

Abstract

Screening of blood and blood products for human immunodeficiency virus (HIV) is routinely performed using the enzyme-linked immunosorbent assay (ELISA), and the results confirmed by western blot (WB). However, western blot is expensive and mostly performed in developed countries. A technique more superior or comparable to WB and adaptable to developing countries must be sought. In an effort to identify such a technique, this study determined the efficiency of indirect immunofluorescence assay (IFA) to detect antibodies to HIV-1. Blood obtained from 400 patients seeking treatment for sexually transmitted infections at a special treatment clinic (STC) in Nairobi were tested for anti-HIV-1 antibody by ELISA, particle agglutination (PA) and IFA. Samples that were discordant were further tested using WB and polymerase chain reaction (PCR). The statistical analysis was done using STATA version 6.0 software. The overall prevalence of HIV-1 in the study group was 38.7%. The overall sensitivity and specificity of IFA was 98.7% and 99.6% respectively, while positive and negative predictive values were 98.7% and 99.6% respectively. The efficiency of the IFA test was 99.3%. Two hundred and twenty samples (57.5%) were PA and WLISA HIV seronegative. One hundred and fifty samples (37.5%) were PA and ELISA seropositive. The 30 samples (7.5%) that were discordant between PA and ELISA were further tested using WB. A further six samples that were concordant between PA and ELISA but IFA discordant were tested with WB. Out of 160 samples that were HIV antibody positive by PA, 10 (6.3%) were HIV antibody negative by PA. Out of 240 samples that were HIV antibody negative by PA, 1 (0.4%) was HIV antibody positive by IFA. Out of 170 samples that were HIV antibody positive by ELISA, 22 (5.8%) were HIV antibody negative by ELISA, 3 (1.3%) were HIV antibody negative by IFA. All samples that were HIV seronegative by WB were also HIV seronegative by IFA. However, two (5.6%) samples were HIV seronegative by IFA but seropositive by WB. These samples were further tested using PCR. One samples was PCR positive and the other negative. The IFA was superior to WB with respect to the ease of use and rapidity. This study demonstrates that IFA can be used as a primary test with western blot as a second confirmatory test to confirm HIV serostatus. The IFA technique can also be used as a serological assay for both screening and epidemiological purposes