Primate Studies Raise Hope of Eventual Quarterly Injected PrEP

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Injections of a long-acting formulation of the integrase inhibitor cabotegravir (GSK1265744) showed high efficacy as pre-exposure prophylaxis (PrEP) to prevent vaginal acquisition of HIV-like virus among monkeys, HIVandHepatitis reports. Publishing their findings in Science Translational Medicine, researchers from two primate studies of cabotegravir reached conclusions that suggested that quarterly injected PrEP (four times a year) may one day become a reality for humans.

Both of the studies were previously reported at the 2014 Conference on Retroviruses and Opportunistic Infections.

In one study, researchers studied 12 female rhesus macaques who were receiving the hormonal contraceptive Depo-Provera (depot medroxyprogesterone acetate), which research suggests facilitates vaginal viral acquisition. Eight of the monkeys received injections of long-acting cabotegravir at the study's outset and at week four, while the other monkeys served as controls.

The researchers found that the general drug levels as well as tissue levels of cabotegravir were lower among these females than among males macaques previously studied, and that the levels in cervical tissue were one-fifth that of the levels in the females' rectal tissue.

After the first injection of cabotegravir, the monkeys were vaginally exposed to SHIV, an HIV-like human-monkey hybrid virus. None of the monkeys were infected. Three additional high-dose vaginal exposures to SHIV after the second dose of cabotegravir infected two of the eight monkeys. Meanwhile, all four of the control monkeys were infected after the first vaginal exposure to the virus.

In a second study, researchers treated six female pigtail macaques with cabotegravir injections every four weeks. Another six macaques received placebo injections at the same schedule. After the cabotegravir treatment had begun, the investigators vaginally exposed all the monkeys to SHIV twice a week for up to 11 weeks. They found that blood levels of the drug that matched those achievable with quarterly injections among humans prevented SHIV infection in all six of the treated monkeys. The control monkeys were infected after a median of four exposures.

"While we are still a long way off from showing that this drug works for HIV prevention in humans,

our hope is that it may one day offer high-risk women, as well as men, an additional option for HIV prevention," Martin Markowitz, a professor at Rockefeller University and Aaron Diamond AIDS Research Center, and one of the first study's authors, said in a press release. "One of the lessons we have learned from contraception is the more options available, the better. We are hoping for the same in HIV prevention—more options and better results."

To read the HIVandHepatitis story, click here.

To read the first study, click here.

To read the second study, click here.

To read the press release, click here.
