

ABSTRACT

HIV-infected children are less capable of mounting and maintaining protective humoral responses to vaccination against measles compared to HIV-uninfected children. This poses a public health challenge in countries with high HIV burdens. Administration of antiretroviral therapy (ART) and revaccinating children against measles is one approach to increase measles immunity in HIV-infected children, yet it is not effective in all cases. Immune anergy and activation during HIV infection are factors that could influence responses to measles revaccination. We utilized a flow cytometry-based approach to examine whether T cell anergy and activation were associated with the maintenance of measles-specific IgG antibodies generated in response to measles revaccination in a cohort of HIV-infected children on ART in Nairobi, Kenya. Children who sustained measles-specific IgG for at least one year after revaccination displayed significantly lower Programmed Cell Death 1 (PD1) surface expression on CD8⁺ T cells on a per-cell basis and exhibited less activated CD4⁺ T cells compared to those unable to maintain detectable measles-specific antibodies. Children in both groups were similar in age and sex, CD4⁺ T cell frequency, duration of ART treatment and HIV viral load at enrollment. These data suggest that aberrant T cell anergy and activation are associated with the impaired ability to sustain an antibody response to measles revaccination in HIV-infected children on ART. This article is protected by copyright. All rights reserved.