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Lassa Fever

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Explained | What is Lassa fever and should you be worried?



Priyali Prakash

FEBRUARY 21, 2022 22:32 IST

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Lassa Fever

- Lassa fever is an acute **viral haemorrhagic illness** caused by Lassa virus, a **member of the arenavirus family of viruses**.
- Humans usually become infected with Lassa virus through **exposure to food or household items contaminated with urine or faeces of infected Mastomys rats**.
- The **disease is endemic in the rodent population in parts of West Africa**. Lassa fever is known to be endemic in Benin, Ghana, Guinea, Liberia, Mali, Sierra Leone, Togo and Nigeria, but probably exists in other West African countries as well.
- Person-to-person infections and laboratory transmission can also occur, particularly in health care settings in the absence of adequate infection prevention and control measures. **Diagnosis and prompt treatment are essential. The overall case-fatality rate is 1%.**

Lassa Fever

- Threat and Symptoms

- About 80% of people who become infected with **Lassa virus have no symptoms. 1 in 5 infections result in severe diseases.**
- The first signs appear nearly 1-3 weeks after the patient comes into contact with the virus. **In 20% cases, the symptoms could be strong and include hemorrhaging (in gums, eyes, or nose),** respiratory distress, repeated vomiting, facial swelling, pain in the chest, back, and abdomen, and shock. There may be neurological problems including hearing loss, tremors, and encephalitis.
- **Death may occur within two weeks after symptoms onset due to multi-organ failure.**

Lassa Fever

- How to diagnose Lassa Fever?
 - According to WHO, the viral disease can be diagnosed only in laboratories using two methods:
 1. Reverse transcriptase polymerase chain reaction (RT-PCR) assay & antigen tests
 2. Antibody enzyme-linked immunosorbent assay (ELISA)
- Treatment
 - Researchers have been able to develop a treatment for the viral disease that includes **Ribavirin**, an antiviral drug which has shown to be most effective when given early in the course of the illness.
- Note: Similar kind of **precautions of social distancing etc are followed to avoid spread of lassa fever.**

HIV

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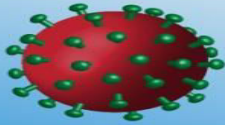
London man second patient to be cured of HIV

HIV

- Recently, Adam Castillejo, also known as "The London Patient", is the second person known to have been cured of HIV infection.
- His body became resistant to HIV infection after receiving a stem cell transplantation to treat Hodgkin's lymphoma.
- The donor carried the CCR5- Δ 32 mutation which gives resistance from HIV infection.
- Timothy Ray Brown also called the Berlin Patient was considered to be the first person to be cured of HIV/AIDS. He was diagnosed with acute myeloid leukemia and received hematopoietic stem cell transplantation.

HIV

HIV and AIDS: What's the difference?

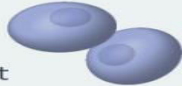


HIV

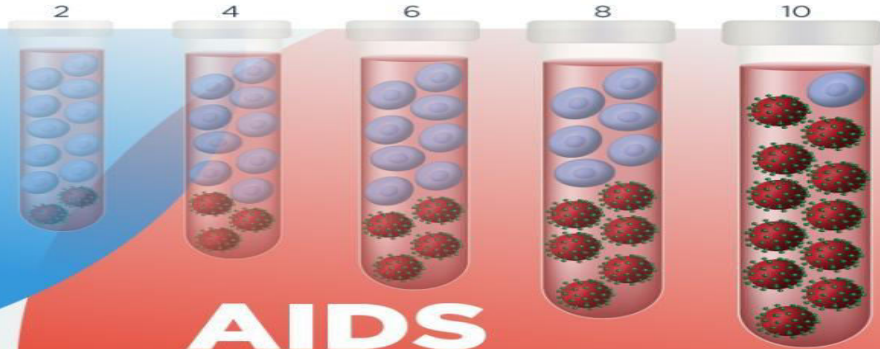
- HIV is the virus that causes HIV infection.
- HIV damages the immune system by killing CD4 cells.

CD4 Cells

- CD4 cells are part of the immune system.
- HIV attacks and kills CD4 cells.
- Loss of CD4 cells makes it hard for the body to fight off infections.



Years without HIV medicines



AIDS

- AIDS is the last stage of HIV infection.
- As HIV infection advances to AIDS, the amount of HIV in the body increases and the number of CD4 cells decreases.
- HIV medicines can stop HIV infection from advancing to AIDS.
- Without HIV medicines, HIV advances to AIDS in about 10 years.

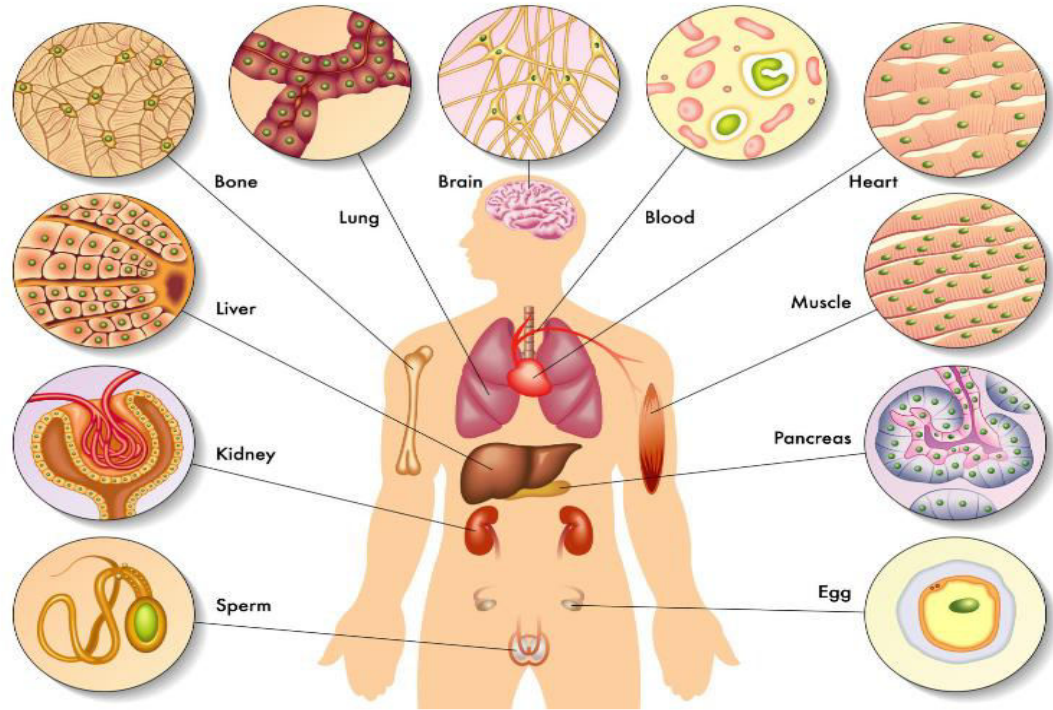
HIV

- **How stem cell transplantation works?**
 - This technique has two steps.
 - First, the patient is subjected to **high-dose chemotherapy or irradiation to wipe out their bone marrow cells.**
 - Then, the **patient receives an infusion of stem cells, which colonize and rebuild the destroyed bone marrow and start producing new white blood cells.**
 - Note: Because of the irradiation and chemotherapy and the subsequent transplantation, stem cell transplant is a lengthy and complex medical procedure with several potentially life-threatening side effects.

HIV

What Are Stem Cells?

Stem cells are undifferentiated cells with the capacity to both differentiate and multiply into the 200 cells types that form a human being.



Have we found the treatment of HIV?



Stem cell transplantation can be used to cure an HIV infection if stem cell donors carry a specific mutation called CCR5- $\Delta 32/\Delta 32$. However, stem cell transplantation is a complex procedure with several side effects. Furthermore, the need for the CCR5- $\Delta 32/\Delta 32$ mutation limits the pool of eligible stem cell donors. Altogether, this means that stem cell transplantation is unlikely to turn into a go-to treatment for HIV infection.

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Havana Syndrome may be caused by 'directed energy'

Havana Syndrome

- **Over the past six years**, an alarming number of American diplomats, troops, and intelligence officers have been suddenly stricken with a mysterious illness called Havana Syndrome.
- Even more disturbing, reports have trickled out that the **CIA and the Pentagon don't believe this is a naturally occurring illness** - it might be a deliberate act of aggression.

Havana Syndrome

- In 2016, USA diplomats and other employees stationed in Havana (capital of Cuba) reported feeling ill after hearing strange sounds and experiencing odd physical sensations.
- They felt nausea ,dizziness, severe headaches, fatigue and hearing loss. In more serious cases, personnel felt cognitive problems as well as insomnia.
- The response has been quite mixed. For some, symptoms have resolved but for others, the effects have lingered and posing more serious problems.

Havana Syndrome



SCIENCE

Microwaves Or Ultrasound Might Explain Open "Havana Syndrome" Cases, US Intelligence Report Says

"We will stay at it, with continued rigor, for however long it takes," said a joint intelligence agency statement about the remaining, unsolved, Havana Syndrome cases.



CORONAVIRUS | NATIONAL

Work in progress: India-made 'warm' vaccine to fight COVID-19



Jacob Koshy

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UPDATED: APRIL 17, 2022 10:44 IST

MynVax

- MynVax is a 'warm' vaccine which is being developed by Mynvax laboratories, a Bengaluru-based company that was incubated at the Indian Institute of Science Bangalore.
- MynVax is a unique vaccine that can be stored at 37 degrees Celsius for a period of four weeks and for up to 90 minutes at 100 degrees Celsius.
- As of now, most of the other vaccines that are present in the market require to be refrigerated & are active at room temperature for only a few hours.



MynVax

- MynVax is similar to other coronavirus's spike protein based vaccines but its need of refrigeration is eliminated. Joint studies for **MynVax were conducted by the scientists at Mynvax and Commonwealth Scientific and Industrial Organisation (CSIRO), Australia.**
- It found a **14.4-fold decrease in BA.1.1 (Omicron) neutralization in the three combinations. When tested with Delta variants, the decrease was 3-5 times.**

Can You tell me why MynVax can be a gamechanger?
(Hint - Especially for African Countries..!!)



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