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PEDIATRIC HIV CARECONFERENCE COVERAGE

Scientists Report Documented Sustained HIV Remission in a 4-Year-Old Child

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Many HIV researchers recall with disappointment the much-publicized story of the Mississippi baby—a newborn seemingly cured of HIV after she was treated with antiretroviral therapy (ART), only to experience HIV viral rebound after 2.5 years without treatment.

Now, new research presented at the 2020 Conference on Retroviruses and Opportunistic Infections (CROI) offers new hope that newborn infants treated with ART can achieve long-term HIV remission, though only time will tell if this approach can ever result in a meaningful cure.

The poster, titled, "Sustained Remission in a 4-year-old HIV-Infected Child Treated in First Year of Life," describes a case study that surpasses the record set by the Mississippi baby, with this child remaining clinically well for at least three years without ART. The case study was led by Gloria P. Heresi, M.D., Pediatric Infectious Disease Specialist at the University of Texas at Houston.

With the advent of ART, the rate of perinatal transmission of HIV in the United States has fallen to less than 2%. However, there are still some families that slip through the cracks in the health care system, leaving doctors scrambling to do everything they can to prevent HIV infection among newborns delivered to untreated mothers.

Four years ago, a newborn baby was delivered to a mother who had not received any prenatal care. The mother had been diagnosed with HIV six years prior, but had not been treated. When she delivered her baby, she had a viral load of 14,400 HIV RNA copies/mL and 27% CD4.

According to December 2019 guidelines from the Department of Health and Human Services, infants born under these circumstances should be given "empiric HIV therapy," which is a three-drug ART intended to act as preliminary treatment for those who are presumed to be positive, but also providing the added benefit of potentially acting as prophylaxis for those who never seroconvert.

In this case, doctors started ART in the infant 33 hours after birth. Unfortunately, blood samples taken on the first and second day of the child's life were not evaluated for the presence of HIV due to "technical issues," according to the case study.

Two weeks after birth, a successful test found HIV DNA in the child's blood. Researchers then re-screened the dried blood spots that had been preserved from the first failed testing attempt, and discovered that the blood sample also tested positive for HIV DNA.

After one year of ART, the mother discontinued her child's treatment. Remarkably, the child's HIV antibodies became negative a few months later—and remained that way. For the next three years, the child maintained an undetectable viral load. In addition to routine clinical assays, clinicians tested the child using droplet digital PCR, which is a more precise way to quantify nucleic acids.

To whatever extent possible, Heresi and colleagues will continue to monitor the child for signs of viral rebound, and they are investigating exactly how and why this child has been able to maintain viral control.

Perhaps in recognition of the false hope of the Mississippi baby case, Heresi and colleagues are stopping short of saying this new infant has been cured of HIV. However, this case study adds new evidence to support the concept of aggressive ART immediately after birth among children born to HIV-positive mothers who have not received prenatal care and are not on HIV treatment.