

AIDS

Can Some Infants Beat HIV?

Since the beginning of the 1990s, AIDS researchers have passionately debated the possibility of natural immunity to HIV. Could some people have the ability to clear the virus from their systems? Several cases of possible virus clearance have been reported, but many researchers suspected that the initial positive HIV result was due to contamination with laboratory HIV strains and that the patient was never really infected. Now, however, two large European studies have come up with firmer evidence to support the idea of natural immunity.

Among hundreds of children born to HIV-positive mothers, the studies found 21 who initially tested positive on HIV antibody and virus tests, but later came out negative. Referring to one of the studies, Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases in Bethesda, Maryland, says: "It's pretty compelling evidence that they were able to clear the infection, or were exposed, got transient infection, and then cleared it." Other researchers, however, are still skeptical. "I think it is a fascinating finding," says virologist Steven Wolinsky of Northwestern University in Chicago, but he does not think either group has ruled out the possibility of contamination.

In the larger study, known as the European Collaborative Study (ECS), Marie-Louise Newell of London's Institute of Child Health and her colleagues studied children born to HIV-positive mothers in the United Kingdom, Sweden, Italy, and Belgium. In this week's issue of *The Lancet*, they describe finding 219 children who were antibody-positive at birth and subsequently tested negative. Such seroreversion can just indicate that the baby has cleared the mother's antibodies from its blood. However, the researchers say the polymerase chain reaction (PCR) revealed that nine of the 219 children had actually cleared the virus itself from their blood. Newell's results follow a French study published in the journal *AIDS* in December. The French team, led by virologist Dominique Dormont of the CEA, France's atomic energy authority in Paris, found that 12 children from its cohort of 188 cleared the virus from their blood after birth.

The results seem to support a claim that sparked an uproar last March. Pediatrician Yvonne Bryson at the University of California, Los Angeles (UCLA), reported a 5-year-old boy who had tested positive for HIV by antibody test and PCR as an infant but who subsequently tested negative. Critical letters appeared in the pages of *Nature* and the *New England Journal of Medicine*, suggesting that a

Baby Born With H.I.V. Cast It Off by His First Birthday, Researchers Report

Baby born with HIV casts off virus

"It's like a miracle to me and a miracle to his mother. It's every mother's dream that their child won't be infected."

By DAVID PERLMAN, San Francisco Chronicle

The case is the first of its kind to be documented with certainty, and researchers say it may provide new clues to improving the immune system's ability to fight off HIV, the virus that causes AIDS.

The fact that a baby with even an immature immune system was able to throw off the infection was amazing to me," said Dr. Yvonne Bryson, a pediatric AIDS specialist at UCLA, reporting the case in *The New England Journal of Medicine*.

mother. It is every mother's dream that their child will be infected," Bryson said.

Whether the child's immune system carries some unknown ability to reject the virus or whether the virus passed to him by his infected mother was defective are only two of the puzzles in the case, Bryson said.

According to Bryson's report, the boy's mother was definitely infected with the human immunodeficiency virus (HIV) when he was born. Although the baby's blood showed no evidence of infection at birth, tests performed by him were HIV-positive 10 days later and again at 51 days.

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Baby Clears HIV From Body, Researchers Say

Dr. THOMAS L. MAUGH II
TIME MEDICAL WRITER
UCLA FRANKLIN D. GILS
1980

Birthday, Research

might have obliterated the virus before it became entrenched. Or maybe the HIV in these infants was weaker than the virus in others who remained infected. Or it could be that the mother or child had some innate immunity to the virus, such as cells resistant to HIV or an unusually active immune system.

Whatever the mechanism, it may not always result in complete clearance of HIV. In one of the nine children in the ECS study who seemed to have cleared the virus, the number of CD4 cells—key immune system cells that HIV targets and destroys—has been falling. Immunologist Mark Goldsmith of the Gladstone Institute in San Francisco believes that the virus may be hiding in lymph tissues: “There could be a fierce battle going on, even though the [blood] sampling is not revealing the virus.”

Such insights, says Bryson, could help in the development of future treatments and vaccines. Immunity to HIV may be a rare phenomenon, she says, but it deserves close watching: “There is definitely something going on out there.”

–Clare Thompson

Clare Thompson is a writer in Goring-on-Thames.

PUBLIC HEALTH

'Natural' Cancer Prevention Trial Halted

Two years ago, nutritionists were startled when a Finnish study suggested that the common dietary supplement beta carotene might raise the risk of lung cancer in smokers. Many researchers dismissed the result as a fluke, because the chemical—the same one that makes carrots a good source of vitamin A—has long been considered a natural anti-cancer agent. It belongs to a group of compounds that scavenge oxygen in the body and theoretically block a type of cell damage that leads to cancer. But last week the Finnish result looked less anomalous.

The National Cancer Institute (NCI) announced that two clinical trials it sponsored, in which volunteers took beta carotene to prevent cancer and heart disease, had yielded negative results. One—led by Gilbert S. Omenn, dean of the School of Public Health and Community Medicine at the University of Washington, Seattle—raised concern about a possible cancer risk and was stopped 21 months early. The new data left researchers struggling to explain what happened.

"The endpoint results are troubling," said Omenn, lead investigator of the Beta Carotene and Retinol Efficacy Trial (CARET). Omenn's team gave the study's 18,314 participants—smokers and people exposed to

high levels of asbestos—daily doses of beta carotene, vitamin A, or a placebo for about 8 years. Animal data suggested that the treated groups would have fewer malignancies. But the CARET team found that those taking beta carotene had 28% more lung cancers and 17% more deaths than the group taking a placebo. Omenn stopped the trial, which had cost \$42 million, on 10 January. “The bottom line is we do not know why these effects were observed,” he said.

The second beta carotene study, the \$22.5 million Physicians' Health Study, involved 22,071 doctors, 11% of them smokers. The subjects took beta carotene or a placebo every other day for 12 years. While the regimen didn't do any harm, it didn't seem to help fend off cancer or cardiovascular disease either, a finding that director Charles Hennekens of Brigham and Women's Hospital in Boston called "disappointing."

Concludes NCI Director Richard Klausner, who said recently that he wants to shift funds from this kind of contract research to investigator-initiated grants: "Beta carotene is no magic bullet." To him, "The message is clear: Smoking places you at increased risk, and there is no substitute for stopping."

—Kim Peterson