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Herpes & HIV

High frequency of CD8+ cytotoxic T-lymphocyte precursors specific for herpes simplex viruses in persons with genital herpes

Posavad CM, Koelle DM, Corey L

Abstract

Herpes simplex virus (HSV)-specific CD8+ cytotoxic T lymphocytes (CTL) have rarely been detected in humans, presumably because of virus-induced mechanisms that downregulate major histocompatibility complex class I expression. We have developed a method that has allowed us to consistently demonstrate HSV-specific CD8+ precursors CTL (pCTL) from HSV type 1- and 2-seropositive persons. Major histocompatibility complex-restricted HSV-specific CD8+ pCTL were found in 10 consecutively tested HSV type 1- and 2-seropositive subjects at frequencies ranging from 1 in 21,000 to 1 in 300 (median, 1 in 6,000) versus a pCTL frequency of 1 in 100,000 in HSV-seronegative donors. These results suggest that CD8+ CTL are important effector cells in resolving HSV lesions.

Frequent recovery of HIV-1 from genital herpes simplex virus lesions in HIV-1-infected men

Schacker T, Ryncarz AJ, Goddard J, Diem K, Shaughnessy M, Corey L

Abstract

CONTEXT: Genital ulcer disease has been epidemiologically linked as a risk factor in the transmission of the human immunodeficiency virus 1 (HIV-1). While herpes simplex virus 2 (HSV-2) is the most common cause of genital ulcers, no study has systematically evaluated the frequency or titer of HIV-1 virus in HSV-2 lesions. **OBJECTIVE:** To compare lesional HIV-1 RNA levels during and after genital HSV-2 reactivation and to evaluate the frequency, titer, and duration of HIV-1 RNA shedding in lesions due to HSV-2. **DESIGN:** Convenience sample. **SETTING:** Sexually transmitted disease research clinic at the University of Washington, Seattle. **PATIENTS:** Twelve HIV-infected men with a history of symptomatic HSV-2 infection who underwent daily sampling of genital lesions for HIV-1 RNA by polymerase chain reaction assay and HSV-2 by culture. **MAIN OUTCOME MEASURE:** Detection of lesional HIV RNA and HSV-2. **RESULTS:** HIV-1 RNA was detected from lesional swabs in 25 of 26 consecutively studied HSV-2 episodes and on 67% of days in which genital lesions were noted. The HIV-1 RNA titers in lesional swabs exceeded 10000 copies/mL of swab sample in 75% of samples (range, 2.2-3.2 x 10⁵ copies/mL of swab sample). HIV-1 RNA in genital lesion swabs was seen in persons with high and low titers of plasma HIV-1 RNA and was not associated with plasma HIV-1 RNA levels.

CONCLUSIONS: HIV-1 virions can consistently be detected in genital ulcers caused by HSV-2, which suggests that genital herpes infection likely increases the efficiency of the sexual transmission of HIV-1.

Frequency of symptomatic and asymptomatic herpes simplex virus type 2 reactivations among human immunodeficiency virus-infected men

Schacker T, Zeh J, Hu HL, Hill E, Corey L

Abstract

Herpes simplex virus (HSV) infection is common in persons coinfecting with human immunodeficiency virus (HIV). In a prospective study, daily viral cultures of the mouth, genitals, and rectum were collected from 68 HIV-positive and 13 HIV-negative men who have sex with men. Subjects completed a median of 57 days of follow-up. Anogenital HSV-2 cultures were positive on 405 (9.7%) of 4167 days for HIV-positive men and on 24 (3.1%) of 766 days for HIV-negative men. Most reactivations were perirectal and subclinical. Risk factors for increased HSV-2 shedding among HIV-positive men were low CD4 cell count (odds ratio, 2.5; 95% confidence interval, 1.2-5.4) and antibodies to both HSV-1 and HSV-2 versus HSV-2 only (odds ratio, 1.9; 95% confidence interval, 1.0-3.7). Three isolates obtained from 3 separate subjects were resistant to acyclovir. Thus, subclinical HSV-2 reactivation is an important opportunistic infection in persons with HIV infection. Further studies are necessary to determine the impact of subclinical HSV-2 reactivation on the natural history of HIV infection.



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