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Comparison of Cytotoxic activity and Interferon-g secretion by Natural Killer Cells in HIV-1 and HIV-2 infected individuals

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Background

The role of NK cells in slowing disease progression in HIV-2 infected individuals compare to HIV-1 infected individuals.

Methods

In this study peripheral blood mononuclear cells were obtained from 30 HIV-1 and 30 HIV-2 infected subjects from each of 3 categories of CD4 T-cell counts (>500, 200-500 and <200 cells/ul) together with 50 HIV uninfected control subjects. Lytic activity and IFN-g secretion by NK cells from HIV-1 and HIV-2 infected subjects were measured by chromium-release and ELISPOT assays respectively following incubation of PBMC with the NK-sensitive K562 cells. Viral load was also measured from the plasma samples of the subjects.

Results

The cytotoxic response by NK cells was significantly higher in HIV-2 than in HIV-1 infection in subjects with CD4-T cell count >500 cell/ul ($p < 0.05$) and was similar to that of the healthy controls. There was a significant correlation between the magnitude of the NK population and cytolytic activity in HIV-2 individuals ($r = 0.27$, $p = 0.01$). There was also an inverse relationship between the cytolytic activity and plasma viral load in HIV-2 infected subjects ($r = -0.27$, $p = 0.009$). Interferon-g secretion by NK cells in ELISPOT assays was similar in HIV-1 and HIV-2 infections at all categories of $CD4^+$T cell counts.

Discussion

The data suggest an efficient cytolytic function from NK cells in early HIV-2 infection, which is associated with high CD4 T cell counts. This may imply that a strategic immune-based therapy to control HIV disease through the enhancement of NK cell activity is worthy of consideration.

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