

Abstract

BACKGROUND:

Ninety percent of HIV-1-infected children live in sub-Saharan Africa. In the absence of diagnosis and antiretroviral therapy, approximately 50% die before 2 years.

METHODS:

We evaluated sensitivity and specificity of clinical algorithms for diagnosis of HIV-1 infection and antiretroviral therapy initiation among HIV-1-exposed children aged less than 18 months. Children were identified with routine HIV-1 testing and assessed using 3 sets of criteria: (1) Integrated Management of Childhood Illnesses (IMCI), (2) World Health Organization Presumptive Diagnosis (WHO-PD) for HIV-1 infection, and (3) CD4 T-lymphocyte cell subsets. HIV-1 infection status was determined using DNA polymerase chain reaction testing.

FINDINGS:

A total of 1418 children (median age 5.4 months) were screened for HIV-1 antibodies, of whom 144 (10.2%) were seropositive. Of these, 134 (93%) underwent HIV-1 DNA testing and 80 (60%) were found to be HIV-1 infected. Compared with HIV-1 DNA testing, sensitivity and specificity of the IMCI criteria were 19% and 96% and for WHO-PD criteria 43% and 88%, respectively. Inclusion of severe immune deficiency determined by CD4% improved sensitivity of IMCI and WHO-PD criteria to 74% and 84%, respectively; however, specificity declined to 43% and 41%, respectively.

INTERPRETATION:

Diagnosis of HIV-1 infection among exposed children less than 18 months in a high-prevalence resource-limited setting remains a challenge, and current recommended algorithms have low sensitivity. This underscores the need for rapid scale-up of viral assays for early infant diagnosis.