

Some HPV infection may be linked to increased risk of HIV acquisition in women

April 13 2010

(PhysOrg.com) -- UCSF researchers have found a novel association between human papillomavirus (HPV) infection and increased HIV acquisition in women. The study team also identified specific types of HPV associated with HIV infection, suggesting a biological basis for HIV transmission to women.

Study results were reported April 8, 2010, in [PLoS ONE](#) and are available [online](#).

“The finding is not conclusive about the role of HPV in [HIV transmission](#), but may offer insights into the mechanism of HIV transmission,” said Karen Smith-McCune, MD, PhD, associate professor in the UCSF Department of Obstetrics, Gynecology and Reproductive Sciences and the UCSF Helen Diller Family Comprehensive Cancer Center. “Given the high prevalence of HPV infection in women, I am hopeful that future clinical trials on HIV prevention will address the potential importance of HPV as a risk factor.”

HPV, the most common sexually transmitted infection, is passed on through genital contact, according to the Centers for Disease Control and Infection; there are more than 40 HPV types that can infect the genital areas of males and females.

Other sexually transmitted infections, such as the [herpes simplex virus](#), previously have been linked to an increased risk of [HIV infection](#), yet little is known about the role of HPV in HIV acquisition, the authors

said.

The UCSF study was performed as a sub study within a randomized trial in Zimbabwe. UCSF researchers followed 2,040 HIV-negative Zimbabwean women whose average age was 27 years. Enrollment in the sub study was staggered over a one-year period; the first group of participants was followed for 24 months and the last enrolled group followed for 12 months. All participants were scheduled for follow-up visits every three months.

Most HPV infections are cleared by a person's immune system, the researchers said. They theorize that this process may put women at increased risk for HIV, which targets cells of the immune system.

In the study group, women with persistent HPV infections - associated with a higher chance of developing precancerous lesions - were not determined to be at increased risk of HIV acquisition. HPV 16 and 18, the most common types of HPV associated with cancer and the target of recent vaccines, also were not associated with increased HIV risk.

However, researchers found a relatively high prevalence of HPV types 58 and 70 among the women in the study group, and non-persistent infection with these particular types and with HPV type 31 were associated with an increased risk of HIV transmission. A woman's inflammatory response to HPV may make their target cells more receptive to HIV, according to the researchers.

“One obvious explanation for these associations is that [women](#) acquired both HPV and HIV from a high-risk partner,” said George Sawaya, MD, study co-author and professor in the UCSF Department of Obstetrics, Gynecology and Reproductive Sciences, UCSF Helen Diller Family Comprehensive Cancer Center, and the UCSF Department of Epidemiology and Biostatistics.

“The link between specific HPV types and acquisition, however, is intriguing and needs to be validated in other studies,” he said.

The team suggests that further investigation into the distribution of HPV types among various populations, and into HPV type-specific differences in immune responses to HPV infection, will shed more light on possible biological links between HPV infection and HIV transmission.

Provided by University of California, San Francisco

Citation: Some HPV infection may be linked to increased risk of HIV acquisition in women (2010, April 13) retrieved 28 April 2024 from <https://medicalxpress.com/news/2010-04-hpv-infection-linked-hiv-acquisition.html>

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