Rapidly Treating Infants Born With HIV Shrinks the Viral Reservoir

Treating within hours—rather than the recommended weeks—of birth also prompts an improved immune response against the virus.

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Treating infants born with HIV within hours of birth, rather than within weeks as recommended by the World Health Organization, leads to a much smaller viral reservoir as well as an improved immune response against the virus.

The core element of the viral reservoir is the collection of latently infected immune cells which, because they are not replicating new copies of virus, evade the effects of antiretrovirals (ARVs), which only work in active cells. Smaller reservoirs likely better position an individual living with HIV to benefit from therapies that would put them in a state of posttreatment control of the virus, in which HIV remains highly suppressed without standard ARV treatment.

If infants who contract HIV from their mothers are not treated, they can experience a rapid and fatal progression of immune deficiency.

Pilar Garcia-Broncano, PhD, of Massachusetts General Hospital and Harvard Medical School, conducted a two-year study in Botswana of 20 infants who contracted HIV from their mothers. Ten of these infants were started on treatment within an average of seven hours of birth, and the remaining 10 were started on ARVs within an average of four months of birth. The study also included 54 infants who were not born with HIV.

Publishing their findings in Science Translational Medicine, the study authors found that after 96 weeks of life, the rapidly treated infants, compared with the infants treated months after birth, had a much smaller viral reservoir—an “extremely small reservoir,” in fact. Earlier treatment was also associated with a reduction in abnormal T-cell immune activation and more functional HIV-specific T-cell responses and antiviral responses in the innate immune system.

“Together, these data offer rare insight into the evolutionary dynamics of viral reservoir establishment in [newborns] and provide strong empirical evidence supporting the immediate initiation of ART for [newborns] with HIV-1 infection,” the study authors concluded.

Follow-up studies of these infants could identify additional benefits of rapid HIV treatment that

may develop as they grow up.

To read a press release about the study, click here.

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