Is there a cure for HIV and AIDS?

FAST FACTS:

- There is currently no cure for HIV, although antiretroviral treatment can control it.
- Most research is towards a ‘functional cure’ where HIV is reduced to undetectable and harmless levels permanently, but some residual virus may still be present in the body.
- Some research is looking for a ‘sterilising cure’ where all HIV virus is eradicated from the body, but this is more complex and risky.
- Trials of HIV vaccines are encouraging, but even once developed will only offer partial protection.

There is no cure for HIV and AIDS yet. However, treatment can control HIV and enable people to live a long and healthy life.

If you think you’ve been at risk of HIV, it's important to get tested to find out your HIV status. Testing is the only way to know if you have the virus.

If you’ve already been for a test and your result came back positive, you will be advised to start treatment straight away. Treatment is the only way to manage your HIV and prevent it from damaging your immune system. It also reduces the risk of you passing on HIV to your sexual partners.

Will there be a cure for HIV?

Researchers and scientists are talking more and more about the possibility of a cure. We now know a lot about HIV, as much as certain cancers. There are two types of cure that are talked about - a functional cure and a sterilising cure.

Functional cures
A functional cure would suppress the amount of HIV virus in the body to such low levels it can’t be detected or make you ill – but it would still be present. Some scientists argue that antiretroviral treatment is now effectively a functional cure, but most scientists still see a functional cure suppressing the virus without the need for ongoing antiretroviral treatment.

There are a few examples of people considered to have been functionally cured, such as the Mississippi Baby, but sadly all have subsequently seen the virus re-emerge. Most of these people received antiretroviral treatment very quickly after infection or birth.

**Sterilising cures**

A sterilising cure is one where all HIV virus is eradicated from the body, even from hidden reservoirs. There is only one known case of a potentially successful sterilising cure. This occurred in a man called Timothy Brown, also known as the 'Berlin Patient'.

In 2007-8, Brown had chemotherapy and a bone marrow transplant to treat leukaemia. His transplant also came from someone with natural genetic resistance to HIV. This seems to have cured his HIV but it’s still not fully understood why. Because bone marrow transplants are also very dangerous, this type of transplant is not practical as a cure for others. However, it has given researchers key parts of a blueprint from which to work towards a cure.

**Researching for a cure**

There are four main research approaches being looked at for a cure:

- ‘Shock and kill’ approaches aim to flush the virus out of its reservoirs and then kill the infected cells.
- Gene editing aims to change immune cells so they can’t be infected by HIV.
- ‘immune modulation’ is looking for ways to permanently change the immune system to better fight HIV.
- Stem cell transplants, as used in the case of the Berlin patient, aim to completely eliminate a person’s infected immune system and replace with a donor system. This is the most complex and risky approach.

While there have been a number of promising pieces of research, there is no cure currently on the horizon.

**Vaccines**

There has also been lots of research into an HIV vaccine, with a number of trials showing some encouraging results. However, a vaccine would only offer partial protection and would need to be used in combination with other treatments.

**What should I do until there is a cure?**

For now, the best thing to do for your health is to test regularly for HIV. If you have the virus, start treatment and keep taking it regularly.

*Photo credit: ©iStock.com/nicolas_
Sources:

AVAC (2016), ‘HIV Cure research: an introductory factsheet’

Aidsmap (2014), 'Reappearance of HIV in "Mississippi Baby" poses questions for early treatment'


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