

# Herpes simplex virus type 2 and risk of intrapartum human immunodeficiency virus transmission.

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## Abstract

### OBJECTIVE:

To determine whether herpes simplex virus type 2 (HSV-2) infection was associated with risk of intrapartum human immunodeficiency virus type 1 (HIV-1) transmission and to define correlates of HSV-2 infection among HIV-1-seropositive pregnant women.

### METHODS:

We performed a nested case control study within a perinatal cohort in Nairobi, Kenya. Herpes simplex virus type 2 serostatus and the presence of genital ulcers were ascertained at 32 weeks of gestation. Maternal cervical and plasma HIV-1 RNA and cervical HSV DNA were measured at delivery.

### RESULTS:

One hundred fifty-two (87%) of 175 HIV-1-infected mothers were HSV-2-seropositive. Among the 152 HSV-2-seropositive women, nine (6%) had genital ulcers at 32 weeks of gestation, and 13 (9%) were shedding HSV in cervical secretions. Genital ulcers were associated with increased plasma HIV-1 RNA levels ( $P=.02$ ) and an increased risk of intrapartum HIV-1 transmission (16% of transmitters versus 3% of nontransmitters had ulcers;  $P = .003$ ), an association which was maintained in multivariable analysis adjusting for plasma HIV-1 RNA levels ( $P=.04$ ). We found a borderline association for higher plasma HIV-1 RNA among women shedding HSV ( $P=.07$ ) and no association between cervical HSV shedding and either cervical HIV-1 RNA levels or intrapartum HIV-1 transmission ( $P=.4$  and  $P=.5$ , [corrected] respectively).

### CONCLUSION:

Herpes simplex virus type 2 is the leading cause of genital ulcers among women in sub-Saharan Africa and was highly prevalent in this cohort of pregnant women receiving prophylactic zidovudine. After adjusting for plasma HIV-1 RNA levels, genital ulcers were associated with increased risk of intrapartum HIV-1 transmission. These data suggest that management of HSV-2 during pregnancy may enhance mother-to-child HIV-1 prevention efforts.