

GENITAL HERPES (HSV-2) EXPOSURE CORRELATES STRONGLY WITH PREVALENT HIV-1 INFECTIONS IN SOUTH AFRICAN BLOOD DONORS: A PILOT STUDY

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Background: An explosive increase in HIV-1 clade C prevalence in South Africa over the last decade has coincided with an increase in Herpes Simplex type 2 (HSV-2) infections suggesting that genital ulceration, as a known facilitator of HIV-1 transmission, may be responsible in part for the rate of expansion of the epidemic. HSV-2 infection or seroconversion may therefore be a surrogate marker of risk for HIV-1 infection. **Aim:** In this study we ask whether evidence of prior HSV-2 exposure is a marker for HIV-1 prevalent infections in South African blood donors.

Methods: HSV-2 serological status was determined using the Kalon HSV-2 IgG EIA (Aldershot, United Kingdom) test for antibodies to HSV-2 type-specific gG2 glycoprotein at the National Institute for Communicable Diseases, Johannesburg, South Africa, according to manufacturer's instructions. 106 HIV-1 infected blood donors were identified by HIV-1 serology (Abbott Prism HIV O Plus, Abbott Park, Ill) and confirmed by HIV-1 single donor nucleic acid testing (Procleix Tigris System, Chiron Corp., Emeryville, CA). HIV-1 negative control groups were 106 donors matched for gender, race and donation frequency, plus 200 randomly selected donors.

Results: Overall HSV-2 prevalence is 63.2%, 19.6% and 7.5% in the HIV-1 infected donors, their matched uninfected pairs and in random HIV-1 negative donors respectively. HSV-2 infection is significantly associated with HIV-1 prevalent infections when broken down by age, race and donation frequency. HSV-2 serology demonstrates 63.2% sensitivity and 88.4% specificity as a surrogate marker for prevalent HIV-1 infection using the recommended signal/cutoff ratio (S/CO = 1).

Conclusion: Serological evidence of HSV-2 exposure closely correlates with HIV-1 prevalent infection in South African blood donors suggesting that genital ulceration may facilitate HIV-1 transmission. Further studies examining the incidence of HIV-1 infection in HSV-2 infected donors and the prevalence of HSV-2 infection in recently HIV-1 infected donors are warranted. HSV-2 serology may be useful as a surrogate test for HIV-1 infection to reduce the risk of window period transmission in resource limited African countries.

Table 1: Prevalence of HSV-2 IgG antibodies in HIV-1 infected and matched uninfected donors.

	HIV (+) Donors			Matched HIV (-) Donors			Odds Ratio (C.I.)
	Total # Donors	HSV-2 (+)	%	Total # Donors	HSV-2 (+)	%	
Male	52	31	59.6	49	12	24.5	4.5 (1.9-10.7)
Female	54	36	66.7	53	8	15.1	11.2 (4.4-29)
New Donor	67	49	73.1	65	15	23.1	9.1 (4.1-20)
Lapsed Donor	21	9	42.9	19	5	26.3	2.1 (0.6-8.0)
Repeat Donor	18	9	50.0	18	0	0.0	>17 (1.8-156)
White	28	14	50.0	28	1	3.6	27.0 (3.2-227)
Asian	1	0	0.0	1	0	0.0	-
Mixed	9	5	55.6	8	1	12.5	8.7 (0.7-104)
Black	68	48	70.6	65	18	27.7	6.3 (2.9-13.3)
Overall	106	67	63.2	102	20	19.6	7.0 (3.7-13.2)