VISCONTI COHORT
Media Coverage
1. The Guardian

2. BBC News Health

3. AFP

4. The New York Times

5. Nature

6. RFI

7. The Economist

8. The Telegraph
French research gives scientists hope of 'functional cure' for HIV
Small group of patients were able to stop taking Aids drugs without any resurgence of the virus in their bodies, study finds

Sarah Boseley, health editor
guardian.co.uk, Thursday 26 July 2012 21.23 BST

A small group of patients with HIV in France have been able to stop taking Aids drugs without any resurgence of the virus in their bodies, giving scientists new hope that a "functional cure" for HIV may be possible.

The Visconti cohort, as the 14 French patients are being called, were all given antiretroviral drugs to control the virus soon after becoming infected with HIV, which is not very common. They remained on medication for at least three years, but then stopped.

Usually, the levels of virus in the body will rise without drug suppression and cause the patient to become ill and eventually develop Aids. But the Visconti cohort has remained well, with extremely low levels of virus in their system, for a median of seven years.

"We believe that this is a really promising group of patients," said Asier Saez Ciron from the Institut Pasteur in France, one of the scientists involved in the research which was presented at the International Aids Conference in Washington.

The existence of people who do not become ill even though they are infected with HIV – the so-called "HIV controllers" – is already known. The excitement felt by scientists over the Visconti cohort is because it appears that medical intervention has brought about similar results.

"This is a promise that the functional cure could be achieved," said Saez Ciron.

The work is further evidence that people should be given drugs as soon as possible.

"These results suggest that the antiretroviral treatment should be started very early after infection," said Charline Bacchus, lead researcher on the study at the French National Agency for Research on Aids and Viral Hepatitis (ANRS).

The study is one of three pieces of work presented at the conference this week that have boosted hopes not of a total cure for HIV, but of what is being called a functional cure, because the virus remains in the body at very low levels but does not cause disease and the patient is able to stop taking medication.

A campaign by scientists to find a cure for Aids has been gathering momentum over the last two years, culminating in a blueprint published just ahead of the conference in Washington. Francoise Barré Sinoussi, Nobel prize laureate for identifying the human immunodeficiency virus (HIV) in the 1980s, is leading the drive, which she says must go hand in hand with efforts to find a vaccine.
Timothy Ray Brown, the so-called Berlin Patient, has been the proof of concept. Brown, who is an American living in the city, had HIV and leukaemia.

When he underwent a stem cell transplant for his cancer, his doctor found a donor who had genetic resistance to HIV. Brown's cancer and his HIV were cured. However, he had serious complications from the treatment, which would be unrealistic and unaffordable for most people.

The conference also heard, however, of two more stem cell transplants that appear to have resulted in functional cures. The two men with HIV had lymphoma, a cancer of the lymphatic system.

They underwent stem cell transplantation for the cancer, but this time not involving donors with genetic resistance to HIV. They received mild chemotherapy which allowed them to stay on their antiretroviral medication throughout.

Although HIV was detectable in their cells immediately after the transplant, over time the uninfected donated cells replaced the infected cells. Both patients appear to be HIV-free, one of them two years and the other three and a half years after their operation.

A third study by David Margolis and colleagues at the University of Carolina, published in Nature, appears to show that it is possible to reach the low levels of virus that “hide” in cells and have never been susceptible to treatment, using a dose of a drug that inhibits an enzyme involved in “silencing” HIV.

Source:
http://www.guardian.co.uk/society/2012/jul/26/french-study-scientists-hiv

BBC News Health

Early HIV drugs 'functionally cure about one in 10'
By James GallagherHealth and science reporter, BBC News

Rapid treatment after HIV infection may be enough to "functionally cure" about a 10th of those diagnosed early, say researchers in France.

They have been analysing 14 people who stopped therapy, but have since shown no signs of the virus resurging.

It follows reports of a baby girl being effectively cured after very early treatment in the US.
However, most people infected with HIV do not find out until the virus has fully infiltrated the body.

The group of patients, known as the Visconti cohort, all started treatment within 10 weeks of being infected. The patients were caught early as they turned up in hospital with other conditions and HIV was found in their blood.

They stuck to a course of antiretroviral drugs for three years, on average, but then stopped.

The drugs keep the virus only in check, they cannot eradicate it from its hiding places inside the immune system.

Normally, when the drugs stop, the virus bounces back.

Control

This has not happened in the Visconti patients. Some have been able to control HIV levels for a decade.

Dr Asier Saez-Cirion, from the Institute Pasteur in Paris, said: "Most individuals who follow the same treatment will not control the infection, but there are a few of them who will."

He said 5-15% of patients may be functionally cured, meaning they no longer needed drugs, by attacking the virus soon after infection.

"They still have HIV, it is not eradication of HIV, it is a kind of remission of the infection."

Their latest study, in the journal PLoS Pathogens, analysed what happened to the immune system of the patients.

Early treatment may limit the number of unassailable HIV hideouts that are formed. However, the researchers said it was "unclear" why only some patients were functionally cured.

Dr Andrew Freedman, a reader in infectious diseases at Cardiff University School of Medicine, said the findings were "certainly interesting".

"The presumption is that they've started treatment very early and the virus hasn't spread to so many of the long-term reservoirs and that's why it works.

"Whether they'll control it forever, or whether it'll be for a number of years and subsequently they will progress and the virus will reappear, we don't know."

However, he cautioned that many patients would be diagnosed much later than in this study.

Deborah Jack, the chief executive of the National AIDS Trust said it was "exciting times" in progress towards an HIV cure, but the key was early treatment.

"This just underlines the importance of people being testing and diagnosed early. Currently half of people living with HIV in the UK are diagnosed late - indicating that they are likely to have been infected for five years."
French patients keep HIV at bay despite stopping drugs

By Kerry Sheridan (AFP) – Mar 15, 2013

WASHINGTON — A small French study of 14 HIV patients who have remained healthy for years after stopping drug treatment offers fresh evidence that early medical intervention may lead to a "functional cure" for AIDS, researchers said.

The research, published in the US journal PLoS Pathogens, comes on the heels of a report last week that a baby in Mississippi appeared to be cured of HIV after aggressive antiretroviral drug treatment delivered within 30 hours of birth.

Experts agree that while parallels between the two studies are intriguing, the phenomenon is rare -- and warn that most of the 34 million people infected with HIV worldwide would develop full-blown AIDS if they stopped taking drugs to repress the human immunodeficiency virus.

Myron Cohen, a well-known US expert on HIV and chief of the Center for Infectious Diseases at the University of North Carolina, described the French study as "provocative."

"It provokes us to think. Who in the universe of people treated early can come off treatment? They showed us some clues, but it is a question that demands more science," he told AFP.

The study involves 14 adults, a group known as the VISCONTI cohort, which stands for Viro-Immunologic Sustained Control After Treatment Interruption.

They were treated for HIV with a range of antiretroviral drugs, each within 10 weeks of infection, and stopped treatment around three years afterward on average.
The group has been able to keep viral loads under control for a median of 7.5 years without drug treatment, said the study.

The individuals do not have the genetic characteristics of another rare group of people -- fewer than one percent of the population -- who appear able to spontaneously stave off HIV without medicine and are known as "natural" or "elite controllers."

Those in the VISCONTI group, described as "post-treatment controllers," have not completely eliminated HIV from their bodies. They continue to maintain it at a low level in their cells and have not become sick.

Researchers cautioned, though, that the mechanism that explains why these patients can fight HIV without drugs remains unclear. Several immunologic tests have not found a singular cause for their continued control of the virus.

"These individuals reflect what a functional cure may represent because they have been actually controlling the infection for many years now," said lead researcher Asier Saez-Cirion of the Institut Pasteur in Paris.

"I think this is proof of concept that this may be achieved in individuals," he said in a phone interview with AFP. "And that this happened thanks to early treatment onset."

All of those in the study live in France and currently range in age from 34 to 66. They were infected with HIV in the 1990s and 2000s.

Since they were handpicked for the study after they appeared to be able to control HIV upon stopping treatment, it is unclear what percentage of the population they may represent. Preliminary research on them was presented at the International AIDS Conference in Washington last year. Scientists are continuing to study the group for clues about how and why their bodies act the way they do.

After an acute infection, HIV establishes viral reservoirs in cells that allow it to hide and return, even after prolonged treatment, meaning that most patients who stop taking medication see the infection return.

"These reservoirs are what stand between us and a cure for HIV," said Rowena Johnston, amfAR (The Foundation for AIDS Research) vice president for research.

"The control of HIV infection even after therapy is stopped is an interesting phenomenon that hints at what antiretroviral therapy might be able to achieve over and above its use as ongoing treatment," she told AFP.

According to Christine Rouzioux, who is part of the French research team, the early treatment "may have limited the establishment of viral reservoirs" and helped to preserve the patients' immune responses.

Source:
http://www.google.com/hostednews/afp/article/ALeqM5ityR6IIqOZt94md8_VufqP4h-EZg?docId=CNG.6fb53b1d42e0a6e4a5e81a6cf0387a61.421
‘Cured of AIDS’? Not Yet
By DONALD G. McNEIL Jr.
Published: April 29, 2013

What to make of all the recent “cured of AIDS” headlines? An American in Berlin, a baby in Mississippi and 14 patients in France are all alive without treatment.

Is a cure at hand?

No. But in unusual cases, some people seem able, with temporary help from antiretroviral drugs, to kill the virus before it can sink into reservoirs deep in their bodies — or to at least force it to stand at the doorways of their cells, unable to get in.

“I’m excited about this,” said Dr. Anthony S. Fauci, the director of the National Institute of Allergy and Infectious Diseases. “Not that we’ve got a cure, but things are falling into place that tell us what goes into the process of infection. So we’re learning whom we can potentially take off treatment.”

Does that mean doctors should now encourage H.I.V. patients to stop treatment?

Absolutely not, experts agree. There is no way to tell which patient might get lucky, and a vast majority will not. And “drug holidays,” which were in vogue a few years ago among patients tired of side effects, worked out badly when they were tested in clinical trials.

But several experts say the reported cures — if confirmed by others — do suggest that some AIDS policies should change in at least two ways.

First, instead of waiting for the infected to wander into testing clinics, health authorities ought to be aggressively seeking them out.
Second, those who test positive ought not to dither about taking medication.

Early treatment now has three clear benefits for patients: They may live longer, may be 96 percent less likely to infect anyone else and may turn out to be among the lucky few who can stop later.

“We should seek out, test and get people into treatment as soon as we possibly can,” Dr. Fauci said. “That way, you can get people into the position the Visconti cohort is in.”

(“Visconti cohort,” for Viro-Immunologic Sustained Control After Treatment Interruption, is a shorthand way of referring to the patients studied by the Pasteur Institute, in France.)

The virus’s march into the body now looks less unstoppable. H.I.V. doesn’t just hide behind cell walls, as flu viruses do. It splices a copy of itself right into the genes of certain white blood cells, adding permanent new rungs to each cell’s DNA ladder. Later, it does the same to cells in the bone marrow, lymph nodes, nerves and organs.

Scientists now can biopsy various cells and force them to spit out some viral RNA, proving that they are infected.

“We’re getting better at defining the reservoirs,” said Jerome Zack, an immunologist at the David Geffen School of Medicine at the University of California, Los Angeles. “But there are still arguments among scientists about whether there are places deep in the tissues that treatment doesn’t reach, and whether or not virus is still replicating there.”

The Berlin patient, Timothy Ray Brown, is in his own category. A Seattle native formerly living in Germany, he had been on drugs for 11 years when he developed leukemia, a blood cancer. That led to the procedure that earned him a place in medical history: In 2006, his German doctors wiped out his bone marrow and gave him marrow from a matching donor who also had the rare “delta 32 mutation” that makes CD4 cells, the virus’s favorite target, impervious to H.I.V.

Last week, doctors at the University of Minnesota performed the same procedure on an unnamed 12-year-old boy with both H.I.V. and leukemia, using umbilical cord blood from a newborn with the same mutation. It will be months before they know whether it worked.

Mr. Brown, 47, may still have a hidden viral reservoir, but apparently it cannot infect his blood cells.

In an interview from Las Vegas, where he now lives, he said he was “very excited” by the news of the baby in Mississippi and the French patients.

“I felt kind of lonely being the only person in the world cured,” he said.
But typical patients can’t follow his lead. Wiping out bone marrow normally carries a 40 percent risk of death, and Mr. Brown had to have it done twice. His doctor later told him that he thought he had a 95 percent chance of dying the second time.

By contrast, the Mississippi baby was put on full antiretroviral treatment, rather than just a typical lower-dose prophylactic regimen, just 30 hours after it was born about three years ago, and stayed on it for 18 months before the mother, for her own reasons, stopped it for five months. At the next doctor’s appointment, the baby — astonishingly — appeared cured.

In follow-up research, no matter which cells Dr. Deborah Persaud of Johns Hopkins Children’s Center tested, she could not find any viral RNA. All she found, she said, were “graveyard sequences” of nonworking DNA, presumably remnants of the initial infection. (The child is still apparently healthy.) Some scientists remained skeptical, saying that the baby might have a reservoir in cells so deep in the body that they could be tested only in an autopsy.

In this country, it is unusual for an infected pregnant woman to not see a doctor even once before delivery. But in Africa, the problem is common. If the Mississippi baby’s experience is repeated — probably by chance, because it would be unethical for a doctor to advise a mother to take her infected child off antiretrovirals — it may become routine for babies in such circumstances to get an aggressive drug regimen, not just the prophylactic one.

By contrast, the French patients went on treatment within weeks or months after infection and stayed on for a year or more. Later, some — but only about 15 percent of them — were able to stop their drugs.

Catching patients early is difficult. Not all get the first temporary signs of H.I.V. infection — fever, sore throat, swollen glands and a rash. Complicating matters, those symptoms resemble mononucleosis, Epstein-Barr virus and the flu, said Dr. Eric S. Rosenberg, an H.I.V. researcher at Massachusetts General Hospital.

In the 1990s, Dr. Rosenberg started what another AIDS expert referred to as the “Rosenberg cohort” but which Dr. Rosenberg called the “Boston cohort.”

About 300 patients are in it, he said. Like the French group, it comprises patients who were put on drugs early. Dr. Rosenberg noticed that some had different immune responses and wondered if those could be taken off treatment briefly.

The model for trying that, he said was “the original Berlin patient.”

That patient, profiled in magazines in 1998, was an anonymous German who, of his own volition, stopped taking his drugs after six months, but did not get sick.
“The hypothesis at the time was that he was started so early that he could control the virus,” Dr. Rosenberg said.

Under supervision, some of Dr. Rosenberg’s patients tried it. “In some people, it seemed to work, and in some people it didn’t work at all,” he said.

That is essentially what happened in the Visconti cohort. Asked why the latter group leapt to fame but his did not, Dr. Rosenberg speculated that it might have been because his was created to study patients’ immunology over their lifetimes, not as a specific trial of treatment interruption with a formal end date.

Also, he said, “for none of our patients would we have used the word ‘cured.’ ”

While there is no clear indicator of what makes one patient more “curable” than another, Dr. Mike McCune, chief of experimental medicine at the University of California, San Francisco, speculated that the secret might be that some people have an “imbalanced” immune response that defeats the wily virus: They produce antibodies that neutralize H.I.V., but don’t get inflammation, which increases CD4 cells.

That reaction may be more common in babies, he speculated, because their immune responses are muted in the womb so they don’t attack their mothers’ cells.

And even the Mississippi baby had progenitors, he said. Since the 1990s, about 20 babies who supposedly cleared the virus have been reported in medical journals, but each case had doubters.

The Mississippi baby is more convincing because that case was “much better studied,” Dr. McCune said.

Another hypothesis, he said, is that some patients are “cured” because they got weaker virus.

By deliberately infecting monkeys, it has been shown that less-robust viral strains are controllable with drugs.

“But,” Dr. McCune added, “as you can imagine, no one wants to do that study in humans.”

Source:
Dormant HIV gets rude awakening

Researchers tackle virus particles hiding in the immune system as part of efforts to find a cure for AIDS.

Cassandra Willyard
27 July 2012
WASHINGTON DC

Following the success of antiretroviral therapy for HIV, some researchers are now focusing their attention on a loftier goal — a cure. That means targeting viral reservoirs, primarily the long-lived cells of the immune system in which the virus lies dormant. Eliminating these reservoirs isn’t easy, but recent research offers glimmers of hope that it may one day be possible.

The strongest proof that HIV can be cured comes from the case of Timothy Brown, who was infected with HIV until he received a stem-cell transplant in 2007 to treat leukaemia¹. He has remained free of HIV since then. Brown’s transplant helped cure his HIV, in part, because the donor’s stem cells lacked a key receptor that the virus needs to enter cells.

But at this week’s XIX International AIDS Conference in Washington DC, Timothy Henrich, an infectious-disease physician at the Brigham and Women’s Hospital in Boston, Massachusetts, reported a study of two HIV-infected men who received transplants of stem cells that did have the HIV receptor. Since they received a milder dose of chemotherapy than Brown prior to their transplants, they were able to continue taking antiretrovirals throughout the procedure. The transplants did not immediately eliminate the men’s infected immune cells, but roughly ten months later, the men had no evidence of HIV in their blood.

After their transplants, both men developed graft-versus-host disease, in which donor immune cells attack the transplant patient’s cells. Henrich and his colleagues speculate that the antiretroviral
drugs protected the donor cells from infection with HIV. These healthy donor cells then destroyed the HIV-infected cells, leaving the men free of virus.

“Theoretically, they could be cured because the immune system was rebuilt under the coverage of antiviral therapy,” says Steven Deeks, an HIV researcher at the University of California, San Francisco, who wasn’t involved in the research. The ultimate test, however, will be to see whether the men remain HIV-free when they stop taking antiretroviral medicines. Henrich is working with the patients, their physicians and an ethics board to determine whether that is feasible.

Flushing out the virus
But stem cell transplants are too risky to be used on people who don’t have a life-threatening illness. “This is not scalable or affordable or reasonable or ethical in anyone else,” Deeks says.

A more palatable tactic would be to purge the virus from its main hiding spot — the long-lived memory cells of the immune system, called CD4+ memory T cells. A paper published this week in Nature provides the first evidence that this may be possible in humans (see ‘Drug brings HIV out of hiding’). David Margolis, an HIV expert at the University of North Carolina’s Center for Infectious Diseases in Chapel Hill, and his colleagues administered a cancer drug called vorinostat (suberoylanilide hydroxamic acid) to eight people in an attempt to coax dormant HIV out of hiding.

A single dose of the medicine produced a 4.8-fold increase in HIV RNA expression. The hope is that this results in HIV particles being made and released, so that they are visible to the patient’s immune system again. However, it is still unclear to scientists whether this increased expression will lead to the destruction of HIV-infected cells and shrink the viral reservoir. “But it’s a positive signal,” says Nicolas Chomont, an HIV researcher at the Vaccine & Gene Therapy Institute of Florida in Port St Lucie.

But eliminating the viral reservoir might not be necessary to achieve something akin to a cure. In 2010, French researchers reported that they had identified a small group of patients who began antiretroviral therapy soon after HIV infection, then stopped taking the drugs after several years of treatment. Since stopping treatment, these individuals have been able to control the virus naturally, for nearly seven years.

Unlike a group of HIV-infected patients known as elite controllers, who have specific genetic traits that enable them to control the virus, the group studied by the French team, known as the Visconti cohort, doesn’t seem to have a protective genetic component. At the Washington conference, researchers presented an in-depth look at the viral reservoirs of 11 people in this group. They report that the virus seems to reside disproportionately in shorter-lived immune cells that die off faster.
Asier Sáez-Cirión, an HIV researcher at the Institut Pasteur in Paris, who is involved in the study, says that this may explain why the reservoir has shrunk over time in four of the patients.

How these patients are able to control the infection is not yet known. Early and prolonged treatment with antiretroviral therapy is key, but it doesn’t seem to work for everyone. Just 5–15% of those who receive early treatment for at least a year and then stop therapy are able to control their infection, Sáez-Cirión says.

“I think [these individuals] are fascinating,” Chomont says. “They have something that makes them able to control the virus.” The trick will be to identify what that is, he adds, and then find a way to reproduce it.

Although questions remain over how to tackle viral reservoirs, many HIV researchers are hopeful. “This is very similar to the dawn of the antiretroviral era in the mid-80s,” Deeks says. “Every time we turn around, there’s something that we learn that opens up new avenues and makes people optimistic.”

Source:
http://www.nature.com/news/dormant-hiv-gets-rude-awakening-1.11077

RFI

LUNES 18 MARZO 2013

Nueva pista en la cura del sida
Por Silvia Celi
El Virus de la Inmunodeficiencia Humana (VIH) infecta a unos 34 millones de personas en el mundo, una cifra alarmante que promueve la búsqueda constante de nuevos tratamientos. Este 15 de marzo, un grupo de investigadores franceses reveló detalles sobre una nueva pista en la cura de esta enfermedad.

Entrevistado: Dr. Francisco Veas, profesor de Investigación Científica en Inmunofisiopatología Humana en el Instituto de Investigaciones Científicas para el Desarrollo, en Montpellier.

Source:

The Economist

AIDS treatment
Visconti’s coup
Mar 14th 2013, 21:02 by G.C.

MORE good news from the world of AIDS. March 14th saw the publication of results from the Visconti trial (the name is a contraction of “Virological and immunological studies in controllers after treatment interruption”), being conducted in France, into the possibility of using antiretroviral drugs to produce something akin to a cure. They suggest that they can—as long as treatment starts early enough. And associated work also suggests such long-term remission may be possible for as many as 15% of those who become infected.

The Visconti trial, reported in the Public Library of Science’s journal PLoS Pathogens by Christine Rouzioux of Paris Descartes University and her colleagues, has followed the fates of 14 people treated with antiretroviral drugs shortly after they were infected with HIV, and for several years thereafter, who then (under medical supervision) had their drug treatments withdrawn. As the trial’s organisers reported to the International AIDS Conference in Washington, last July, this procedure has turned these people into what are known as “elite controllers”—that is, they still have detectable levels of HIV in their bodies years after infection, but even in the absence of drug
treatment those levels do not rise significantly, and certainly not to a point where they are causing symptoms.

Elite controllers do occur naturally, but such people are unusual. Fewer than one person in 100 seems to have the potential to develop natural elite control. What causes natural elite control remains mysterious, but certain versions of what are known as HLA genes (which regulate cell-surface proteins in some immune-system cells) are rarely found in natural elite controllers.

Members of the Visconti cohort did not share this HLA signature. Moreover, their patterns of early infection were different from those of people who go on to become natural elite controllers. In such individuals the virus never really seems to take hold. In members of the Visconti cohort, it did so early and aggressively (one reason why they were treated so quickly in the first place).

Yet, after an average of three and a half years taking antiretroviral drugs, followed by an average of seven and a half years not taking them, the 14 people being followed by Dr Rouzioux and her colleagues show little or no sign of infection. Indeed, the paper suggests, even the low levels of virus still circulating in their bodies seem, in several cases, to be shrinking still further.

The crucial feature shared by people in the Visconti study is that they were put on drugs within ten weeks of infection, a point where the virus is still establishing itself in the body. This is reminiscent of what has become known as the “Mississippi baby” case, reported earlier this month, in which an infant girl, infected by being born to an HIV+ mother, was given antiretroviral treatment within a few hours of birth. Her doctors, however, lost touch with the child for five months when she was 18 months old, interrupting the treatment. When they reconnected with her they found her infection had regressed to the point of undetectability, even though she was no longer taking the drugs. This observation, combined with the Visconti trial, leads to the question of how frequent the phenomenon of elite control following early treatment actually is.

Dr Rouzioux and her colleagues attempted to estimate that from a database of French AIDS cases, and concluded that about 15% of those who are infected and treated early turn into elite controllers—though the database in question, the French Hospital Database on HIV, allowed them to draw this conclusion for only the first two years after the end of treatment.

It is all, however, extremely encouraging. If the common factor between so-called post-treatment controllers can be identified, it will allow doctors to offer treatment withdrawal to those likely to benefit from it. It will also show researchers a chink in AIDS’s armour. If they can find something which they can insert into that chink to clear the disease in other people, too, the Visconti trial may come to be seen as a turning point in the war on AIDS.

Source:

http://www.economist.com/blogs/babbage/2013/03/aids-treatment

The Telegraph
HIV sufferers ‘effectively cured’ after early treatment – study

Some HIV sufferers can be “functionally cured” if they are diagnosed soon after being infected and treated quickly, a new study suggests.

By Sam Marsden
8:41AM GMT 15 Mar 2013

Fourteen patients who were rapidly given antiretroviral drugs have remained healthy for years even after stopping treatment, French researchers found.

The finding follows recent reports that a baby girl born with HIV in Mississippi in the United States has been cured after receiving standard drug therapy.

Scientists said that there were intriguing parallels between the two studies, but stressed that the phenomenon was rare and warned that most people with HIV would develop full-blown Aids if they stopped taking medication.

The French patients, known as the “Visconti cohort”, who are currently aged between 34 and 66, were infected with the virus in the 1990s and 2000s.

They were all treated with a range of drugs within 10 weeks of infection and stopped the treatment after about three years on average.

Source: