
UNIT 2 HIV AND AIDS DISEASE PROFILE

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2.1 INTRODUCTION

In the previous unit, you have learnt the global and national scenario of HIV and AIDS, and its impact on developmental issues. The AIDS epidemic has cut across the conventional boundaries of nationality, sex and age in the course of time from its specific geographic and particular high risk group population to the general population. The **Human Immuno Deficiency Virus (HIV)**, which causes AIDS, has infected millions of men, women and children in developed as well as developing countries. AIDS is the 'Late' stage of infection with a virus (HIV) that takes many years to cause illness. Although, AIDS was first identified in USA in 1981, the phenomenon has occurred worldwide within a short span of time. There is no cure, treatment or vaccine available and this has made the communities to react and adopt measures, which can curtail the spread and prevent any further new infections.

This unit will look at the disease profile of HIV/AIDS, the role of immune system in a healthy person and in an HIV infected person and the correlation between TB and HIV infection.

2.2 OBJECTIVES

The objectives of this unit are to provide you with an understanding about the disease profile of HIV/AIDS, its characteristic features, signs and symptoms. It is aimed at disseminating the factual information about HIV/AIDS in its true conception. After reading this unit, you should be able to:

- visualize the functions of immune system of the body, prior to HIV infection and after HIV infection;
- understand the basic difference between HIV and AIDS;
- explain the different stages in the development of HIV infection;

- identify the signs and symptoms of AIDS;
- correlate between TB and HIV infection and similarly HIV infection and STDs; and
- know how AIDS is different from other diseases.

2.3 IMMUNE SYSTEM OF THE BODY

Several kinds of diseases occur due to the body's interaction with its surroundings but most often our body's protective mechanism prevent this from happening. Some of the diseases can be passed from one person to another. These diseases are called **communicable** diseases. Influenza, common cold etc, are examples of communicable diseases that are spread from the breath of an ill person. There are also non-communicable diseases. They cannot be passed from one person to another. Heart disease, Cancer, Diabetes and Cataract are some of the examples of **non-communicable** diseases.

We are familiar with the term pollution. There are various types of pollution such as: water pollution, air pollution, sound pollution, etc, which also cause various illnesses. There are several types of unseen organisms existing around us. Very often it is difficult to detect them with our naked eyes. However, some of these organisms can cause us health problems. It is very difficult to avoid many of these organisms as contact with them is inevitable. Often it is not possible for us to eliminate these organisms from the environment. The air around us is usually filled with bacteria, viruses and parasites. They are found everywhere on our dress, in utensils, in restaurants, in drawing rooms, schools, hospitals, market places etc. They live among animals, birds and plants. They are also found in large numbers in the garbage, stagnated water, drainage etc. They also cause decomposition of dead plants and animals. Many of these bacteria are our constant companions. They are not dangerous to our health and good living. In fact, we live in friendly relationship in the company of these bacteria that help each other to survive.

It is important to know that most of these friendly bacteria live on the mucous membranes that line (cover) our body's natural opening. They help protect us in potentially harmful situations. They are normally present in a large number on the skin and mucous membranes of healthy persons. Some of the viruses and bacteria can make people sick. The ones that can make us sick are called germs. It is interesting to know that the anti bodies (natural pesticides) in sweat, saliva and tears overcome most of the body's undesirable invaders. The germs are also dissolved by stomach acids, or trapped in the sticky mucous of the nose and throat before being expelled by a sneeze or cough. Sometimes these organisms that can cause disease may enter the body tissues where they can multiply fast and start destroying vital body cells. In most situations, the body defeats these invaders and they cause no disease even though they are present in the body. Thus, we recover from ordinary diseases like common cold or flu. The Human Immuno Deficiency Virus (HIV) can also live in the human body for years without causing disease.

AIDS is a communicable disease. However, this disease cannot be easily passed on from one person to another like the common cold. AIDS cannot be spread through air, water or ordinary contacts. It can be spread only through certain specific routes. We shall discuss those details in a separate chapter in this course.

There are at least two known ways to protect ourselves against a communicable disease. One sure way to protect our body from such diseases is to keep the body free from germs. In other words, we should not allow germs to enter our body.

The second way to protect our body from communicable diseases is to strengthen our body's own defense system against the germs which have entered our body.

Defense System of the Body

Every human body has a defense system to protect the body from diseases. This defense system is known as the **immune system**. Our body's immune system helps in fighting off foreign matter that enter our body whether germs or abnormal cancer cells or particles of dust. Our body has several parts and organs that are made up of small units. These units are called "cells". There are different types of cells in our body for performing different tasks. For example, there are bone cells, blood cells, muscle cells, skin cells, etc., in our body. Similarly, there are the defense cells for the immune system. The HIV destroys the cells that are responsible for our body's immune system. If the cells are destroyed, our immune system becomes weak. Then our body finds it difficult to fight off germs. Therefore, if the HIV grows to large numbers in the body and destruction of the immune cells reaches a high level, several kinds of illness occur more easily than in others.

Functioning of the Immune System

The immune system within our body functions like an army. Usually an army consists of thousands of persons. They keep round the clock vigil to safeguard and protect the country. Similarly, our body consists of special blood cells. These blood cells fight off the germs that enter our body. Our body constantly keeps producing millions of blood cells. These blood cells are in fact part of our body's immune system.

There are two types of white blood cells in our body: 1) **Phagocytes** and 2) **Lymphocytes**. Phagocytes destroy all types of external particles entering into our blood stream. Lymphocytes are white blood cells. They also help in protecting the body. They are the T-cells and B-cells.

When a micro organism enters the body, cells inside the body recognize it as foreign to the body. The recognition is done by the Macrophages, monocytes and dendritic cells. These cells then convey the information to the CD4 T lymphocytes (helper T cells). These cells in turn activate the CD8 T (cytotoxic) lymphocytes to bring about the destruction of the micro organism. The CD4 lymphocytes will also stimulate B lymphocytes to produce antibodies. Antibodies are chemical substances that neutralize the antigens. In the absence of this alarm system, our body's immune system or defense system becomes non-functional.

HIV and T-Cells

The HIV, the AIDS virus, is a unique virus. It destroys the CD4 cells in the body. The destruction of CD4 cells is relentless. There are two types of CD4 cells. Memory cells have been already exposed to micro organism. If the micro organism attacks the body again, the memory cells are stimulated and they respond faster to the infection. When a new type of microorganisms attacks the body, they proliferate and change to memory CD4 T cells, HIV affects both the types of CD4 cells in the body. Thus, HIV hinders our immune system from protecting our body. Once HIV has attacked our immune system, our defense system becomes weakened. It will help the germs to take over our body and we become sick. Since we do not have a strong immune system to fight off the germs, day by day our body will become weaker and weaker. This will lead us to an early death.

People in whom the HIV have increased and CD4 T-cells have declined to a critically low level get the disease, AIDS. It is easy for them to develop infections that people with normal Helper T-cells do not get. These infections take the opportunity of the weak immune system of our body. Since our body's alarm

system does not work in the absence of the CD4T-cells, the germs causing infections enter our body. These infections are called “**opportunistic infections**”. Once infected with any kind of a disease, people with AIDS are likely to have more severe forms of the disease than normal people. They are likely to have an untimely death.

Check Your Progress

Notes: a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

1. What do you understand by communicable and non-communicable diseases?

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2. How does the body protect itself from communicable diseases?

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2.4 PROFILE OF HIV AND AIDS

What is AIDS?

The first cases of AIDS were diagnosed in the U.S.A. in the year 1981 among young, white, middle-class homosexual men. Some physicians in California and New York came across opportunistic infections unusual among this group of men. These infections did not respond to medication either. These patients did not show usual conditions of illness known to Medical Science at that time. Thus it became evident that we had a new illness to be treated. This new disease was later named “Acquired Immuno-Deficiency Syndrome” (AIDS).

AQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)

The San Francisco AIDS Foundation has explained the acronym AIDS as:

- A = Acquired — Not born with
- I = Immune — body’s defense system
- D = Deficiency — not working properly
- S = Syndrome — a group of signs and symptoms

The word acquired was chosen because the disease was neither genetically determined nor the result of other conditions. In other words, it was acquired during a normal period of life. Several years lapsed between the identification of the

virus that caused AIDS and the first reports of AIDS cases. So far in all cases, the development of HIV in human body leading to AIDS has proved to be fatal. In other words human beings died of AIDS defining illness. Therefore, AIDS is not a single disease. It is a set of diseases that result from the destruction of the body's defense system. This destruction is done by the Human Immuno Deficiency Virus (HIV).

Human Immuno Deficiency Virus (HIV)

HIV is a very small and fragile virus. It is a RNA virus. It cannot survive outside the human body. HIV is a member of a group of viruses called **retroviruses**. Retroviruses are simple microscopic organisms dependent on a host for reproduction. These microscopic organisms lack an independent metabolism. Therefore, they cannot grow without energy and nutrients supplied by a host cell. Therefore, AIDS is not a contagious disease i.e., it cannot be passed from one person to another easily like a common cold or flu virus, nor can it be passed through ordinary social contacts.

HIV was first described in 1983 in Paris. It has had several names during its short history of less than two decades. But HIV has now been accepted internationally. Some people also call it the "AIDS Virus". Once it infects someone, the virus enters the Helper T-cells of the immune system. All body fluids contain Helper T-cells. The concentration of HIV therefore, is high in blood, semen and vaginal secretion.

An HIV infected person may continue to live a perfectly normal life without showing any physical symptoms. Such a situation is called HIV infection, as symptomatic phase. Once the disease progresses, the person will begin to have different illnesses. He/she may also show certain physical symptoms. The situation is called HIV infection, mildly symptomatic. The term 'AIDS' is used when the disease has progressed and the person develops one or more serious infections or conditions.

2.5 STAGES OF HIV/AIDS DEVELOPMENT

- 1) Initial infection or Window period
- 2) Sero conversion illness
- 3) Asymptomatic phase (initial HIV infection)
- 4) Intermediate stage
- 5) Stage of AIDS
- 6) Terminal stage

1) Initial Infection (Window period)

HIV can enter the human body either through a breach in the mucous membrane during sexual activities (sexual) or through contact of blood. Mother to child transmission is the third route. When the virus enters the body through a breach in the mucous membrane, it attacks the CD4 lymphocytes present below the mucous membrane. From there the virus is transmitted to the regional lymph nodes and then into blood stream. From the blood stream the virus spreads to all the organs. It takes 48 hrs for the virus to spread *from* the site of infection to the regional lymph nodes. The body tries to contain the infection in the regional lymph nodes but it fails to do so. The virus escapes the lymph node and enters the blood stream.

Through the blood stream the virus infects all the organs and tissues of the body. The virus is contained in the regional lymph nodes upto a period of two weeks. The ELISA tests done during this period will be negative. During this period the patient is highly infectious. He/she is totally asymptomatic. During this period the body does not produce sufficient antibodies for the ELISA test to detect the presence of the virus. The conventional tests for the virus (ELISA) will show negative results. Hence, it is also called the “**window period**”.

2) Sero Conversion Illness

After a period of 2-6 weeks, a patient may experience a mild fever. At this time the patient's blood test (ELISA) becomes positive. His body has started producing antibodies. This period lasts for two to three days. There is a sharp decline in the CD4 cells. From a normal of >1000 cells it may drop to <500 cells. Apart from fever, a patient may experience body pains, skin rash or paralysis of nerves. After 3-4 days the patient becomes normal. His CD4 counts, which had dropped drastically, will come up but they will not be normal.

3) Asymptomatic Phase

During this phase the patient is totally asymptomatic. He has no symptoms or signs. His ELISA test is positive. If CD4 counts are measured over this time, it shows, a steady decline. This period may last for 5-10 years and even more in certain exceptional cases. In our country it may last for 3-7 years. The CD4 count varies between 500-1000 cells/mm³. During this phase the body produces lots of antibodies. Patient may suffer from autoimmune diseases. The common diseases seen during this period are bleeding disorders (Idiopathic Thrombocytopenia) or paralysis of the legs (Gullian Barre syndrome)

4) Mildly Symptomatic Phase

During this phase the patient may become symptomatic once again. The CD4 count falls between 200-500/mm³. The patient may manifest minor skin infections and may take a longer time to recover from other illnesses.

5) Stage of AIDS

It is the late stage of HIV infection. Patient is found with opportunistic infections. The CD4 count is <200 mm³ during this stage. The list of opportunistic infections is given in the Table 2.1 of Appendix 1 of this unit.

6) Terminal Stage

This is the stage when the CD4 count falls <50 cells mm³. The patient does not respond to the antiretroviral therapy and has more serious infection. All of these 6 stages of HIV/AIDS disease are largely based on North American and European experience.

NACO has come out with its own staging system for patients with HIV/AIDS in India. This classification is based on local experience. Three stages are as follows:

Asymptomatic Stage

In this stage of HIV/AIDS disease no symptoms are visible.

Symptomatic Stage

During this stage minor signs and symptoms are visible.

Terminal AIDS Stage

During this stage the HIV infected person succumb to full-blown AIDS with major and minor signs and symptoms due to an array of opportunistic infections.

The HIV/AIDS virus may pass through the blood brain barrier, which normally 'filters out' substances in the blood. This can destroy certain brain cells. Destruction of brain cells brings about symptoms ranging from mild confusion, memory loss, deteriorating thought processes, inappropriate behaviour, personality change, premature senility and incontinence. During this stage, a patient will require complete care and support. In most of the full-blown AIDS cases, patients are found to be suffering from illnesses involving the brain or nervous system. AIDS dementia appears not from opportunistic infection, but from the action of the virus itself.

Check Your Progress

Notes: a) Write your answer in the space given below.

b) Compare your answer with those given at the end of the unit.

3. Briefly describe "window period".

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2.6 HIV INFECTION, TUBERCULOSIS (TB) AND STDs

An alarming factor in the AIDS epidemic is the increasing link between HIV infection and tuberculosis. It is well documented that one of the several opportunistic organisms that can attack people with HIV infection is **Mycobacterium tuberculosis** - the bacterium that causes tuberculosis (TB). This bacterium, though present in the body, is not able to do any damage in healthy individuals enjoying a normal immune system. In people with lowered immunity, e.g due to malnutrition, however, tuberculosis becomes active. When the immune system breaks down due to HIV infection a similar situation leads to activation of tuberculosis.

Tuberculosis is endemic and flourishes where there is poverty, inadequate health care facilities, malnutrition and over crowding. There is a parallel epidemic of TB occurring due to the HIV/AIDS pandemic in sub-Saharan Africa and South East Asia. WHO estimates that more than seven million people, 98 per cent of whom are in the developing world are co-infected with HIV and TB. In many countries such as Uganda, Zambia, Rwanda and Malawi the reported number of TB cases have more than doubled during the late 1980s. This was primarily attributable to HIV. AIDS is aggravating the revival of an old problem in developed countries e.g., in the United States of America, where there was sudden increase in multi-drug resistant tuberculosis cases (MDR-TB).

In South East Asia, high rates of acquired drug resistance of up to 35 per cent and 46 per cent have been documented in India and Nepal respectively. In this region, TB exists as a latent infection in nearly one-half of the adult population. There are data to show that 40-60 per cent of AIDS patients in India, Myanmar, Nepal and

Thailand have TB, indicating that TB is the most common life-threatening opportunistic infection associated with HIV.

With a high prevalence of TB infection in India, the problem of HIV/TB co-infection is likely to pose a major challenge in near future. The rate of HIV among TB patients has been increasing steadily. In 2004, many centers report a rate of more than 20 per cent. The deadly duo of HIV and TB may thus mean an additional drain on meager health resources. Therefore, the need of the hour is to strengthen the existing RNTCP (Revised National TB Control Programme) and to ensure that all patients diagnosed with TB are treated effectively.

TB that appears in HIV infected patient is a little different from the TB that appears in non-HIV infected patients. In non-HIV infected patients, TB mainly involve the lungs (pulmonary TB). In the lungs it usually involves a single portion and it is usually the upper portion (upper lobe tuberculosis). In the HIV infected persons it may involve the lower lobes or it may involve more than one lobe (multi lobar). In patients who are HIV positive other parts of the body (extra pulmonary TB) are more involved than the lungs. It may commonly involve the lymph nodes. In advanced disease many organs of the patient may be infected with TB (miliary or disseminated TB). In the West, TB is seen in the stage of AIDS whereas in developing countries it is seen in all stages of HIV infection.

If a person is infected with the TB bacilli he/she will develop an allergic reaction. This can be tested by a skin test known as Mantoux Test. In a normal person Mantoux test is considered as positive if the reaction is more than 10mm. In HIV infected patients if the mantoux reaction is $>5\text{mm}$ person is considered as mantoux positive.

The treatment of TB is the same between HIV and non-HIV infected patients. Patients need to be monitored to see that the bacilli have been eradicated. It may be difficult to eradicate the bacilli in HIV infected patients. Patients may need a longer time to eradicate it. Patients with HIV may also have diarrhoea and malabsorption. They may not absorb the drugs. Hence, they may have inadequate treatment and develop drug resistance. This aspect also has to be kept in mind. Giving certain drugs can help to prevent TB in HIV infected patients.

HIV Infection and STDs

Sexually Transmitted Diseases (STDs) are diseases that are usually spread during sexual activities. The relationship between STD and HIV infection is many fold. STD and HIV infection are associated with the same risk behaviours, i.e., unprotected sexual intercourse (sexual activities) with multiple partners. The predominant mode of transmission of both HIV infection and STDs is sexual. There are other routes of transmission for both which include blood, blood products, donated organs or tissues and through an infected woman to her fetus or newborn infant. Thus, the same measures that prevent STD also prevent sexual transmission of HIV infection.

The presence of STD has been found to facilitate the acquisition and transmission of HIV infection. There are some STDs that cause genital ulcers, such as syphilis, chancroid and herpes and these can increase the risk for HIV transmission up to ten folds. Other STDs cause discharge, they are gonorrhoea, Chlamydia infection and trichomoniasis. The rate of transmission is up to four fold. As a result, early diagnosis and effective treatment of STD can contribute significantly to a reduction in HIV transmission. Many of the measures for preventing the sexual transmission of HIV and STD are the same, as are the target audiences for these interventions. STD clinical services are an important access point for persons at high risk for both HIV and STD, not only for diagnosis and treatment but also for education and counseling on prevention.

Increasing evidence suggests that there is increased severity of manifestations of STD and reduced response to conventional therapeutic regimens in HIV infected persons. Trends in STD incidence and its prevalence are easier to monitor than trends in HIV seroprevalence and are, therefore, valuable for determining the impact of HIV/AIDS control programmes. STDs are very common in urban areas of the country. The killer virus HIV too has succeeded in entering from high-risk group population in urban areas to general population of urban, rural and tribal communities. Both STDs and HIV can be prevented through behavioural changes.

Why is AIDS Different From Other Diseases?

The first and the foremost factor that is unique about HIV/AIDS (from the rest of other diseases) is its state or condition where the immune system of an individual is totally destroyed. The HIV/AIDS person falls prey to a number of opportunistic infections, especially, tuberculosis. This virus is spread through specific risk behaviour that is mostly within the realm of private life. This has been discussed in various units provided to you. The most common mode of HIV transmission is unprotected sex and a sexual activity with multiple partners-one that is intimate and private. Behaviour modification is one of the several ways one can think to reduce the progression of disease in near future.

Unlike other diseases, AIDS retains a long period of “invisibility” with opportunistic infections appearing years later. It takes from 2 to 20 years or even longer between the initial infection and the onset of clinical symptoms of AIDS. Persons who are infected may have many years of productive normal life. However, the danger is that most people are unaware that they are infected with the virus and can continue to spread it to others.

The epidemic's visible and less-visible consequences pose an urgent challenge. The physical suffering, deteriorating child survival, reduced life expectancy, increasing number of orphans and loss of the most productive section of working population are some of the commonly seen consequences. There is neither a vaccine against HIV nor effective medical cure for HIV infection. Treatment options are prohibitively expensive. As of now, HIV/AIDS is essentially an incurable and fatal disease. Successful prevention strategies, emphasizing on behaviour modification and healthy lifestyle practices can curtail the spread of HIV/AIDS and combination drug therapies can delay the progression of the syndrome.

Progression of AIDS

Progression of illness depends on the type of the virus, viral load and general health of the patient. HIV2 virus has a slow progression. High viral loads are associated with faster progression to AIDS and death. Good general condition of the patient tends to slow the progression of the disease.

Types of progression

Typical: The person who gets infected with HIV survives for a period of 8-10 years without any therapy. Person is asymptomatic for a period of 3 to 5 years and later on develops AIDS. Depending on the types of opportunistic infection, patient may live for 1- 5 years after becoming symptomatic.

Rapid: The patients have a full imminent course. Patients succumb to the disease within 2 years of acquiring the disease. This mode of the disease is commonly seen in persons who have acquired the disease through blood transfusions.

Slow: A small percentage of patients have a slow progression. They are asymptomatic for a long period of time. Less than 0.5% belongs to this group; they have deletions of co-receptors hence they take a long time to progress. They remain healthy for more than 20 years after getting infected with HIV.

Check Your Progress

Notes: a) Write your answer in the space given below.

b) Compare your answer with those given at the end of the unit.

4. Write a short note on "Full blown AIDS".

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2.7 LET US SUM UP

In this unit you have learnt about the disease profile of HIV/AIDS. We saw how HIV is different from AIDS conceptually and in general. This introduction to the various concepts of HIV/AIDS has been primarily aimed at helping you to understand the true profile of the disease and to provide you with accurate information on HIV/AIDS when lots of misconceptions are wide spread among common people.

You also read about the different stages of HIV/AIDS development and their signs and symptoms associated with each stage. You came to know about how TB and HIV infections are correlated, especially in a country like India. TB is endemic among the population and its significant role, as a potential opportunistic infection at the terminal stage of HIV/AIDS development is certainly a concern for all.

Similarly, you were introduced to another significant issue, namely, the relation between HIV infection and other STDs. This was very significant because both HIV infection and STDs route of transmission are predominantly through sexual exposure. The presence of STD has been found to facilitate the acquisition and transmission of HIV infection. As a result, early diagnosis and effective treatment of STD can contribute significantly to a reduction in HIV transmission.

2.8 UNIT-END EXERCISE

1. Examine the major and minor signs of AIDS to identify the other possible reasons for them. For instance, what could be common and different in persons with malnutrition.

2.9 APPENDIX

Appendix I

Table 2.1

Clinical categories of HIV infection

Category A : Consists of one or more of the conditions listed below in an adolescent or adult (>13 years) with documented HIV infection. Conditions listed in categories B and C must not have occurred. Asymptomatic HIV infection.

Persistent generalized lymphadenopathy.

Acute (primary) HIV infection with accompanying illness or history of acute HIV infection.

Category B: Consists of Symptomatic conditions in an HIV infected adolescent or adult that are not included among conditions listed in clinical category C and that meet at least one of the following criteria : (1) The conditions are attributed to HIV infection or are indicative of a defect in cell-mediated immunity; or (2) the conditions are considered by physicians to have clinical course or to require management that is complicated by HIV infection. Examples include, but are not limited to, the following:

Bacillary angiomatosis;

Candidiasis, oropharyngeal (thrush);

Candidiasis, vulvovaginal; persistent, frequent, or poorly responsive to therapy.

Cervical dysplasia (moderate or severe)/cervical carcinoma in situ;

Constitutional symptoms, such as fever (38.50C) or diarrhoea lasting > 1 month;

Hairy leukoplakia, oral Herpes Zoster (shingles), involving at least two distinct episodes or more than one dermatome;

Idiopathic thrombocytopenic purpura;

Listeriosis;

Pelvic inflammatory disease, particularly if complicated by tuboovarian abscess and;

Peripheral neuropathy.

Category C: Conditions listed in the AIDS surveillance case definition;

Candidiasis of bronchi, trachea, or lungs;

Candidiasis, esophageal;

Cervical cancer, invasive;

Coccidioidomycosis, disseminated or extra pulmonary;

Cryptococcosis, extra pulmonary;

Cryptosporidiosis, chronic intestinal (>1 month's duration);

Cytomegalovirus disease (other than liver, spleen, or nodes);

Cytomegalovirus retinitis (with loss of vision);

Encephalopathy, HIV-related:

Simplex: chronic ulcer(s) (>1 month's duration); or bronchitis,

Pneumonia, or esophagitis;

Histoplasmosis, disseminated or extra pulmonary;

Isopriasis, chronic intestinal (>1 month's duration);

Kaposi's sarcoma;

Lymphoma, Burkitt's (or equivalent term);

Lymphoma, primary, of brain;

Mycobacterium avium complex or M. Kansaii, Disseminated of extra pulmonary;

Mycobacterium tuberculosis, any site (pulmonary or extra pulmonary);

Mycobacterium, other species or unidentified species, disseminated or extra pulmonary;

Pneumocystis carinii pneumonia;

Pneumonia, recurrent;

Progressive multifocal leukoencephalopathy;

Progressive multifocal leukoencephalopathy;

Salmonella septicemia, recurrent;

Toxoplasmosis of brain and;

Wasting syndrome due to HIV

WHO Case Definition

Major signs

- Prolonged Fever >1mth.
- Chronic diarrhoea.
- Weight loss >10% body weight.

Minor signs

Persistent cough.

- Generalized Lymphadenopathy.
- Persistent rash.
- Multi dermatomal Herpes zoster.
- Oropharangeal candidiasis.
- Herpes simplex

WHO case definition criteria for defining AIDS

- Two major + minor sign is needed for a diagnosis.
- Presence of Cryptococcal meningitis.
- Or Kaposi Sarcoma.

NACO case definition for AIDS - 2000

- A: Positive test for HIV
- B: Any one of the following
 - (a) Significant weight loss
 - (b) Chronic diarrhoea
 - (c) or fever
- Tuberculosis Disseminated, Miliary, Extra pulmonary, or extensive pulmonary TB.

- Neurological impairment preventing independent daily activities.
- Candidiasis of the esophagus.
- Recurrent pneumonias
- Kaposi Sarcoma
- Others
 - Cryptococcal meningitis
 - Neuro toxoplasmosis
 - Cytomegalovirus retinitis
 - Recurrent Herpes Zoster
 - Disseminated molluscum.
 - Penicillium marneffi

NACO Staging

- Stage I Asymptomatic
- Stage II Not falling into I or III
- Stage III Presence of opportunistic infections

Staging of HIV infection (WHO)

WHO Stage I

- Asymptomatic
- Persistent generalized Lymphadenopathy

PERFORMANCE SCALE 1 Normal activity

WHO Stage II

- Weight loss < 10%
- Minor mucocutaneous manifestations
- Herpes Zoster within 5 years.
- Recurrent upper respiratory tract infections.

PERFORMANCE SCALE 2 Symptomatic normal activity

WHO Stage III

- Weight loss > 10%.
- Unexplained chronic diarrhoea >1 month.
- Unexplained prolonged fever.
- Oral candidiasis.
- Oral hairy leukoplakia
- Pulmonary Tuberculosis
- Severe Bacterial infections.

PERFORMANCE SCALE 3 Bed ridden <50% of time in the last 1 month

WHO Stage IV

- HIV Wasting syndrome
- PCP pneumonia
- Toxoplasmosis of brain
- Cryptosporidium
- Cryptococcosis
- Cytomegalovirus
- Herpes Zoster
- Progressive mucoc encephalopathy
- Any disseminated endemic mycosis
- Candidiasis of esophagus

WHO Stage V

- Atypical Mycobacteria
- Salmonella septicemia
- Extra pulmonary TB
- Lymphoma
- Kaposi Sarcoma
- HIV Encephalopathy

PERFORMANCE SCALE Bed ridden >50% of time in the last 1 month.

It has to be emphasized that there is a great variability in the course of HIV infection and it is not always linear progression from one stage to the next. The duration of progression also, we have seen, highly variable.

2.10 SUGGESTED READINGS

Thomas, Gracious (1997): *Prevention of AIDS in Search of Answers*, Shipra Publications: Delhi.

Park, K. (1995): *Park's Textbook of Preventive and Social Medicine*, Banarsidas Bhanot Publishers: Jabalpur.

WHO (1997): *AIDS - No Time for Complacency*, World Health Organization: New Delhi.

NACO (1999): *Country Scenario: An Update*, New Delhi.

Thomas, Gracious (1999): *A Test Book for Schools - Prevention of HIV/AIDS*, CBCI Commission for Health: New Delhi.

2.11 ANSWERS TO CHECK YOUR PROGRESS

1. Some of the diseases can be passed from one person to another. These diseases are called communicable diseases. Influenza, Common Cold and Chickenpox are examples of communicable diseases. There are also non-communicable diseases. They cannot be passed from one person to another. Heart disease, cancer, diabetes and cataract are some of the examples of non communicable diseases.

AIDS is a communicable disease. However, this disease cannot be easily passed on from one person to another like the common cold. AIDS cannot be spread through air, water or ordinary contacts. It can be spread only through certain specific routes. We shall discuss those details in a separate chapter in this book.

2. Our body's immune system helps in protecting us from communicable diseases. White blood cells responsible for producing antibodies that neutralize the antigen and phagocytes, destroy all types of external material in our blood stream.
3. The period of time after a person becomes infected with HIV, but before antibodies have been formed is called Window Period. This period is usually two to three weeks and is rarely longer than three months. The virus is present in the blood. It can be detected by an antigen test. But antibody test will prove negative. It may be noted that the antibodies developed against HIV within the body are not capable of fighting off the germs.
4. By the time an infected person reaches the fourth stage, his/her immune system collapses. The patient is now faced with major life-threatening infection. Pneumonia caused by the parasitic *Pneumocystis carini* is common. A type of cancer affecting the skin called Kaposi's sarcoma is also common in many patients. These symptoms have been found among most patients in United States. In certain parts of Africa, a wasting condition called "slim disease" linked to persistent diarrhoea is common. The patient usually becomes thin and grossly fatigued. Very often the patient also suffers from multiple infections like herpes and tuberculosis. Full-blown AIDS seems to be fatal. Some patients with regular medication, exercise and care have lived longer. However, they survive for not more than three or four years. Experience in India shows that most patients diagnosed with full-blown AIDS die within less than six months of the diagnosis. In exceptional cases, some have survived for one to two years.