

Topic: A30 Innate Immunity

Cross-cutting Theme: 2. Science & Technology

Category: HIV Specific and Non-specific Immunity

**Title:** Natural killer cell number and function is well preserved in a symptomatic human immuno-deficiency virus type -1 (HIV-1) but its activity and number decreases when CD4+ t cell counts fall

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**Text:** **Background:** Natural killer cells are potent effectors of natural immunity and their activity prevents human immunodeficiency virus type 1 (HIV-1) viral entry and viral replication. They are able to lyse tumor and virus infected cells without prior activation. In addition, they can produce higher levels of cytokines and chemokines that may enhance adaptive immune responses. A few studies in HIV-1 infection have suggested that NK cells may play a protective role in HIV-1 acquisition and progression while others have failed to show this. Whether or not NK cells plays a role in clinical progression of HIV to AIDS remains unclear. We sought to determine whether NK immune responses can be used as markers for HIV-1 infectoin and progression.

**Methods:** A cross-sectional analysis of NK cell responses was undertaken in 30 HIV-1 infected subject ( 15 male and 15 females) in each of three categories of CD4+-T-cell counts (>500,200 to 500, and <200 cells/ul and in 30 HIV-uninfected control subjects. Lytic activity, nk cell percentage and absolute counts were measured by flowcytometric immunophenotyping, Elispot assays and Intracellular cytokine staining.

**Results:** Levels of nk cytotoxicity, percentage and absolute cell counts were significantly higher in subjects with high CD4+-T-cell counts and were similar to that of healthy controls. In these subjects, NK cell count was positively correlated to CD4+-T-cell count and CD4/CD8 ratio and inversely related to CD8+ T-cell numbers and percentage. Levels of NK cell counts and percentages were significantly dropped at low CD4+-T-cell counts (<200 cells / ml).

**Conclusions:** The data suggests efficient cytolytic activity of NK cells early in HIV-1 infection, which is associated with high CD4+-T-cell counts. Enhancement of these functions may be important in immune-based therapy to control the disease.

Country of research: Kenya