No Evidence of Superinfection Between Long-Term Partners

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Becoming infected with a second strain of HIV after a person is already infected—called superinfection—may not be a risk for couples who are both HIV positive and don't use condoms, according to a study published in the October 2008 issue of PLoS Pathogens and reported by aidsmap.com. The University of California in San Francisco (UCSF) study authors suggest that repeated sexual exposure to the other partner's virus, in these circumstances, may actually prime the immune system just enough to protect each partner against superinfection.

Though cases of HIV superinfection have been documented, few studies have determined how likely it is to occur. Some studies have found that superinfection may occur in up to 5 percent of people with HIV each year. There's little evidence, however, that becoming superinfected with another person's strain of the virus has negative health consequences.

To determine the impact of repeated sexual exposure to a second strain of HIV, Christian Willberg, PhD, and his colleagues at UCSF examined CD4 and CD8 cell responses in 49 HIV-positive volunteers who were in long-term relationships with an HIV-positive partner and with whom the volunteers did not use condoms during sexual activity. Twenty-nine study volunteers had partners who were using antiretroviral (ARV) therapy and had undetectable viral loads; the other 20 had partners with detectable virus in blood samples.

Willberg and his colleagues found no evidence of superinfection in either group. They did, however, find that the volunteers who had a partner with detectable virus were also more likely to show signs of immune activation toward their partner's virus. Also, the volunteers who had unprotected sex, and especially unprotected receptive sex, more frequently had the strongest immune responses.

This strongly indicates that these volunteers had been repeatedly exposed to their partner's HIV. Willberg's team believes these individuals technically were infected with their partner's virus, but that the infection was never able to take hold. They speculate that such repeated, "localized" superinfections of cells in the gut and rectum might actually have protected the volunteers from chronic body-wide superinfection.

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