

PERFORMANCE OF HERPESELECT® ELISA FOR HSV-2 DIAGNOSIS IN PATIENTS ATTENDING A CLINIC FOR PERSONS WITH HIV

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ABSTRACT

Background: A growing body of evidence demonstrates potentially important interactions between HIV and Herpes Simplex Virus (HSV). Because HSV/HIV coinfection is common, tests that rapidly and accurately identify HSV in HIV-infected persons are needed. Recent studies performed on other populations suggest that persons with positive type-specific ELISA tests for HSV-2 in the “low positive” range often have falsely positive tests. The objectives of this study were (1) to determine the prevalence of HSV-2 in HIV positive patients receiving care in an HIV-dedicated clinic who were without a history of ano-genital herpes and (2) to evaluate the performance of the HerpeSelect® HSV-2 serological tests for HSV-2 diagnosis in a population of HIV positive patients.

Methods: As part of an ongoing study, sera from persons with HIV and no history of genital herpes were tested by enzyme-linked immunosorbent assay (ELISA) for antibodies to HSV-2 (Focus Diagnostics HerpeSelect® HSV-2 ELISA IgG). The SureVue® rapid HSV-2 test was used for confirmatory testing of all specimens yielding an index value above the recommended cut-off.

Results: To date, 147 HIV positive participants denying a history of genital herpes have been screened for antibodies to HSV-2. Sixty-five percent (N = 95) of participants were positive by HerpeSelect® HSV-2 ELISA. The mean index value from positive sera was 10.90 (Range: 1.29-27.66). Nine specimens, positive by HerpeSelect®, yielded index values of ≤ 3.0. The SureVue® assay was positive in all but 6 (89 of 95) samples which were positive by HerpeSelect®. All samples read as negative by SureVue® had index values by HerpeSelect® of <3.0.

Conclusion: HSV-2 seropositivity is common among HIV-infected patients attending our clinic who deny a history of ano-genital herpes. Equivocal results defined as an index value of <3.0 by HerpeSelect® are uncommon but when present warrant confirmation using an alternative testing method.

BACKGROUND

- The prevalence of HSV-2 and HIV co-infection has been reported as high as 60 - 80%.
- Data suggests that HSV-2 and HIV co-infection have both public health and clinical importance because of interactions between these viruses that potentially influence both HSV-2 and HIV infection, disease severity and disease progression. Therefore, it is important to identify co-infected persons.
- Although western blot might be considered the gold standard for HSV-2 diagnosis, it is neither widely available nor FDA approved. Readily available type-specific HSV-2 diagnostic tests including HSV-2 type specific ELISA and point-of-care tests are FDA approved for testing in adults.
- Recent studies performed on other populations suggest that persons with positive type-specific ELISA tests for HSV-2 in the “low positive” range often have falsely positive tests.
- The accuracy of type-specific serological tests, including the rate of low positives reported by ELISA and the correlation between results reported by type-specific ELISA and point-of-care tests, have not been sufficiently evaluated in the HIV positive population.

Objectives

- To determine the prevalence of HSV-2 in HIV positive patients receiving care in an HIV-dedicated clinic who were without a history of ano-genital herpes.
- To evaluate the performance of the HerpeSelect® HSV-2 and Sure-Vue® serological tests for HSV-2 diagnosis in a population of HIV positive patients.

METHODS

- Sera from 147 persons with HIV and no history of genital herpes were collected as part of an ongoing trial.
- Sera was tested by enzyme-linked immunosorbent assay (ELISA) for antibodies to HSV-2 (Focus Diagnostics HerpeSelect® HSV-2 ELISA IgG). Results are reported based on the package insert’s recommended cut-off values (Table 1).

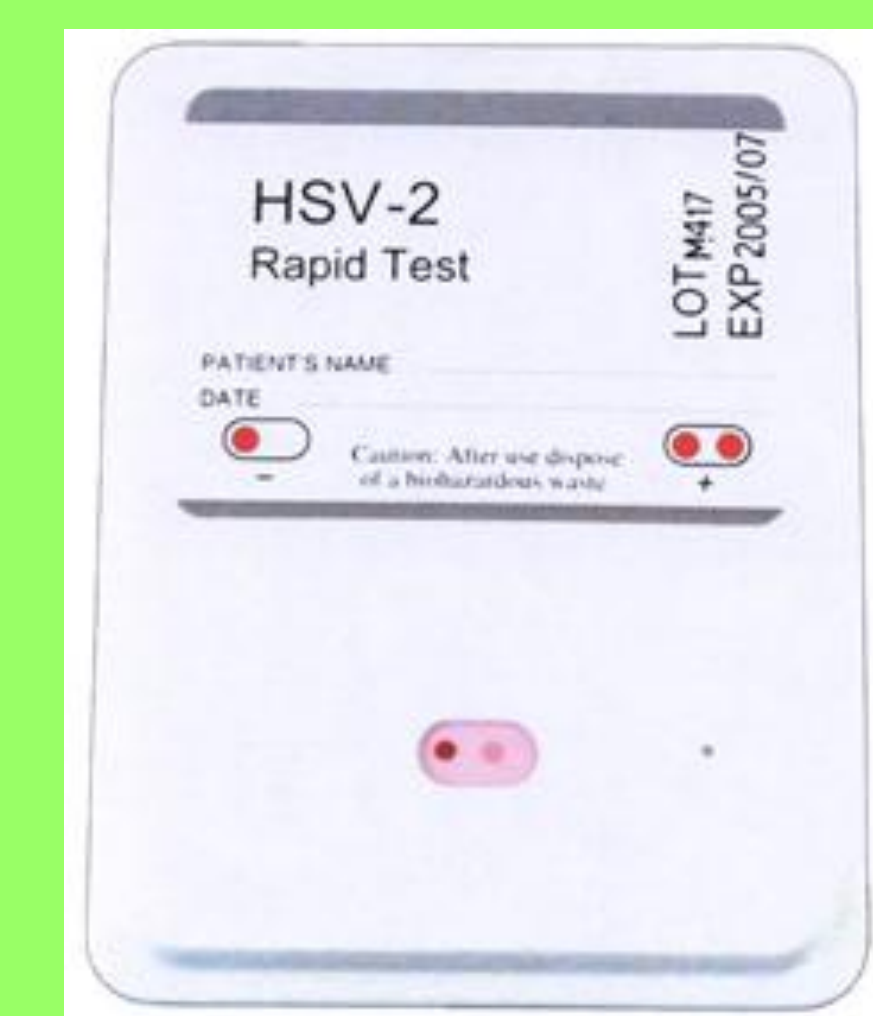
Table 1. Interpretation of Focus Diagnostics HerpeSelect® HSV-2 ELISA IgG*

>1.10	Positive. An index value of >1.10 is presumptive for the presence of IgG antibodies to HSV-2.
≥0.9 and ≤1.10	Equivocal. An index value of ≥0.9 and ≤1.10 is considered an equivocal result. These samples should be re-tested. If on re-testing, the result remains equivocal, a second sample should be drawn 4 to 12 weeks later and testing repeated. Or the specimen may be tested using another method such as Western Blot.
<0.90	Negative. An index value of <0.90 indicates no IgG antibodies to HSV-2 were detected.

Source: HerpeSelect® 2 ELISA IgG Package Insert (Product Code EL0920G, Rev. 1).

- The Sure-Vue® rapid HSV-2 test was used for confirmatory testing of all specimens yielding an index value above the recommended cut-off. Results were recorded as positive when both the control and patient sample produced the expected color change (Figure 1).
- Results from each test were compared.

Figure 1. Sure-Vue® HSV Test Result



Source: www.herpesdiagnosis.com

RESULTS

Table 1. Study participant characteristics.

	Total (N = 147)
Race/Ethnicity*	
African American	63 (43)
Caucasian	83 (56)
Hispanic	1 (1)
Gender*	
Female	25 (17)
Male	122 (83)
Age**	43 (20 - 62)
CD4 Count#	
Absolute	638 (205 - 1,327)
Percentage	31 (11 - 59)
VL**	<48 (<48 - 56,800)

*N (Percent); **Median (Range), #Average (Range)

- Characteristics of participants screened for HSV-2 are representative of the clinic population currently on anti-retroviral therapy.

Table 2. Comparison of Results from HerpeSelect® and Sure-Vue®

	HerpeSelect® N = 147	Sure-Vue HSV2® N = 147
Negative	52 /35 (0.17)*	58/39**
Positive	95/65 (10.90)*	89/61**

*N/Percent (Mean Optical Density)

**N/Percent

- There was a 94% correlation between positive results obtained by HerpeSelect® and Sure-Vue HSV2®.

Table 3. O.D. by HerpeSelect® of Sera with Discordant Results

	Optical Density	Result by HerpeSelect®	Result by SureVue®
1	1.30	P	N
2	1.97	P	N
3	2.18	P	N
4	2.43	P	P
5	2.50	P	N
6	2.57	P	N
7	2.60	P	P
8	2.67	P	N
9	2.72	P	P
Summary		HerpesSelect®	SureVue HSV2®
Negative*		0	6 (67)
Positive*		9 (100)	3 (33)

*N (Percent)

- Discordant results occurred only in samples with an Optical Density of <3.0 by HerpeSelect®.
- Concordant results were obtained between tests in only 33% of samples in which the Optical Density was <3.0 by HerpeSelect®.

CONCLUSIONS

- HSV-2 seropositivity is common among HIV-infected patients attending our clinic despite denying a history of ano-genital herpes.
- For samples with an optical density >3.0 by HerpeSelect®, there was 100% correlation with the Sure-Vue HSV2® point-of-care test.
- In HIV infected individuals, optical densities of <3.0 by HerpeSelect® should be considered equivocal and warrant confirmatory testing by an alternative method.

REFERENCES

- Available upon request.