Circulating IgG anti-HLA alloantibody does not correlate with HIV type 1 resistance in Nairobi prostitutes

Luscher, MA; Choy, G; Njagi, E; Bwayo, JJ; Anzala, AO; Ndinya-Achola, JO; Ball, TB; Wade, JA; Plummer, FA; Barber, BH; MacDonald, KS

Abstract:

In an effort to identify an immunological basis for natural resistance to HIV-1 infection, we have examined serum antibody responses to HLA class I antigens in female prostitutes of the Nairobi Sex Workers Study. Anti-HLA antibodies are known to block HIV infectivity in vitro and can be protective against SIV challenge in macaques immunized with purified class I HLA. Thus, it was postulated that broadly cross-reactive alloantibodies recognizing common HLA alleles in the client population might contribute to the prevention of heterosexual transmission of HIV. In fact, 12% of the women were found to have serum IgG antibodies against class I alloantigens. However, this alloantibody did not correlate with the HIV status of the women and was found in a similar proportion of HIV-positive and HIV-resistant women. The observed levels of alloantibody did not increase with HIV infection in susceptible individuals, suggesting that potential antigenic mimicry between HIV and host HLA class I antigens does not significantly increase levels of anti-class I antibodies. The lack of correlation between serum anti-allo-class I HLA antibodies and the risk of sexual transmission indicates that this humoral immune response is unlikely to be the natural mechanism behind the HIV-resistance phenotype of persistently HIV-seronegative women. This result, however, does not preclude the further investigation of alloimmunization as an artificial HIV immunization strategy.