

HIV infection and AIDS disease to the Helper T cells level



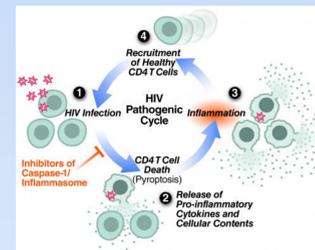
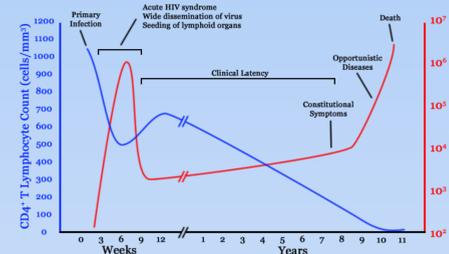
Background

Human Immunodeficiency Virus (HIV) is a member of retrovirus family that cause Acquired Immunodeficiency Syndromes (AIDS). HIV cause by HIV-1 and HIV-2. CD4+ T lymphocytes regulate and amplify immune response. HIV is a member of the genus Lentivirus, part of the family Retroviridae. HIV infects some immune system cells in the human such as helper T cells, Macrophages and Dendritic cells. HIV infections lead to low level of CD4+ cells through killing infected CD4+ T cells directly, the rates of apoptosis (cell programmed death) is increasing in infected cells and killing of infected CD4+ T cell by CD8+ cytotoxic lymphocytes that assault to the infected cells.

Objectives

HIV infections in human is considered pandemic by the World Health Organization (WHO) and killed about 30 million people up to now. This review is going to investigate HIV infection and AIDS disease impacts on helper T cell level in individuals who contaminated by HIV virus by contamination time to trigger of AIDS disease. Early HIV diagnosis and access to treatment is one of the most effective ways to prevent its further spread and to protect the health of those living with the virus.

Results



Summary

HIV infection leads to CD4+ helper T cell(Th) loss, but not all Th cells are equally depleted. HIV virus removes 1×10^9 CD4+ T cell each day. When CD+ cell counts decline below critical level(200 per microliter), cell-mediated immunity is lost, and the body becomes progressively more susceptible to opportunistic infections. Most infected individual eventually develop AIDS and mostly die from opportunistic infections or malignancies associated with the progressive failure of immune system.

Conclusion

The stages of HIV infection are acute infection (primary infection), latency and AIDS. Acute infection lasts for several weeks and many include some non specific symptoms. The latency stage involves few or no symptoms, and its period ranges from weeks to years. AIDS, the final stage of HIV infection, is defined by low CD4+ T cell(helper T cell) counts, various opportunistic infections, cancers, and other disturbances. Common opportunistic infections and tumors are controlled by robust CD4+ T cell-mediated immunity, so CD4+ T cell level maintenance up to critical level is crucial for infected individuals. Antiviral therapy is suggested postpone manifestation of AIDS disease by stabilize of CD4+.

Materials and Methods

The study was conducted by searching the English and Persian databases like: Pubmed, Ovid, Google scholar, Cochrane, SID, Magiran and Iranmedex. We used original and review articles that published in 2003 – 2016, Among 53related articles, 25 articles with the full text access were reviewed.

Reference

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