LECTURE ONE

INTRODUCTION TO HIV & AIDS

Today, almost every country is affected by HIV/AIDS. It is a pandemic which has taken a heavy toll in the society with increased burden of morbidity and mortality. People need to understand why and how AIDS can affect them. Although incidence is relatively high among the world's poorest and least educated populations, HIV/AIDS is a major public health problem in both impoverished and affluent societies. Anyone can be affected by the virus regardless of age, gender and economic status. Hence, in this module the basic facts about HIV/AIDS will be discussed.

Expected Learning Outcomes

At the end of the lecture the learner should be able to:

1. Differentiate between HIV & AIDS
2. Discuss the History of HIV
3. Explain the epidemiology of HIV & AIDS, globally, regionally and Nationally

HIV:

H – Human

HIV virus is only found in humans. It is only passed from one person to the other. The virus is found in every country in the world.

I – Immunodeficiency

This means the virus weakens the body's ability to fight other infections. This consequently leads to AIDS (like a torn umbrella)

V – Virus

- If a person has had a blood test for HIV and the test turns positive, it is said the person if HIV positive. This does not mean the person has AIDs, but it means they have the virus and may eventually develop AIDS

Therefore, HIV is an infection that causes AIDS, and as we have mentioned above, stands for Human Immune Deficiency Virus (HIV).

HIV belongs to a special class of viruses called retroviruses. Like all viruses, HIV cannot grow or reproduce on its own. In order to make new copies of itself it must infect the cells of a living organism. Unlike most bacteria, HIV particles are much too small to be seen through an ordinary microscope. However, they can be seen clearly with an electron microscope.

It may live in the human body for years and can be transmitted to others before any symptoms appear. As it affects the body's defense mechanisms, the body becomes unable to fight disease and infections.

To reproduce, HIV must enter a body cell, which in this case is an immune cell. By interfering with the cells that protect us against infection, HIV leaves the body poorly protected against particular types of diseases which these cells normally deal with. (Like an Umbrella with holes therefore cannot protect one from the rains)

Infections that develop due to HIV's weakening of the immune system are called "opportunistic infections". Examples are of Opportunistic infections include

- Respiratory infections

- Gastro-intestinal
- Skin infections etc.

Persons infected with HIV may not exhibit symptoms of the disease and can, therefore, infect others without knowing it.

AIDS:

A – Acquired

Acquisition means HIV is contracted from someone else who already has the virus that causes AIDS.

I – immune

This relates to the body's defense system known as the immune system. (This is like an umbrella, if it is intact, it protects form the rain).

D – Deficiency

The immune system is weakened and therefore, deficient. It fails or lacks to protect the body from disease. (It is like an umbrella with holes, which would not protect us from the rain). A deficient immune system does not do its job of protecting the body properly thus it allows various diseases to attack the body.

S – Syndrome

Syndrome means a variety of different symptoms and illnesses. The grouping of well recognized illnesses connected with AIDS makes a syndrome.

HIV causes AIDS. AIDS is as sickness which weakens a person's body so that they no longer have the strength to fight off diseases

AIDS, therefore stands for Acquired Immune Deficiency Syndrome. It is caused by a virus called HIV which attacks and over a period of time, destroys the body's immune system. A person is said to have AIDS when the virus has done enough damage to the immune system thereby allowing infections and other diseases to develop.

Such infections make the person ill and lead to his/her death. For every person diagnosed with AIDS, there are many others who have HIV infection without knowing it. This is because it is not known how long it will take for those who are infected with the virus to develop AIDS. It is however estimated that about 25 to 50 percent of infected people will develop AIDS within five to ten years. The mortality rate among those with AIDS is very high (50 percent of adults diagnosed with AIDS die within 18 months after being diagnosed). For children, the survival period is shorter.

Currently, there is no vaccine or cure for aids although vaccine materials and several drugs are being tested by scientists all over the world.

Types of HIV

There are two types of HIV that are currently recognized. HIV 1 and HIV 2. Transmission of both types of virus is;

- ✓ Through unprotected sexual intercourse
- ✓ Through blood transfusion with infected blood.
- ✓ Through contact with other infected body fluids.
- ✓ From mother to child.

Both types of HIV appear to cause clinically distinguishable AIDs disease.

i) HIV 1

Worldwide HIV I is the predominant virus. This type of virus is responsible for the great majority of AIDS cases in the United States, Europe and Africa. Because of its high rate of replication, HIV I mutates rapidly into sub-types.

ii) HIV 2

HIV 2 is another human retrovirus related to HIV I, causing a similar immune-deficiency because of depletion of T-helper cells (CD4+), compare to HIV I, HIV 2 is less transmissible. Studies have shown that period between initial infection and illness is longer for HIV 2. It is also associated with a lower viral burden, a slower rate of both cell decline and clinical progression. HIV 2 also to causes AIDS. It has been isolated in Africa and is confined primarily to West Africa.

Multiplication of the virus in the human host

When the virus enters the body, it aims for the white blood cells (The T-cell). The virus is ingested by the host's white cells where it attacks the nucleus. The infected host cell begins to manufacture viral particles. These particles called virions are discharged into the body fluids and the blood. They enter other white cells and continue to multiply.

The "Window Period"

The "window period" refers to the period between entry of the HIV into the body and the production of antibodies by the host under attack. During this period the viruses multiply in the body, but they cannot be detected because the antibodies are few in number or are not yet present yet. The HIV antibodies are specific only to HIV.

Window period can also be referred to the time that the body takes to produce measurable amounts of antibodies after infection. For HIV, this period is usually 2 - 12 weeks; in rare instances it may be longer.

Summary

In this lecture we have differentiated between HIV AND AIDS, discussed the History of HIV, and learnt the epidemiology of HIV and AIDS globally, regionally and nationally

Further reading

Ezekeil K. 2004. HIV and AIDS in Africa. Beyond epidemiology. Blackwell

Activity

Joan, a very beautiful first year student in Avagad University had unprotected sexual intercourse with Ken, a fourth year student, well looking, healthy and handsome young man. All her mates admired her for this. During a medical camp the same month, Joan decided to take an HIV Test. She was shocked to be told that she was HIV Positive, since she had taken the same test just before she joined the university and she had been confident that she was HIV negative. She broke the news to Ken. Ken immediately went to the university VCT Clinic and was demanded for the test. After the test, Ken turned out HIV negative.

Discuss this scenario explaining Joan's and Ken's HIV status. What would be your advice to both Ken and Joan?