Abstract #13

Reactivity of an Array of HIV Antibody Assays with Specimens from HIV Acutely Infected Individuals

Abstract Category:	Performance of Point of Care Strategies Using Combinations of Rapid Tests
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OBJECTIVE

To evaluate the performance of an array of HIV antibody assays using acute and follow-up plasma specimens from HIV acutely infected individuals.

METHODS

Forty-two individuals were identified to be acutely HIV infected using a pooled specimen RNA testing strategy. The acute specimens were initially screened non-reactive for HIV antibody by either of three assays, 22 by a first generation EIA (Vironostika HIV-1 Microelisa), 2 by a third generation EIA (Genetic Systems HIV1/2 plus O) and 18 by a rapid test (OraQuick Advance Rapid HIV 1/2) before testing positive for HIV-1 RNA (Versant HIV-1 RNA 3.0). The 30 follow-up specimens were collected from 10 to 225 days after the acute specimen collection date. All specimens were retrospectively tested by an array of HIV antibody assays which included the afore mentioned assays, western blot (Cambridge Biotech HIV-1 or Genetic Systems HIV-1 Western Blot), Uni-Gold Recombigen HIV Rapid, and Clearview HIV1/2 Stat-Pak.

RESULTS

The HIV1/2 plus O EIA detected antibody in 14 acute specimens and all 30 follow-up specimens. The Vironostika EIA failed to detect antibody in any of the 42 acute specimens and only detected antibody in 22 follow-up specimens. Of the three waived rapid tests, Uni-Gold demonstrated greater sensitivity than the Oraquick and Stat-Pak rapid tests. Uni-Gold detected antibody in 11 acute and all 30 follow-up specimens. Both Oraquick and Stat-Pak found only one identical acute specimen to be reactive. Twenty-six follow-up specimens were reactive by Oraquick, whereas 29 follow-up specimens were reactive by Stat-Pak. Two of the 11 acute specimens reactive by Uni-Gold were non-reactive by the HIV-1/2 plus O EIA. However, five other specimens that were reactive by the HIV-1/2 plus O EIA were non-reactive by the Uni-Gold Rapid Test. The western blot assays were unable to confirm any of the acute and 7 follow-up specimens that were reactive by the third generation EIA or rapid tests.

CONCLUSIONS

Due to differences in sensitivity between recently developed assays and older assays, existing HIV testing algorithms need to be updated. Western blot may not be sensitive enough to confirm third generation EIA and rapid test reactive specimens from recently infected individuals. HIV RNA testing should be considered as an option to supplement or replace western blot as a confirmation test for HIV infection. Differences in rapid test sensitivity should be considered when developing multi-rapid test algorithms. Discordant rapid test results may still indicate infection with HIV.