persons, but such studies provide only a partial view of the spectrum

of illness in the aged. The overall data on aged are scarce. The main causes of illness are arthritis, cataract, bronchitis, avitaminosis, ear diseases, hypertension, diabetes, rheumatism, helminthic infestations, accidents, etc. There is no specific data on patients affected by arthritis in spite of it being a major health problem among the aged, the little data available is clubbed along with the overall disability disorders without any disaggregate specifics limiting us in estimating the exact magnitude of the problem.

Implications of the Problem

The ageing population is both a medical and sociological problem. First, it makes a greater demand on the health services of a community. In England, about two-thirds of all hospital beds are occupied by those over 65. It is a huge economic burden on the community to meet the cost of retirement pensions and support vast medical social services. Besides, a great strain is placed on the younger generation to look after them. The modern philosophy is that the old must continue to take their share in the responsibilities and in the enjoyment of the privileges, which are an essential feature of remaining an active member of the community. The community must assist the aged to fight the triple evils of poverty, loneliness, and ill health.

Disease Prevention

For older individuals, a great proportion of the disease burden derives from existing conditions, whether this burden is measured by prevalence rates, indicators of morbidity, disability, mortality, or by health and long-term care utilization. In addition, older people with disability, resulting from chronic diseases, appear at high risk of acute illness and injuries. The evidence argues for the importance of secondary and tertiary prevention, in combination with primary screening

or prevention for this population. Among older individuals, categories of conditions, occurrences, and illnesses exist in a variety of combinations, and risk factors as well as disease sequel often overlap.

Many factors that contribute to decrements of aging and the burden of illness are potentially responsive to preventive interventions. In view of this evidence, the design of preventive strategies appropriate to this population becomes crucial for the utility of preventive care, both in reducing risk and maintaining functional independence.

Much care is bestowed upon the old people in Western societies by providing Social Welfare measures such as national assistance, supplementary pensions, home services, home care services, meals on wheels services, old folk's homes, sitters-up service and provision of services of health visitors. By providing these services, the State ensures that the years of retirement of those who have worked hard in its service shall be free from anxiety, want, and boredom. In India, traditionally the joint family system by its inherent cohesiveness took care of the aged thereby there had been any problem that posed itself in social terms. However, the recent times have seen the emergence of new social patterns with the increasingly nuclear families coming into existence. One of the implications of this change has been a decreased care of the aged unlike in the past. This situation indeed aggravates the problems of the aged. This new trend hence warrants the role of the state and a consciousness among the new generation to understand and recognize the problem and evolve measures as it has been done in the western societies to take care of the aged. A step towards it not only takes care of the social and economic problems but also caters our moral responsibilities.

Conclusion

We have seen in the course of reading this unit some of the diseases that are major health problems in the Indian scenario. The problems of communicable diseases in India are similar to that of the other developing and underdeveloped countries and the problems of non-communicable diseases similar to that of the problems that prevail in the developed world. This similarity with both the developed and developing world in India is possible because this country represents large regional and class variations. While diversities in culture add richness to the Indian society, the differences with the socio-economic development do not reflect any sense of pride. The health problems of India represent the double burden of development and underdevelopment.

Second, the incidence and prevalence of any disease could not be seen in pure medical terms because that lends to understanding of the disease only at a clinical level. The clinical understanding of the disease limits its scope to an individual and thereby denying the whole picture. Therefore, if one looks beyond the bio-medical causative factor of any disease it becomes obvious that either socio-economic underdevelopment or changing life patterns provides the contextual relationship. This understanding of the disease enables us to fight the disease both at an individual and social level. The disease is combated through the modern and advanced medical technology, at the same time measures are taken to prevent the diseases and as well as promoting the health statuses of the people to keep the diseases at bay. Prevention of disease and promotion of the health status of the population would require various steps, some of which we have observed in the unit. They would begin with proper diagnosis and treatment of any disease occurred to any individual hence it

does not spread, a vigilant disease surveillance unit of the government that serve watchdog and report any suspect that hampers the health status of the population. The administration of vaccinations done through a universal coverage to prevent diseases and health education to keep the population aware of the diseases and the methods would include some adjustments in one's life-style so that many of the non-communicable degenerative disease are prevented and a good health status is promoted. The role of the National health programmes in this aspect becomes indispensable. And here rests the role of any social worker who is instrumental in understanding the wider aspects of any health problem and using his skills and knowledge implementing various initiatives that help fight the major health problems and help maintain peace and order in a society.

References

Park, K. (2002), *Textbook of Preventive and Social Medicine*, M/s Banarsidas Bhanot publishers, Jabalpur (India).

Mukhopadhyay, Alok (1997), *Report of the Independent Commission on Health in India*, Voluntary Health Association of India, New Delhi.