HIV – The Disease and the Global Response

Mains: *GS II – Health*

Why in News?

Recently, In a landmark paper in Science on May 20, 1983, researchers in France, reported they had isolated a "retrovirus" from a patient at risk of developing AIDS.

What is HIV?

- **HIV** – Human immunodeficiency virus (HIV) is a virus that attacks the body's immune system.
- Acquired immunodeficiency syndrome (AIDS) occurs at the most advanced stage of infection.
- **Concerns** – HIV targets the body's white blood cells, weakening the immune system.
- This makes it easier to get sick with diseases like tuberculosis, infections and some cancers.
- **Transmission** – HIV is spread from the body fluids of an infected person, including blood, breast milk, semen and vaginal fluids. It is not spread by kisses, hugs or sharing food. It can also spread from a mother to her baby.
- **Prevention –** IV can be prevented and treated with antiretroviral therapy (ART). Untreated HIV can progress to AIDS, often after many years.
- **World data and Indian scenario** – The United Nation estimates that 40.8 million persons are living with HIV globally, and among them *25,44,000 are in India.*
- In 2024 alone, there were *1.3 million new infections* reported worldwide, with India reporting 68,450 new cases.

Why HIV is not curable even today?

- **No vaccine yet** – There is still no vaccine developed exclusively to cure HIV.
- The estimated 91.4 million people who have ever been infected with HIV, only a handful of individuals have been declared "cured.
- **Issue with bone marrow transplant** – Bone marrow transplants are risky procedures that are neither safe nor practical for the vast majority of persons living with HIV.
- **Unusuality of retrovirus** – HIV belongs to a family of viruses called retroviruses.
- These viruses are unusual because, as part of their life cycle, they convert their genetic material from RNA to DNA, then integrate this DNA into the host's own DNA.
- Once this happens, the viral DNA becomes, for all practical purposes, indistinguishable from your own and the virus becomes a part of you.

- **Viral latency –** After integrating its DNA into the host genome, HIV can enter a dormant state known as viral latency.
- In this state, an infected cell carries HIV's genetic material but produces no new virus particles.
- **Invisibility of virus** – At any given time, some infected cells churn out new viruses while others slip into latency, creating a shifting, hidden reservoir that has so far made a true cure impossible.
- There are viruses that can integrate into the host genome, and other retroviruses like HTLV-1 do this, even the hepatitis B virus sometimes leaves behind a stable DNA form in liver cells.
- There are also viruses that establish long-term latency: the herpes simplex and varicella-zoster viruses hide in nerve cells while the Epstein–Barr virus can persist silently in B-cells.
- **Rapid mutations** – HIV's extraordinary sequence diversity, for example, is a hallmark of many RNA viruses.
- The hepatitis C, influenza, and some other viruses also mutate rapidly.
- **Constantly changing appearance** – The HIV virus constantly changes its appearance while simultaneously hiding inside long-lived cells, creating a moving target that the immune system can neither fully recognise nor completely eliminate.
- This combination of rapid mutation layered onto integration and latency makes HIV one of the toughest pathogens humankind has ever encountered.

What are the developments that took place against HIV?

- **Improved global response** – Decades of public-health efforts ranging from information and education campaigns to widespread testing and the expansion of antiretroviral therapy have transformed the global response to HIV.
- **Increased awareness** – People are getting diagnosed earlier, and treatment coverage continues to rise.
- As a result, the incidence of infections is falling year on year in many parts of the world, making room for hope against hope that an end to one of the worst pandemics to afflict humans may well be on the horizon.
- **Advances in medicine –** Today, with the availability of potent antiretroviral therapy (ART), persons with HIV who have access to these medications do not become sick with AIDS, the illness caused by the HIV.
- Research has shown, that the life expectancy of people living with HIV who are receiving ART and are virologically suppressed, is almost similar to persons who don't have HIV.
- This has become possible due to the scientific discoveries of several antiretroviral medications which are given in combination to persons with HIV.
- **Role of lenacapavir** – With the discovery of lenacapavir, a new, long-acting injectable antiviral medicine, HIV can today be prevented if lenacapavir is given twice a year as pre- exposure prophylaxis(PrEP).
- **Funding crisis** – The sudden withdrawal of the United States, the single biggest contributor to the global HIV response, disrupted treatment and prevention programmes around the world in early 2025.
- *International assistance accounts for 80%* of prevention programmes in low- and

middle-income countries.

- UNAIDS modelling shows that if the funding permanently disappears, there could be an additional 6 million new HIV infections and an additional 4 million AIDS-related deaths by 2029.
- Ending the HIV/AIDS epidemic, India's next big public health opportunity
- **The Indian scenario** – In India, more than *95% of funding for HIV treatment and prevention is supported by the government*.
- India's generic manufacturers supply 92% of the antiretroviral medications prescribed globally.
- While these are laudable measures and efforts, India is yet to implement lenacapavir PrEP through its national programme, and this is a gap that needs correction.
- Efforts should be made, and political impetus given, to implement PrEP in India to achieve the target of zero new infections.
- Regulatory, patent barriers may hinder global access to new HIV prevention drug: activists

What lies ahead?

- It is time for low- and middle-income countries to take ownership of supporting HIV prevention and treatment efforts in their healthcare programmes rather than depending on international assistance.
- Already, 25 of 60 low- and middle-income countries have found ways to increase HIV spending from domestic resources into 2026 as shown in the UNAIDS report.
- This is the future of the HIV response — nationally-owned and led, sustainable, inclusive and multisectoral solutions.
- This transformation cannot happen overnight however: global solidarity and renewed commitment from funding partners will be needed as countries plan and lead sustainable transitions towards self-financing.
- UNAIDS estimates that if the world, including India, embraces new technologies and newer interventions, the annual cost of the HIV response could fall by around US$ 7 billion globally.
- was ultimately rendered powerless by humanity's collective will.
- India needs to introduce lenacapavir PrEP to help achieve zero new infections, and must also lead global efforts for sustainable, inclusive and multisectoral solutions.

Lenacapavir *tablets and lenacapavir injection can be used for pre-exposure prophylaxis (PrEP) to reduce the risk of getting HIV in people who are HIV negative.*

- The consensus behind the old model of financing the HIV response may be coming to an end, but the international community is forging a new, more sustainable path.

References

1.The Hindu| Issues with Treatment of HIV

2.The Hindu| India and Global Aids Response

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