SCRIPT

Futuris - 12

AIDS: New leads for treatment and vaccines

02.10 Comment

Frankfurt, the financial capital of Germany. The city has one of the highest percentages of HIV infections and patients with AIDS in the country.

The estimated total of HIV infected people in Germany, Austria and Switzerland is around 80,000. The UK has 68, 000.

This is low compared with the worldwide figure of 40 million, but EU leaders are becoming increasingly concerned about the rise in rates of infection.

02:35

Carmen had no thought of AIDS when she had sex with her boyfriend at the age of 19. He was her first partner and she did not know that he was HIV positive. Neither did he.

02:47 ITV Carmen (in German)

“Up to this point I am fine, thank goodness. But one day I will have to begin treatment and then I will have to start taking drugs”.

02:59 Comment

Doctors regularly monitor the level of Carmen's T-cells - one of the cells that fight off infections in her blood. There is nothing else they can do at this stage.

What worries them is that more and more cases like Carmen's are being diagnosed as AIDS begins to affect Europe's heterosexual population.

03:58 ITV Schlomo Staszewski (in German), HIV-Center Frankfurt

“The majority of the people infected with HIV, are homosexual men. But we do see an increasing number of patients who do not belong to this high-risk group. We particularly see more and more young women, who got infected by their sexual partners without knowing it.

This means that the virus disease is spreading more and more outside the high risk groups”.

03:46 Comment

What makes HIV so dangerous is that it infects cells in the human immune system such as helper T cells. As the numbers of these cells decline, the body becomes progressively more susceptible to infections. Eventually, the number of immune system cells are so depleted the body cannot protect itself - the condition called AIDS.

04:02

In this research laboratory in Rixensart in Belgium, scientists search for new ways to halt the pandemic that has killed 30 million people since the mid 80s.

Virologist Gerald Voss is coordinating a team of genetic engineers from Belgium, France and the United Kingdom. Their aim is to develop a vaccine against HIV.

04:27

In the developed world, so-called antiretroviral treatments have reduced both the mortality and the morbidity of HIV infection. But the aim of the team is to create a vaccine, not to relieve symptoms, but to stop the virus entirely.


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04:45 ITV Gérald Voss (in English), GlaxoSmithKline in Rixensart
“The idea behind this project is to use the properties of the measles vaccine and transfer These properties to an HIV vaccine. The way this is done is to construct what we call a recombinant measles virus, which carries bits and pieces of HIV”.

05:06 Comment
Using the modern techniques of genetic engineering, parts of the HI-virus are extracted and inserted into the measles, or rubeola, virus. This changes its genetic code as well as its hull structure, so that it can be recognized by the immune system.

05:25
The so-called recombinant measles virus could be used as a vector to create a vaccine against both diseases, rubeola as well as against the human immunodeficiency virus that leads to AIDS.
Gérald Voss and his team hope that their approach in the EU funded project will lead to an easy to use and – eventually - relatively cheap vaccine for worldwide distribution.

05:55 ITV Gérald Voss (in English)
“This vaccine or vaccination – if successful – will create a strong immune response against the HIV parts of the genetic construct, meaning that it will create specific immune cells that are able to recognize the real HIV virus, if ever encountered”.

06:20 Comment
But the new vaccine would probably only immunize during childhood and might not help in cases like Carmen's.
She has been living with HIV for five years and has now found a partner who is not infected. The couple are thinking about having a child together.

06:36 ITV Carmen (in German)
”It starts in the morning after getting up. When I have brushed my teeth: do I give my partner a long kiss? Probably not, due to gum bleeding. The daily routine in the bathroom, taking a shower or bath, or eating from the same plate: that is absolutely no problem. Where you have to pay attention is during sex, blood-to-blood contact, during pregnancy and when you are breast-feeding”.

07:13 Comment
Having children is not out of reach for HIV positive women like Carmen, if precautions are taken.

07:18
At the same time, Dorothee von Laer and her team at the University of Frankfurt are working hard to help patients like Carmen with a promising new treatment.
They have developed an innovative technique against the virus that may not only help to protect against an infection, but could also improve the treatment of infected persons like Carmen. Their key technology is the use of so-called “Aptameres”, tiny pieces of genetic code from the human cell.

ITV Dorothee von Laer (in German), University of Frankfurt
“Case the target structure is on the AIDS virus”.
Aptameres are a fairly new group of medications. They are based on nucleic acid, the same

material that our genes and our genetic information are made from. These nucleic acids have the ability to fold themselves in a very specific way and to lock onto certain targets. And in our case the target structure is on the AIDS virus".

08:14 Comment
Together with teams in France and Britain, her team is searching for those pieces of Aptamere particles that stick best to the surface proteins of the HI-virus to block them. But finding the right Aptameres among millions of possible combinations is like searching for a needle in a haystack.

08:26
Aptameres can prevent the HI-virus from docking with human cells without triggering resistance or side effects. Aptameres could either be used as means of prevention, or as a genetically engineered therapy to block the spread of the HI-virus inside the body.

ITV Dorothee von Laer (in German)
"Immune cells are going to be taken from the patients' body and will be changed genetically. So the cells will be protected against HIV. Then they are reinserted back into the body of the patient. There they can be active immunologically and reconstruct the immune system, without being attacked by the immune defence".

09:05 Comment
First trials with different vaccines showed promising results. But Carmen knows that a treatment or a cure is still years down the road.

09:13 ITV Carmen
"Of course I would be pleased if a cure could be found for the disease. But to me, it seems quite unlikely that this is going to happen in the next couple of years. Maybe it will work to stop HIV from spreading further inside the body. But I do not think that an absolute cure will be found any time soon".

09:43 Comment
Carmen tries hard not to descend into depression. She frequently tells her story reinforcing the lesson that safe sex is one sure way to prevent AIDS.

DURATION: 08:00