

The Journey from HIV to AIDS

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ABSTRACT

HIV infection, which causes acquired immune deficiency syndrome (AIDS), is caused by the human immunodeficiency virus, or HIV. HIV is mostly spread by unprotected intercourse, contaminated hypodermic needles, infected blood transfusions, and mother-to-fetus transmission during pregnancy. HIV is a retrovirus primarily targeting CD4+ T-helper cells, accessory cells, and macrophages in human immune systems. HIV has three clinical phases including acute, chronic, and ADIS. This article aimed to highlight the HIV Virus.

Keywords: HIV, AIDS, Infection, Transmission, Prevention

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Introduction

The virus known as the human immunodeficiency virus (HIV) as shown in Fig.1, HIV, is an immune system-attacking retrovirus. AIDS, or acquired immunodeficiency syndrome, is the most severe form of infection (1). HIV is under the family Retroviridae and the genus *Lentivirus* (2, 3). HIV weakens the immune system by attacking the body's white blood cells. This increases the risk of contracting illnesses like TB, infections, and certain types of cancer (1). Human immunodeficiency virus (HIV) transmission occurs when the virus spreads from person to person. Only particular actions, like sex or injecting drugs, can cause someone to contract or spread HIV. A person with HIV can only spread the virus through specific bodily fluids. Semen, breast milk, rectal fluids, vaginal fluids, pre-seminal fluids, and blood are among the bodily fluids that can spread HIV (4, 5, 6).

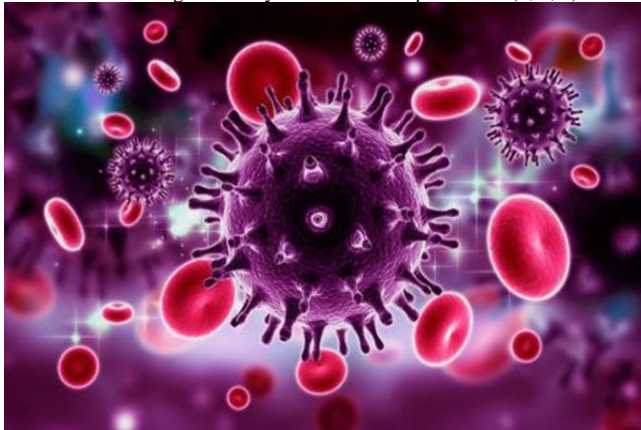


Fig 1: HIV Virus (7)

The initial human transmission probably occurred within the last century, most likely around 1920 and 1940. HIV began due to many zoonotic transmission episodes from simian immunodeficiency viruses in non-human primates, specifically in West African sooty mangabey monkeys and Central African chimpanzees (8). Globally, the HIV epidemic has been predicted to have killed 36.3 million people since 1983 and infected 37.7 million people in 2020 (9).

Life cycle of HIV

The immune system's CD4 cells, or CD4 T lymphocytes, are attacked and destroyed by HIV. One type of white blood cell that is crucial to the body's defense against infection is the CD4 cell. The CD4 cells' machinery is used by HIV to proliferate and disseminate throughout the body. This procedure is known as the HIV life cycle and is completed in seven stages (10, 11, 12).

Stages and clinical manifestation of HIV

HIV has three clinical phases as shown in Fig. 2.

- Acute phase:** When blood HIV levels are high, the body starts to produce antibodies in an attempt to eradicate the virus. Flu-like symptoms usually appear two to four weeks in advance and might persist for several weeks. HIV can spread to other people most easily at this time. This stage is characterized by symptoms of flu such as fever, headache, muscle pain, sore throat, and fatigue.
- Chronic phase:** HIV continues to replicate in the body, but more slowly. The virus can still spread to those who don't exhibit any symptoms. If left untreated, this stage could extend for ten years or longer. Treatment could prevent the infection from ever reaching the

AIDS phase. This stage is asymptomatic, and some people are found with specific symptoms such as persistent fatigue, slowing of lymph nodes, skin rash, and recurrent mouth sore.

- AIDS phase:** It occurs when the body is unable to fight off the illness. Without therapy, the survival rate is about three years and characterized by the organ systems that are impacted by the disease that defines AIDS (8, 13, 14,15).

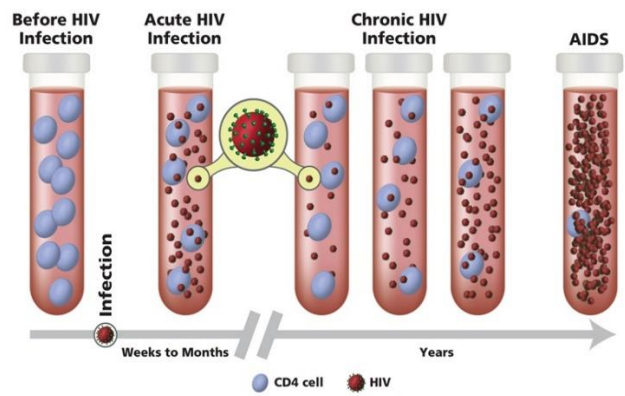


Fig 2: Stages of HIV (14)

Diagnosis

HIV can be identified by testing the virus in the blood or saliva. There are several tests: Antibody tests, Antigen-antibody tests, and Nucleic acid tests (16, 17).

Treatment of HIV

HIV/AIDS cannot be cured. Your body is unable to eradicate the illness once it has taken hold. However, there are medications to manage HIV and avoid complications. Antiretroviral therapy medications are recommended for all individuals with an HIV diagnosis (16, 17).

Prevention of HIV

Better prevention is preferable to treatment. And when it comes to HIV infections, prevention should be done with the greatest care and sincerity. A diagnosis of HIV can completely change a person's life. So, it's best to make the right decisions and live a healthy lifestyle (18, 19).

Conclusion

This article concluded that HIV is a preventable infection, and that prevention is better than treatment.

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