

Did a Polio Vaccine Cause AIDS?

NEW BOOK REIGNITES OLD THEORY ON DISEASE'S ORIGINS

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Ever since it was first recognized by American doctors in 1981, the origin of the virus that causes AIDS -- a disease that has killed as many as 16 million people and infected another 36 million worldwide -- has been one of the great mysteries of science.

A host of wild theories have been proposed on how the virus came into being: that the KGB, with information obtained from the Nazis, created the virus in the early stages of the Cold War as part of a biological warfare program; or that the disease was created as part of a secret government project to eliminate certain "undesirable" parts of the American population.

Most scientists have discarded those ideas and now believe that the disease derives from a simian immunodeficiency virus (SIV) that has long existed and is found in chimpanzees. How the virus jumped from chimps to humans is debatable.

After nearly a decade of research, investigative journalist Edward Hooper, a former official of the United Nations, has written *The River: A Journey to the Source of HIV and AIDS*, a book that may provide some answers. Evidence uncovered through interviews and literary searches suggests that the AIDS virus was not the byproduct of a communist plot or a form of divine punishment, but that it may be the result of a contaminated experimental polio vaccine program conducted in Africa in the late 1950s.

The vaccine in question was developed by Hilary Koprowski and Stanley Plotkin, a pair of scientists from the Wistar Institute in Philadelphia, the country's first independent medical research center. At the time, the institute was one of several organizations competing to develop an effective attenuated polio vaccine that could be dispensed quickly to protect people from catching the disease.

Exactly how many people were given the Wistar vaccine is not known. An article published in the journal *BioScience* puts the number of recipients at 325,000.¹ Other sources place the number much higher. As many as a million people in what are now Rwanda, Burundi and Congo may have received the vaccine between 1957 and 1960.^{2,5}

The earliest documented HIV infection of a human has been traced to a male victim who was living in Kinshasa, in what was then called the Belgian Congo in 1959. A study published in *Nature* in 1998 authenticated the victim and suggested that the virus "may have evolved from a single introduction into the African population in a time frame not long before 1959." Although the researchers could not find an explanation for the wide-scale spread of AIDS, they also suggested that "the role of large-scale vaccination campaigns ... should be carefully examined" as a possible cause.³

Kinshasa, the country's largest city, is considered one of the birthplaces of the AIDS epidemic, and was one of the first places the experimental polio vaccine was tested. Of 90 of the first reported cases of HIV and AIDS acquired in specific towns in Africa through 1981, 76 came from the same

towns where the experimental vaccine was given or within 100 miles of them.²

At the heart of the debate is the argument over what type of monkey cells were used to produce the vaccine. In an interview with Reuters in November 1999, Koprowski, a former director at Wistar, insisted that neither chimpanzee nor African green monkey tissue (both of which are capable of supporting SIV) were used in the process. The vaccine, he asserts, was made with tissues from Asian rhesus monkeys, whose kidney cells do not support SIV.

"This book has only preconceptions," said Koprowski, now a professor at Thomas Jefferson University in Philadelphia. "There are no facts."⁴

"The idea is a house of cards built on circumstantial evidence," added Plotkin, who developed the modern rubella vaccine while employed at the institute.⁴

While there are no hard facts to dispute Koprowski and Plotkin's statements, there is also little evidence to back them up. An independent committee formed by the Wistar Institute in 1992 was unable to determine if chimpanzee tissue was used during the vaccine trials. Records kept during that time appear incomplete or spotty at best, omitting certain details or test results. Former workers interviewed by Hooper have given conflicting accounts about which types of monkey tissues were used.

Circumstantial evidence gleaned by Hooper also shows that chimpanzees may have been used in the vaccine's processing. A number of eyewitnesses have claimed that chimps were experimented upon by the Wistar group. It is known that a large colony of chimpanzees were caught and used for research at a station along the Lindi River in central Congo, one of the initial sites for the vaccination program. It is also known that 11 of the earliest reported cases of AIDS and HIV infection in the Congo occurred within 200 miles of the vaccination sites situated along the Lindi.

Because of their extremely close relation to human DNA, chimpanzee tissues have long been considered an ideal culture medium for growing viruses. If infected chimp tissues were used, the theory goes, it might have found its way into one or more batches of the experimental polio vaccine used in the Congo and the neighboring countries of Burundi and Rwanda. Since the vaccine was delivered orally, the virus could have passed through a sore, ulcer or bleeding gum in a patient's mouth and entered the bloodstream. From that point, the virus could be transmitted through sexual or blood-to-blood contact and later evolved into the human immunodeficiency virus (HIV).

While Hooper's theory would require a number of unlikely coincidences to occur, the unknowing transmission of a simian virus into a human host has happened before. In the 1950s and 1960s, millions of Americans were accidentally infected with a monkey virus called SV-40 as part of their polio vaccinations. Fortunately, the SV-40 virus has no effect on humans.

Other incidents have met with more disastrous results. Since 1930, more than two dozen monkey handlers in the United States have died after being bitten by monkeys infected with herpes B, which has no effect on its natural host but is invariably fatal when delivered to humans. And in 1967, several laboratory workers in Germany died from the Marburg virus after it was imported into that country via African green monkeys.² Like herpes B, Marburg is relatively harmless for monkeys but lethal in humans.

While Hooper's research may have provided the missing link scientists have been seeking for decades, the concept that AIDS is the result of a botched vaccine program is nothing new. The debate over the safety of Koprowski's vaccine began almost as soon as it was introduced in the late

1950s.

At the time, the Wistar Institute was competing with several organizations and health centers to devise an oral alternative to the injectable polio vaccine developed by Jonas Salk. One of Wistar's chief rivals was based at Cincinnati Children's Hospital and was led by the legendary scientist and physician Albert Sabin.

Both groups had worked independently of each other and developed their own sets of oral polio vaccines. For each team, the stakes, scientifically and financially, were quite high. In the late 1950s, the federal government had yet to decide which vaccine to approve; such approval in the U.S. would most certainly be adopted by the rest of the world, and the creator of the vaccine would be revered.

In 1959, at the First International Conference on Live Poliovirus Vaccines, Dr. Sabin made an amazing claim that would shake the foundations of virology.⁵ He alleged that at least one batch of Koprowski's vaccine had been contaminated with an unidentified simian virus, one that had nothing to do with polio virus but which, like polio, was cytopathic.

Since the unknown virus killed cells when introduced into monkey kidney tissue cultures, the inference by Sabin was that such a virus might cause similar damage when introduced into human beings. Swedish virologist Dr. Sven Gard, who had been on sabbatical at the Wistar Institute for several months before the start of the conference, spoke up in defense of the Koprowski vaccine. Dr. Gard said that he had tested the vaccine in Sweden and the United States for the presence of unknown viruses and had found nothing, seemingly putting the issue to rest.⁵

Sabin's oral polio vaccine eventually won out and was approved for use in 1963, while Koprowski's version was discontinued in April 1960.

Does It Really Matter?

It has been more than 200 years since a British doctor named Edward Jenner devised the idea of vaccination, inoculating an eight-year old boy with cowpox to protect him against a related but much deadlier illness: smallpox. Since that time, new procedures and advances in science and medicine have helped make vaccines safer and more effective, saving thousands (if not millions) of lives in the process.

But it has also become evident that some vaccines may be more dangerous than the conditions they are designed to prevent, and that financial interests sometimes take precedence over patient safety. In the past year, valid concerns have been raised about vaccines used to treat a variety of diseases, from rotavirus and hepatitis B to anthrax and Lyme disease. In 1998 alone, the nation's Vaccine Adverse Event Reporting System received more than 11,000 complaints from concerned doctors, parents and patients.

Even now, pharmaceutical companies are attempting to get AIDS vaccines tested and into widespread use in Africa in Asia - just as the scientists of a few decades raced to find a vaccine to eradicate polio - and therein lies a potentially terrible irony. As Michael Woods, a science editor for the *Toledo Blade*, said: "Are modern scientists taking due precautions, or, like their 1950s-era colleagues, are they unknowingly putting their faith in Lady Luck?"⁶

References

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