



HIV Drugs Raise Brain Virus Levels Despite Treatment

Description

HIV can harm the brain, leading to memory and thinking issues, and cannot be removed once it enters. The virus targets helper T cells, part of the immune system, which identify and react to pathogens, including those in the brain. By reducing helper T cells, HIV weakens immunity, increasing the risk of AIDS.

Antiviral drugs can manage HIV but struggle to reach the brain and spinal cord. Research labs, including one at UC Davis, are studying how helper T cells function to develop vaccines and treatments. However, when these cells carry HIV into the brain, the virus hides and causes ongoing inflammation, speeding up brain aging.

Currently, no treatment can remove HIV from the brain. Researchers are exploring ways to reduce inflammation caused by the virus. Collaborating with labs at UC Davis and the University of Pittsburgh, one study tested a new therapy aimed at lowering brain inflammation. Instead, it unexpectedly increased virus levels.

This study looked at proteins called integrins, which help immune cells move within the body. Blocking integrins might reduce inflammation by stopping HIV from reaching the brain. The team used a drug for multiple sclerosis on monkeys with SIV, an HIV-like virus. However, blocking one integrin increased viral presence in the brain.

Researchers noticed the treatment reduced essential killer T cells, not helper T cells, allowing the virus to thrive. This finding suggests treatments targeting specific immune cells may better prevent brain damage from HIV. Continued research could lead to improved therapies, which is crucial as HIV remains a major global health challenge, affecting millions worldwide without sufficient treatment access.

Vocabulary List:

1. **pathogens** //ˈpæθədʒənz// (noun): germs that cause disease in the body
2. **antiviral** //,æntiˈvaɪrəl// (adjective): able to stop or slow viruses in the body
3. **inflammation** //ɪnfləˈmeɪʃən// (noun): swelling and pain as the body fights infection
4. **integrins** //ˈɪntɪgrɪnz// (noun): proteins that help cells move inside the body
5. **immunity** //ɪˈmjʊnəti// (noun): the body's ability to fight disease and germs
6. **thrive** //θraɪv// (verb): to grow stronger or do very well

Comprehension Questions



Multiple Choice

1. What does HIV primarily target in the immune system?
 - Option: B cells
 - Option: Helper T cells
 - Option: Macrophages
 - Option: Neutrophils
2. Which university is mentioned as conducting research on HIV and helper T cells?
 - Option: Harvard University
 - Option: Stanford University
 - Option: UC Davis
 - Option: University of Michigan
3. What do antiviral drugs struggle to reach in the body?
 - Option: Bloodstream
 - Option: Lungs
 - Option: Brain and spinal cord
 - Option: Heart
4. What was the unexpected result of the new therapy tested in the study?
 - Option: It successfully eradicated HIV
 - Option: It increased virus levels
 - Option: It reduced symptoms of AIDS
 - Option: It eliminated inflammation completely
5. What are integrins described as in the study?
 - Option: Types of viruses
 - Option: Proteins that help immune cells move
 - Option: Medications for HIV
 - Option: Part of the nervous system
6. Which virus was used in the study on monkeys?
 - Option: HIV
 - Option: SARS
 - Option: SIV
 - Option: COVID-19



True-False

7. HIV can be removed from the brain with current treatments.
8. The study indicated that blocking integrins might help stop HIV from reaching the brain.
9. Essential killer T cells were reduced by the treatment tested on monkeys.
10. The main concern of HIV is its ability to target bacteria.
11. Research is being conducted to explore ways to reduce inflammation caused by the virus.
12. HIV is considered an insignificant global health challenge.

Gap-Fill

13. HIV can lead to memory and thinking issues, and it cannot be removed once it enters the _____
14. Antiviral drugs can manage HIV but struggle to reach the _____
15. Currently, no treatment can remove HIV from the _____
16. Blocking integrins might reduce inflammation by stopping HIV from reaching the _____
17. Researchers are exploring ways to reduce inflammation caused by the _____
18. The findings suggest treatments targeting specific immune cells may better prevent _____ damage from HIV.

Answer

Multiple Choice: 1. Helper T cells 2. UC Davis 3. Brain and spinal cord 4. It increased virus levels 5. Proteins that help immune cells move 6. SIV

True-False: 7. False 8. True 9. True 10. False 11. True 12. False

Gap-Fill: 13. brain



14. brain and spinal cord 17. virus

CATEGORY

1. Health - LEVEL4

POST TAG

1. B2
2. brain inflammation
3. ESL learning
4. esl news
5. HIV
6. L4
7. Level 4

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