Single Antibody Injection Rids Infant Monkeys of Simian HIV

Researchers infected 1-month-old primates with HIV-like virus and 30 hours later injected them with a pair of antibodies.

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A single injection of a pair of antibodies given 30 hours after infection with SHIV, a hybrid simian-human form of HIV, can rid infant monkeys of the virus. This finding could lead to a simple and highly effective prophylactic that infants born to HIV-positive mothers could receive promptly after birth to prevent mother-to-child transmission of the virus.

Taking HIV treatment during pregnancy is highly effective at preventing transmission of the virus to infants, so the need for postpartum prophylactics is great if the HIV-positive mother was not on antiretrovirals (ARVs) prior to giving birth.

Publishing their findings in Nature Communications, researchers exposed 29 1-month-old rhesus macaques to SHIV. After the viral exposure, five of the monkeys received no treatment and served as control animals. Twelve monkeys received four injections of 5 milligrams per kilograms of body weight of the antibodies PGT121 and VRC07-523, receiving the injections 48 hours after being exposed to SHIV (day 2) and on day 4, day 7 and day 10. Six animals received a single injection of 20 mg per kg of body weight of the dual antibody cocktail 30 hours after exposure to the virus. And six more monkeys received a daily triple ARV regimen starting 48 hours after infection and continuing to the three-week postinfection mark.

Half of the monkeys that received the four antibody shots starting 48 hours after infection ultimately had a chronic SHIV infection at the end of the study. None of the animals that received the single injection 30 hours after infection became chronically infected with the virus. Nor were any of the animals that received the triple ARV regimen chronically infected.

“These promising findings could mean babies born to HIV-positive mothers can still beat HIV with less treatment,” the study’s corresponding author, Nancy Haigwood, PhD, a professor of pathobiology and immunology in the Oregon Health & Science University School of Medicine, said in a press release.

In a previous study by the same research team, four doses of the same pair of antibodies started 24 hours after exposure to SHIV prevented chronic infection.

Going forward, the research team intends to investigate whether other antibodies, or a cocktail of antibodies and ARVs, could prove even more effective than the treatments assessed in this study.

To read the study, click here.

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