

**Topic: AIDS**  
**Class: B.Sc Part –III (Hons.)**  
**Paper- VII**  
**Group – A**

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## 2. Chronic infection

- HIV infection will not cause further illness for some years.
- This period is known as the asymptomatic phase.
- HIV gradually reduces the number of CD4 cells in the body until the CD4 cell count falls below 200 cells/mm<sup>3</sup>.
- After the CD4 cell count falls below this level, the risk of developing AIDS-related infections (opportunistic infections) greatly increases.

- The asymptomatic phase lasts for around ten years on average.
- The length of the asymptomatic phase depends on how quickly the CD4 cell count declines.
- If a person has a very high viral load (above 100,000 copies/ml), they will lose CD4 cells more quickly.

- Antiretroviral treatment suppresses HIV to undetectable levels, restores the CD4 cell count to normal levels and prevents disease if started at any time during the asymptomatic phase and taken every day.
- All treatment guidelines recommend that people start treatment as soon as they are ready after HIV diagnosis.
- During the asymptomatic phase, CD4 cell counts and viral load tests can monitor the progression of HIV disease

- Although HIV can be controlled by antiretroviral therapy, it cannot be eliminated from the body.
- This is because HIV evades the normal immune system mechanisms for getting rid of cells infected by viruses.
- HIV integrates itself into the DNA of human immune system cells and only replicates
- when the cell is stimulated to respond to an infection.
- These cells are called latently-infected cells.
- These cells are not recognised as infected by the immune system and killed off,
- Allowing them to persist for as long as the cell lives

- Some of the cells infected by HIV are very long-lasting memory T-cells.
- Reservoirs of latently- infected cells become established in the lymph nodes, the spleen and the gut.
- HIV also infects cells in the brain, but it is unclear if HIV can pass from the brain to other parts of the body.
- HIV may also persist for many years in macrophages – immune cells found largely in tissues – and in dendritic cells, which recognise infectious agents and alert other immune cells to remove them.
- Latently-infected cells can proliferate without being activated and HIV may also pass from cell to cell within tissues in the gut and other reservoirs

- This means they evade the immune system and are not suppressed by antiretroviral drugs before infecting other cells.
- It's unclear how quickly a reservoir of HIV-infected cells becomes established in the body.
- Observations in small numbers of people who have started antiretroviral treatment within a few days or weeks of infection
  - show that they have fewer HIV-infected cells and if they stop antiretroviral treatment,
  - some can control HIV for long periods without resuming treatment.