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The Mysterious Origin of Human Immunodeficiency Virus

Curtis V. Smith Ph.D.

Professor of Biological Sciences
Kansas City Kansas Community College

Abstract

Perhaps nothing in the health sciences can raise the specter of intense debate more than the origin of the multifarious Human Immunodeficiency Virus (HIV), which has reportedly infected an estimated 40.3 million people since AIDS (Acquired Immune Deficiency Syndrome) was first described clinically in 1981. HIV is the etiological agent historically linked with fear and denial by association with sexual transmission, infection without signs of illness, incurability, and ultimate mortality by AIDS. This paper will concisely examine all the theories for the origin of HIV. The purpose of this investigation is not to assign blame but to succinctly organize the medical research, health care, and social science on this topic in order to better understand the complex public health parameters of a pandemic.

Introduction

Perhaps nothing in the health sciences can raise the specter of intense debate more than the origin of the multifarious Human Immunodeficiency Virus (HIV), which has reportedly infected an estimated 40.3 million people since AIDS (Acquired Immune Deficiency Syndrome) was first described clinically in 1981. HIV is the etiological agent historically linked with fear and denial by association with sexual transmission, infection without signs of illness, incurability, and ultimate mortality by AIDS. There are three components for determining the origin of HIV: 1) what species of animal the virus was housed in when it "jumped the species barrier into humans"; 2) approximately in what decade did the virus make this leap into humans, and 3) what unique social/environmental factors precipitated the worst global infectious disease pandemic since the so-called Spanish flu from 1918-1922. This study reveals how social scientific investigations involving medical ethics, medical anthropology, economics, and politics are helpful in gaining a fuller appreciation for how HIV came into existence from Simian Immunodeficiency Viruses (SIVs). The evidence presented is largely inconclusive but points in the direction of compressed evolution of HIVs in humans during experimental Hepatitis B Virus vaccine research at the National Institute of Health in the 1970s. The lesson learned is extremely important in understanding and preventing the sudden emergence of new viruses that could once again kill millions of people.

Arguments over rival theories as to the origin of HIV have raged viciously at times far beyond the norms of most scientific debates. By avoiding these calumnious accusations of cover-ups, preferential treatment will be given here for chronicling fundamental medical and social science beholden to each of the six competing theories for the origin of HIV: 1) the "natural transfer" theory; 2) the "tainted oral polio vaccine" theory; 3) the "contaminated needles" theory; 4) the colonialism theory; 5) the "tainted Hepatitis B virus vaccine" theory; and 6) the genocidal theory.

The technological capacity to perform ribonucleic acid (RNA) sequence analysis has narrowed down the closest genetic relatives of HIV to strains of Simian Immunodeficiency viruses exclusively found in chimpanzees indigenous to the tropics of Africa.¹ Scientists who work in the areas of epidemiology, virology, and molecular biology have posited the natural transfer theory as the best account for the origin of HIV: 1) SIV jumped the species barrier from monkeys to Africans who hunted and ate "bush meat" becoming repeatedly infected with monkey immunodeficiency viruses; 2) Mutations and adaptation occurred in SIV genes allowing selective infection and death of human thymus derived white blood cells² to become HIV.³ The rapid spread of the disease in the late 1970s was facilitated by what Mirko Grmek notes in *History of AIDS*, as the "urbanized shattering of social structures" that had long contained sexual behavior such as "the explosion of prostitution and venereal diseases."⁴

The problem with this topos is that it oversimplifies a plethora of other substantive prosopography. The total body of evidence that has been ascertained by natural and social scientists is crucial to achieving a deeper appreciation for the origin of HIV. This body of knowledge includes HIV sequence analysis, retro-seroepidemiology, experimental vaccine history, clinical disease records, and social anthropology. Besides the traditional "rational choice" natural transfer theory for the origin of HIV, all other theories suggest that SIVs were introduced into humans by accidental or intentional medical procedures. The term for diseases introduced into humans by a medical procedure is iatrogenic. The problem with iatrogenic explanations is that they often create distrust in the public health care system and open the floodgates for conspiracy theories.

The belief that the origin of HIV was accidentally, or intentionally created in the lab, has been debated in the medical literature⁵ and at International AIDS conferences since the disease first emerged. The public has heard little of this debate. Intentional introduction of HIV into Africans is deemed absurd by a vast majority of virologists since natural explanations firmly ground everyone in the biological sciences. However, the pressure to publish, and to achieve or maintain notoriety, is well known to medical historians in association with

accidental or intentional introduction of pathogens into humans.⁶ Most recently the U.S. government apologized for venereal disease tests conducted on 700 prisons inmates, mental patients, and soldiers in Guatemala from 1946-1948 to test penicillin.⁷ From 1963 to 1966 researchers at Willowbrook State School on Staten Island infected mentally disabled children with Hepatitis B Virus to test gamma globulin.⁸ In the context of HIV, why would scientists want to prove that the global pandemic of AIDS originated with the inadvertent or intentional introduction of SIVs into humans on a massive scale during experimental vaccination campaigns if it would undermine their profession and cause the public to avoid inoculation with perfected vaccines that prevent a wide range of diseases? It is even more difficult to imagine any type of legal disposition resulting from proving the accidental creation of a virus that has infected 40 million people and counting. Finally, if it could be proven that HIV was created intentionally, with the knowledge of the United States government to rid the planet of homosexuals, or reduce the population of Africa as has been suggested, it could foster widespread social anarchy.

This paper will concisely examine all the theories for the origin of HIV. The purpose of this investigation is not to assign blame but to succinctly organize the medical research, health care, and social science on this topic in order to better understand the complex public health parameters of a pandemic.

1. The “Natural Transfer” Theory

The most commonly prescribed theory for the origin of HIV provided by most virologists is referred to as the natural transfer theory. The main thesis is that simian immunodeficiency viruses have for hundreds, if not thousands of years, “jumped the species barrier” setting up infections that led to new recombinant strains of simian viruses.⁹ These SIVs eventually mutated and become transmitted as lethal strains of human immunodeficiency viruses. This mode of transmission, involving natural movement of microbes from animals to humans by physical contact, is referred to as zoonosis. It is widely accepted in microbiology that human viruses originated in this manner over the last four million years of human evolution. Therefore, it was only “natural” that SIVs were purported to have “jumped the species barrier” to create a human immunodeficiency virus almost immediately after the AIDS virus was first isolated in 1983, and its nine genes RNA sequence analyzed in 1985.¹⁰ Immediately researchers went to Africa to find sources of HIV in monkeys when it was learned that at least seven different strains of HIV had emerged to cause a global human immunodeficiency disease pandemic.¹¹

A deeper inspection of the natural transfer theory for the origin of HIV maintains that SIVs in monkeys infected *Homo sapiens* for hundred’s if not thousand’s of years when they hunted, handled, butchered and ate “bush meat.”¹² Immunological tests that measure the amount of antibody in human blood has shown that native Africans are exposed to a variety of SIVs through the consumption of bush meat in Africa.¹³ After prolonged exposure to different strains of SIV, it was only a matter of time before the virus recombined with other co-infecting SIVs, mutated to an extent necessary to adapt to being sexually transmitted between humans, and became established uniquely as HIV. The linchpin for the natural transfer theory specified that the critical threshold for SIV zoonosis was reached only in the 1970s when urbanization, travel, consumption of monkey meat, and prostitution reached their zenith.¹⁴

There is certain agreement among all who investigate this topic that different strains of HIV originated from closely related strains of Simian Immunodeficiency Viruses found naturally in wild African chimpanzees. HIV is actually an umbrella term for two genetically distinct types of RNA viruses that contain two copies of nine genes: HIV-1 and HIV-2.¹⁵ HIV-1 embraces three genetically distinct groups of RNA viruses referred to as Clades M, N, and O. Of these distinct molecular groupings, Clade M is responsible for 99% of all of the deadly cases worldwide.¹⁶ Clade M has been subdivided based on a smaller set of RNA sequence patterns into 11 genetically distinct subtypes identified by letters A through K. The most common subtype, for example, in the United States and Europe, is Clade M Subtype B; in the tropical regions of Africa it is Clade M subtype A; in Brazil it is Clade M subtype D, and in Southeast Asia it is Clade M subgroup E.

Most important to the origin of HIV is the fact that all eleven subtypes of HIV-1 Clade M have been statistically correlated by similarity in RNA sequence to SIVs found in chimpanzees in specific geographic regions of Africa. The extraordinary work of Beatrice Hahn and other viral geneticists consists of overlaying nucleic acid sequence maps of all strains of HIV, with all strains of SIV, and then superimposing this information onto geographic maps of isolated chimpanzee carriers in Africa, and original human cases of infection in Africa.¹⁷ From these studies conducted by a large community of highly skilled viral geneticists, the following evidence is incontrovertible: 1) SIVcpz genes in *Pan t. troglodytes* from West Africa, and *Pan t. shweinfurthii* in East Africa, led to at least nine of the eleven different SIVs; 2) that humans became infected with these eleven different SIVs which subsequently became eleven different HIV-1 Clade M subtypes; 3) All HIV-1 Clade M are uniquely characterized as infecting, replicating, and killing many THI cells very rapidly beginning in the 1980s and early on in the pandemic causing mortality within 3-5 years after infection. A particularly spectacular feature of HIV-1 Clade M is that with its ability to replicate very rapidly, and in such large numbers, it reaches concentrations in semen and vaginal secretions that make the virus sexually transmissible, especially during the first year of the infection.

All “outside of Clade M HIVs” are lumped together since they replicate slowly, are found in semen in lower numbers, have tended not to spread out of Africa, and are possibly not of the same origin as HIV-1 Clade M that is responsible 99% of all AIDS cases in the world today. Clade O contains at least 30 genetically different subtypes of HIV referred to as “outliers” because their RNA base sequence is only 50% similar to the known genotypes of HIV-1 Clade M.¹⁸ Clade O is not even serologically tested for in the United States since only three cases have been reported. It is found localized in Cameroon, Gabon, and surrounding West-African countries. Clade N is even more restricted as seen only in a small number of people in Cameroon. Clade N is very

similar in RNA sequence to one subtype of SIV endemic to chimpanzees in Cameroon known as SIV_{cpz-gab}¹⁹. Finally there is HIV-2, which is also less virulent than HIV-1 Clade M, is generally confined to areas of West Africa and consists of six RNA subtypes identified as A through F. The first SIV discovered, isolated in 1983 from the sooty mangabey (*Cercocebus atys*) of West Africa and designated SIV_{sm}, has been found to closely approximate the RNA sequence found in HIV-2.²⁰

For the natural transfer theorists, the RNA sequence analysis corroborates the origin of HIVs from SIVs that “jumped the species barrier” only in the natural habitat of chimpanzees to humans living in central Africa. However, an internal critique of the natural transfer theory reveals several weaknesses pertinent specifically to HIV-1 Clade M. Three key questions have been put forth by those who posit the competing alternative theories as to the origin of HIV: 1) How could all eleven different subtypes of SIV suddenly gather in central Africa, mutate and “jump the species barrier from chimpanzees to humans” in the 1970s to become eleven different types of HIV-1 Clade M?²¹ 2) How did all eleven strains of HIV-1 Clade M mutate in order to replicate so unusually fast and in such large quantities so as to infect through semen at unprecedented rates in humans?²² and 3) What evidence exists to support the idea that especially beginning in the 1970s there was unprecedented levels of hunting and eating “bush meat” and especially high levels of sexual contact via prostitution?²³

2. The Tainted Oral Polio Vaccine Theory

The controversial theory that HIV could have resulted from the use of an experimental oral polio vaccine (OPV) contaminated by then-undiscovered SIVs in Africa in the 1950s first appeared in an article in *Rolling Stone* magazine by journalist Tom Curtis in 1992.²⁴ How could SIVs contaminate experimental polio vaccines developed in the United States and first tried on Africans in the late 1950s? Most vaccines are created by first isolating a specific virus from infected individuals and then are replicated in monkey kidney cells grown in viral culture dishes. The virus can then be studied, altered, and manipulated in such a way as to be recognized and destroyed by the immune system without creating any symptoms of illness. In this case and with many other instances where vaccines were developed to viruses that infect humans, polio viruses tend to replicate ideally in monkey kidney cells. Since SIVs were not discovered prior to this type of experimental vaccine research, Tom Curtis was spurred by others who held suspicions that SIVs could have accidentally contaminated polio vaccine research that led to HIV during the first trials in children in Africa in the late 1950s.

Curtis credits the tainted oral vaccine theory to three non-scientists who independently came up with the idea based on some of the weaknesses in the natural transfer theory regarding HIV-1 Clade M: 1) Blaine Elwood, a California AIDS activist; 2) Louis Pascal, an independent science writer; and 3) Walter Kyle, who published his view in *The Lancet* in 1992.²⁵ Since then, science journalist Edward Hooper, author of the 1999 book *The River*, has become the theory’s most ardent verification expert.²⁶ According to Hooper, one of the first major trials of an experimental oral polio virus vaccine took place from 1957 to 1960 in the Democratic Republic of the Congo, Burundi, and Rwanda, the “hearth” of the global AIDS epidemic.²⁷ Hilary Koprowski, the polio-vaccine pioneer who mounted a massive anti-polio campaign, could not recall or find documentary evidence as to whether his group had used African green monkeys, Asian macaques, or African chimpanzees to culture the media containing the polio vaccine.²⁸ More than 900,000 people were vaccinated with the experimental polio vaccine from 1957-1960.

Edward Hooper has provided a detailed account of the spread of HIV in Africa which demonstrates that the dreaded Clade M erupted in precisely the same cities and towns in tropical belt of Africa where Koprowski conducted his first live polio virus vaccine campaigns.²⁹ However, according to the results of a retro-seroepidemiological study on experimental vaccine samples stored at the Wistar Institute in Philadelphia, no SIV was found contaminating stored tissue samples.³⁰ According to Hooper, this result does not rule out the possibility that local amplification of SIV from very small quantities could have introduced SIV into humans on a significant scale.³¹ Even assuming that the OPV coming from the U.S. was not contaminated with SIV, the key issue for Hooper and others is whether African chimpanzee kidneys were used as a culture medium locally at any stage of Koprowski’s vaccine program in Africa. There are eyewitness testimonies on both sides of this question.

In an often cited report by viral geneticist Bette T. Korber using comparative genetic analysis to determine the date of emergence of HIV in humans, the dreaded HIV-1 Clade M “jumped from chimpanzees into humans” for the first time in 1931 with 95% confidence limits giving the range 1915-1941.³² This precedes experimental oral polio vaccine administration by seventeen years. However, the author admits the calculation can be thrown off by genetic recombination among subtypes in humans making dates come out too early.³³ In other words, if there was contamination of SIVs used in vaccines, then the mathematical calculations are not statistically pertinent in cases of punctuated laboratory induced evolution. The work of Korber and her associates “naturally” presupposes the natural evolution of viruses in the wild.

A 2008 genetic analysis for timing the ancestors of the HIV-1 pandemic strains reported by Michael Worobey, pushed the estimated time for the origin of HIV back further to between 1884 and 1924 with a more focused estimate of 1908.³⁴ His study utilized genetic data from two old HIV samples plus more than 100 modern samples to create a family tree going back to these samples’ last common ancestor. Worobey notes that the newly calculated dates fall during the rise of cities in Africa, and suggest early urban development in Africa may have promoted HIV’s initial establishment and spread. Unfortunately, as with Korber, Worobey’s statistical analysis presumes that HIV was only passed to humans by direct frequent contact by eating chimpanzee as “bush meat.”

Another critique of the OPV theory is that the subspecies of chimpanzee kept near Kisangani at a facility called Camp Lindi, was, according to Dr. Hiliary Koprowski, only used for safely testing their vaccine on animals.³⁵ Hooper, however, suspects Koprowski's oral polio vaccine was being produced locally using the chimpanzees in Africa absent the rigors of polio vaccine cultures using macaques developed at the Wistar Institute³⁶. The SIVcpz strain that is most similar to HIV-1 Clade M has so far only been identified in subspecies of chimpanzees native to west-central Africa, *Pan t. troglodytes*. The less similar SIV types corresponding to Clade M have only been identified in *Pan t. schweinfurthii*, found in east-central Africa where Koprowski's Camp Lindi was located. This means that the nearest known population of *Pan t. troglodytes* are more than 500 kilometers from Koprowski's chimpanzee colony. Hooper argues that the river trade has been substantial since the colonial scramble for Africa, and paying good money for young apes in Kisangani would have very likely prompted hunters to make the trip further up river to provide chimpanzees for Koprowski.³⁷

Although molecular geneticists offer genetic analysis of the dates for the origin of the HIV that keep getting pushed further back in time, and the OPV theory has not provided hard evidence for the use of chimpanzee cultures, headlines reporting the death of the OPV theory³⁸ should be deemed premature.

3. The Contaminated Plastic Syringe Theory

A third theory for the origin of HIV has been posited by a virologist Preston A. Marx of the Aaron Diamond AIDS Research Center. In 1995 Preston Marx posed his view favoring accounts of an accidental iatrogenic trigger for the origin of HIV due to often reused disposable plastic syringes without sterilization to treat a variety of diseases in Africa in the 1950s.³⁹ These contaminated syringes could easily have been responsible for moving high levels of SIVs found in already immunocompromised patients into many other Africans at sufficient rates to ensure the punctuated evolution of an extremely virulent HIV Clade M consisting of eleven subtypes by the 1970s. By serial passage of SIVs, chance recombination and mutations could accumulate rapidly to the point where human strains became capable of infecting TH1 cells more efficiently, replicating more quickly and in greater quantity. In this way HIV-1 Clade M could not be spread by hetero- and homosexual practices. For Marx, the frequent use of contaminated syringes in this particular decade explains the most highly publicized case of HIV found in a stored sample taken from a patient who died in 1959.⁴⁰ His theory brings the date for the origin of HIV in humans within ten years of Korbers' genetic prediction favoring a range from 1915-1941, although more than thirty years shy of Worobey's evolutionary assignment. The Preston Marx contaminated plastic syringe theory of the 1950s, with emphasis on massive serial passage of SIVs, would appear to resolve the explanation for the sudden punctuated appearance of many HIVs in one decade in leading to the sudden emergence of AIDS. The serious problem with this theory, if it were true, is that AIDS would have emerged as a global pandemic in the 1960s as opposed to the 1980s.

4. The Colonialism Theory

Jim Moore, a biological anthropologist at the University of California at San Diego, has proposed another accidental iatrogenic theory based on the history of forced labor camps in Africa.⁴¹ His theory was prompted by Adam Hochschild's history of the Belgian Congo, *King Leopold's Ghost*.⁴² Hochschild's book reveals that Belgian colonial practices in French Equatorial Africa and neighboring Belgian Congo between 1880 and the onset of World War II were harsher than first reported. The first censuses taken in the 1920s estimated that the population of the two colonies was about 15 million. Local people reported that twice that many had lived two or three decades prior to the advent of forced labor camps that held thousands of workers suffering from poor sanitation, from poor diet, and exhausting labor demands.

The intersection between medicine and the anthropological research conducted by Moore posits that in caring for the health of African laborers, well-meaning but undersupplied doctors routinely inoculated workers against smallpox and dysentery and treated sleeping sickness. These doctors, according to Moore, were unwittingly making serial passages of SIVs that had infected Africans from their practice of eating bush meat while using a handful of unsterilized metal syringes to inoculate many patients. The evidence for a severe shortage of syringes during this time period has accumulated in recent years. It has been well documented that in one sleeping sickness control expedition conducted by Belgian doctors in 1916, 89,000 people in Ubagi Shari were treated using just six metal syringes.⁴³ Prior to the introduction of dried smallpox vaccine in about 1914, the only way to transport vaccine to the interior was by serially inoculating people, traveling during the eight-day interval required for the new carrier to develop pustules from which the next inoculation could be derived. There is record of at least 14,000 people receiving serially passed smallpox vaccine. This method had been abandoned in Europe some 20 years before because syphilis was all-too-often transmitted accidentally in the process.

The development of HIV, according to Moore, was sealed by officially authorized sex camp workers set up to appease the laborers in many camps.⁴⁴ Such circumstances could easily have promoted the evolution of SIVcpz as a sexually transmitted mutant strain between humans in the form of HIV. Moore highlights the gene typing study by Worobey as most compelling because it places the beginning of HIV Clade M in the early decades of the 20th century. If this dating is correct, the colonial-policy theory offers an explanation for HIV slowly developing during European colonial practices prior to the advent of polio vaccine experimentation.

The medical anthropology offered by Moore pushes the date back to a time consistent with the latest genetic evidence posed by Worobey. The merger of Worobey's calculations for the natural evolutionary origin of SIV jumping into humans and causing HIV coupled with Moore's social anthropological thesis would appear to reconcile the two sides of the natural and social science equation. The problem with Moore's account of HIV jumping the species barrier in mass in the first couple of decades in the 20th century, is that some explanation has to be made for abundant medical workers who were "crawling all over the continent" treating various infectious diseases and looking for new exotic tropical diseases, without noticing AIDS in Africans, or becoming

infected themselves with HIV until suddenly in 1981.

5. Tainted Hepatitis B Virus Vaccine Theory

Leonard Horowitz, a medical doctor and public health specialist at Harvard, is best known for his book published in 1998,

Emerging Viruses: AIDS and Ebola – Nature, Accident or Intentional.⁴⁵ He is the main proponent of a theory first posed by U.S. government DNA sequence analyst, Dr. George Myer, for an accidental iatrogenic outcome for the origin of HIV based on

vaccination experiments involving Hepatitis B Virus (HBV) in the 1970s.⁴⁶ These experiments serve as the “linchpin of perdition” being conducted by the National Institute of Health in the 1970s just prior to the discovery of SIVs in chimpanzees. To

support his argument, Horowitz emphasizes the lack of medical evidence demonstrating clinical cases of AIDS prior to 1970.⁴⁷ He agrees that the natural transmission of certain less virulent strains of SIV from monkey to humans have routinely occurred throughout history, but this has nothing to do with the sudden devastating effects of eleven different strains of HIV-1 Clade M emerging in the 1980s.⁴⁸ Horowitz emphasizes Korber’s admission that mathematical models for dating the origin of HIV only account for natural recombination events.

A majority of scientists at the 2001 British AIDS conference, which focused on the subject of the origin of HIV, were in agreement with the convincing presentation of Dr. Gerald Myers that, “some event in the 1970s was required to produce the Big Bang” or the “punctuated evolution” of eleven different strains of HIV-1 M Clade that led to the AIDS pandemic in the 1980s. Myers’ account for the punctuated origin of HIV is founded on repeated bioengineered studies during the Litton Bionetics Corporation administration of a Special Virus Cancer Program (SVCP) from 1969-1974. Myers’ stunning indictment of Litton Bionetics is derived from statements found in a research contract titled, “Investigations of Viral Carcinogenesis in Primates”

(NIH Grant Number 71-2025 beginning February 12, 1962).⁴⁹ This SVCP research team was officiated by the National Cancer Institute “Project Officer” Dr. Robert Gallo. The SVCP was conducted in order to examine cases of immunosuppression and cancer in HBV infected patients using macaques. Macaques were inoculated at birth or in utero with various known viruses such as Mason-Pfizer monkey mammary virus, Epstein-Barr virus (EBV), Herpesvirus saimiri, and Marek’s disease virus.

The first step in the fatal act that led to the iatrogenic origin of HIV, according to Horowitz, was due to a switch from macaques to chimpanzees by SVCP researchers in the early 1970s in order to prepare and test various kinds of retroviral vaccines.⁵⁰ Based on documented experiments conducted in the NIH labs in the 1970s, experimental HBV vaccines are well documented to have been simultaneously injected into both chimpanzees and chimpanzee tissue cultures prior to injection into humans in New York City and Sub-Saharan Africa by Litton Bionetics collaborators in the 1970s. According to the tainted HBV vaccine theory posed by Horowitz, all strains of HIV-1 Clade M originated from the unwitting recombinant SIVs that contaminated both the SVCP experiments and experimental HBV vaccine pilot programs originating in African chimpanzee tissue cultures and used at NIH. The results of this same SVCP research program paradoxically led to the discovery of new animal and human leukemic retroviruses in the late 1970s and 1980s by Gallo and his associates.

Horowitz poses a procedural mechanism for the origin of HIV/AIDS at the National Institute of Health based on scientific records of SVCP research. This process is explained by the pooling of hundreds of samples of SIVs in four stages of serial passage:⁵¹

1. Many unknown/undiscovered strains of SIV contaminated African chimpanzee kidney tissues that were intentionally inoculated with Hepatitis B Virus obtained from human infections in order to obtain large quantities of HBV. Large quantities of HBV were needed for nucleic acid sequence analysis and electron microscopy structural analysis. HBV was also needed to determine the potential for causing cancer, or immunosuppression in combination with known retroviruses and herpesviruses when inoculated together in chimpanzees. The cornerstone of the research was to obtain enough HBV surface antigen and live weakened strains of HBV for use in four different types of HBV pilot vaccine programs in humans.
2. In the process of obtaining large quantities of HBV and other known retroviruses or herpesviruses from chimpanzee tissue cultures, undiscovered SIVs from various different tissue cultures were unwittingly pooled together and inoculated into live chimpanzees for the HBV scientific studies.
3. By pooling large numbers of different strains of SIV in live chimpanzees, suddenly emerging new genetic capacities for adaptation and increased virulence were conferred onto the contaminating SIVs by recombination and mutation.
4. Pooled SIV infected blood serum from these live chimpanzees was next used to obtain weakened strains of live HBV, or enough HBV to obtain surface antigen to be used in infectious HBV vaccine challenges in four different vaccines administered to New York’s gay population and sub-Saharan Africans from 1970–1975. As in Step 3 in chimpanzees, by pooling and injecting what is known to be at least eleven different strains of SIV into humans, suddenly emerging new genetic capacities for adaptation and increased virulence were created that directly correspond to eleven strains of HIV-1 Clade M by recombination and mutation.

For Horowitz, the etiology of progenitor viruses that became HIV was the unwitting serial transmission of SIVs from humans to chimpanzees while developing the HBV vaccine, then back to humans by 1975 during the actual vaccination trials. These events set the stage for the appearance of the AIDS pandemic in 1981.

In a manner similar to Hooper’s tainted oral polio vaccine theory, Horowitz has uncovered striking geographic correlations between HBV and liver cancer experiments conducted in Africa during the early 1970s and the countries in central and southern Africa with the highest HIV seroprevalence rates by 1994.⁵² According to Horowitz, the statements made in the Bionetic’s

SVCP contract about studying previously unidentified immunosuppressive viruses that predisposed animals for retroviral infections and cancers “should be adequate impetus for an independent investigation into this group’s work with regard to the origin of AIDS.”⁵³ The lead investigator at Litton Bionetics, Dr. Robert Huebner, has not been persuaded to provide more information about the SVRP program of the 1970s. Horowitz recommends that further research to test the tainted HBV vaccine theory should include⁵⁴ 1) retrospective epidemiological studies of homosexual population in New York reported to have received the earliest HBV vaccines; 2) serological studies of any stored blood from early HBV vaccine study subjects; 3) likewise for the chimpanzees used in the preliminary trials and vaccine manufacture; and 4) genetic analysis of viral components in samples of the vaccine lots used during these earliest HBV vaccine trials if available.

The tainted HBV vaccine theory spelled out by Horowitz has come under fire by many in the scientific community since it decisively implicates the National Institute of Health in the biggest laboratory accident in medical history. Moreover, Dr. Horowitz’s accidental iatrogenic theory for the origin of HIV based on SIV contaminated HBV vaccine experiments, has lost credibility in the scientific community by virtue of jointly proposing that the SCVP program may, in fact, have been a cover for the intentional design and creation of HIV in order to depopulate Africa.

6. The Genocidal Theory

The hardest theory to prove for the origin of HIV/AIDS is the genocidal theory. The idea was first posed in 1985 by Soviet official, Valentin Zapevalov, who suggested the strategic economic benefits for the United States in destabilizing and reducing the population of Africa.⁵⁵ The same question was rhetorically posed by Americans to the Russians during the last decade of the Cold War. Most rational thinkers agree there is little military value in creating HIV by either communist or capitalist nations since it would be difficult to prevent the eventual spread of a sexually transmitted disease globally. Nevertheless, since the origin of HIV is still unknown and emerged during the last decade of the Cold War between Russia and the United States, it is naive to completely rule out the use of illegal biological warfare agents on civilians living in Africa or homosexuals living in the United States.

Investigations by Horowitz et al. focus on the CIA and the 1969 appropriation hearings in which the National Academy of Science and National Research Center were credited as the source of technical expertise for the U.S. Army’s development of AIDS-like viruses. At that time, biological weapons were of great interest to Nelson Rockefeller’s protégé and Nixon administration National Security Advisor, Dr. Henry Kissinger. According to his biographer and two previous CIA directors,

William Colby and Richard Helms, Kissinger oversaw the CIA’s top secret biological weapons program called MK:NAOMI.⁵⁶ Soon after the formation of the new National Security Agency, Dr. Henry Kissinger ordered a review of biological warfare weapon’s capabilities. In the early 1970s, in keeping with U.S. government and global industrialists’ initiatives reflecting Rockefeller-directed Population Council urgings for Third World depopulation, Kissinger requested and received National Special Security Memorandum 200.⁵⁷ This document highlighted the urgency of dramatically reducing African populations. At that time, Kissinger and associates were leading advisors to the Merck pharmaceutical company whose president, George W. Merck, was America’s biological weapons industry director, as he had been since World War II.⁵⁸

While this type of evidence is purely circumstantial involving U.S. government officials with pharmaceutical companies, it is eerily coincidental that at the precise time SIV was changing into HIV in the 1970s, Dr. Kissinger was directing a national security cryptoeracy that included corporate affiliates at the biological weapons contractor and vaccine maker, Merck, as well as the traditional weapons contractor Litton Industries. Litton’s president, Roy Ash, was serving in the Nixon administration during the 1970s as an overseer of American industry. Litton’s medical subsidiary, Bionetics, not only directed the National Cancer Institute’s Simian Virus Cancer Program as previously mentioned, but simultaneously administered the biological weapons testing center at Fort Detrick, Maryland. This means that Bionetics was at once responsible in the 1970s for supplying all the chimpanzees, monkeys, monkey viruses, and primate cell lines for government funded virus cancer research, biological weapons development, and HBV vaccine manufacturing.

In 2002, the U.S. Homeland Security Act mysteriously incorporated a vaccine injury indemnity clause that freed pharmaceutical companies from liabilities associated with specific vaccine ingredients.⁵⁹ One such stated ingredient was HIV precursors in HBV vaccines. Was this an oblique admission of guilt for the accidental or intentional creation of HIV?

Conclusion

There is currently a crisis of public faith regarding chemical and biological contaminants in vaccines especially where the hands of government and large pharmaceutical companies have been tainted by controversy. Investigations and publicity about the origin of HIV do not help public confidence when it comes to enforcing the idea of taking life saving vaccines. It has been suggested that in order to restore faith and trust in medicine, it would be vital to discover the origin of HIV and subsequently improve safety standards in laboratories and vaccine production facilities. In large measure necessary safety requirements for preventing the accidental outbreak of new viruses in virology and vaccine research have already been made based on procedural errors from 1950-1980. Now it is only a matter of the medical research community to continue honestly investigating and acknowledging mistakes to set the record straight and fully appreciate the complex set of parameters that led to the origin and transmission of HIV.

All six theories for the origin of HIV offer logical and pertinent aspects contributing to a better understanding of how new infectious diseases can emerge. In essence, instead of viewing all of the alternate theories for the origin of HIV as competing theories, each should be viewed as supplemental social constructs to the clinical and genetic viral research. It is clear from the meticulous scientific efforts of Beatrice Hahn and her associates that eleven strains of HIV-I Clade M are the primary cause for the present day AIDS epidemic, and that all of these strains originated from eleven distinct strains of SIV found in chimpanzees in sub-Saharan Africa.

The natural transfer theory fits best with the origin of outlier Clades or N of HIV-I, or HIV-2, and therefore offer little in explaining the

current global pandemic involving Clade M. In these outlier cases, the natural transfer theory fits better since virulent SIVs recombined to form immunodeficiency viruses that were very slow-wasting, only sometimes lethal in humans, and were not found in large enough concentrations in body fluids to be sexually transmitted. In this way a small number of AIDS cases may have gone unnoticed in Africa for decades, thousands, if not millions of years in *Homo sapiens*.

From the standpoint of public health, a much more serious regard for the iatrogenic possibilities for the origin of HIV-1 M Clade is necessary. Preston Marx's theory that the origin of HIV was accidental, stemming from the horrifying practice of reusing contaminated plastic syringes in Africa in the 1950s, highlights one way SIVs can become more virulent by serial passage in human hosts. This prospect of serially passing human blood in Africa at the same time chimpanzees tissue cultures were being used in oral polio vaccine trials is profoundly disconcerting. Although absolute proof for the use of chimpanzee cultures in experimental oral polio vaccine has been elusive, the evidence presented by Edward Hooper in *The River* is powerful in terms of the elaborate quality of geographic case mapping. The problem is that the 1950s timeline for the tainted oral polio vaccine theory is slightly early in terms of being the etiology of an outbreak with AIDS in the 1980s. Even with this slightly early timing, it cannot be ruled out that experimental polio vaccine research conducted by Hilary Koprowski from 1957-1960 could have contributed to a first round of mixing and concentrating of SIVs.

From 1950-1980 many retroviruses were discovered in animals and studied in the lab using unsafe practices. For example Bovine Virus was an unwitting contaminant of viral culture research until it was discovered contaminating fetal calf serum in the 1970s.⁶⁰ Fetal calf serum has long been a common source of nutrients for culturing chimpanzee kidney cells in viral culture dishes used by vaccine manufacturers and retroviral researchers. In 1966 the esteemed immunologist, Sir McFarlane Burnet, warned scientists that cultivating viruses in cell lines using carbon dioxide incubators was dangerous.⁶¹ Not until an accident led to microaerosol contamination with a Marburg virus that killed seven and made thirty-one laboratory workers ill in Germany and Yugoslavia in 1967 did virologists switch to using a system of gas filled bottles closed to the atmosphere. Most pertinent to the origin of HIV, eleven different SIVs unique to chimpanzees suddenly were discovered to be related to eleven different strains in HIV-1 M Clade responsible for the AIDS pandemic in the 1980s.⁶² The "one-hundred-fifteen pound chimpanzee in the room" in the 1960s and 1970s experimental vaccine laboratory takes form in the two decades prior to the AIDS pandemic when many retroviruses were discovered and experimented with in order to investigate immunosuppression, cancer, and to develop vaccines using chimpanzee kidney tissue cultures.

Jim Moore's well documented medical/colonialism history of Africa, linking contaminated metal syringes and worker camp prostitution in the early 1900s with the origin of HIV, has quietly gained support among virologists who have adopted his theory for the early 20th century spread of SIVs while selectively choosing to omit his explanation for the origin of HIV. The colonialism theory falls apart on both counts based on the opinion of social anthropologists who stipulate that widespread urban consumption of bush meat was not common until the middle of the 20th century. Most Africans would not, therefore, have been infected with an abundant number and variety of SIVs during this time. It follows that none of the eleven SIVs that became HIV-1 Clade M were being serially passed by using contaminated metal syringes. This explains why there were no cases of AIDS charted in the early 20th century. While the horrendous practice of using contaminated metal syringes in Africa directly resulted in other kinds of infectious disease epidemics at that time, it is a difficult stretch to connect use of contaminated metal syringes in the early 20th century with the sudden emergence of eleven strains of HIV-1 Clade M observed in the 1980s.

The tainted HBV theory appears as the best, albeit untested, scientifically based idea for the origin of HIV. If proven, the punctuated origin of eleven strains of Clade M HIV-1 based on the accidental pooling of hundreds of samples of SIV in four stages of serial passage in the 1970s SVCP program, would go far to explain how eleven different subtypes of SIV suddenly were concentrated, mutated and all at once jumped the species barrier from chimpanzees to humans in a fast replicating form with large enough output to be transmitted easily between humans by sexual contact. Perhaps the best argument for the tainted HBV vaccine theory is that there is a long history of contaminated medical procedures and exploitation of people in Africa, yet AIDS did not burst on the scene until the 1980s with an extremely virulent form that took lives within 3-4 years which means the origin of HIV-1 M Clade precisely started in the late 1970s. Much credit must be given to Dr. Gerald Myers and Dr. Leonard Horowitz for sorting out the details of punctuated large scale infection due to massive serial passage of SIVs leading up to the experimental HBV vaccine campaign in homosexuals in New York City and Central Africa.

It is unfortunate that the tainted HBV vaccine theory has been strongly disavowed due to the radicalism of Dr. Horowitz in relation to also sponsoring the genocidal theory for the origin of HIV.

During the last sixty years, when the United States has been the most powerful country in the world scientifically, militarily, and economically, it has not been possible to be taken seriously if that government or concomitant rogue organization is used to explain the cause of an historical event. The answer to the origin of HIV is important because scientists have no idea of what it takes to launch animal viruses into human epidemics or pandemics. The occurrence of other viral human epidemics and pandemics is only a matter of time as the world waits for the next event. On June 5, 2011, the world will experience the thirtieth anniversary of the first cases of AIDS diagnosed in five homosexuals living in Los Angeles, California. While great advancements have been made in better understanding the virology and immunology of HIV, scientists are a long way from agreeing on the origin of this terrible virus and from finding a vaccine to end the most horrendous pandemic since the Spanish flu of 1918-1922.

Footnotes

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