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Immunodynamics of Th17 cells in HIV-1 subtype 'C' infection

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Background

Th17 cells are IL-17 producing CD4-T cells which play a vital role in inflammatory responses, antimicrobial defense and autoimmunity. However, the involvement of Th17 cells in HIV-1 infection especially in subtype-C is not yet identified. Thus through this study we try to dissect the role of Th17 cells in HIV-1 subtype 'C' infection.

Methods

31 HIV seropositive antiretroviral therapy naïve and 8 HIV uninfected healthy control subjects were recruited and characterized as being early, late or slow progressor. Peripheral blood mononuclear cells were isolated from each study subject and stimulated with HIV-1 subtype 'C' gag peptide pool and assessed for IL-17 cytokine producing CD4-T cells using intracellular cytokine staining. All clinical groups were statistically compared by Kruskal-Wallis test and Spearman's correlation coefficient was calculated for correlation of different variables.

Results

Here we reported that both frequency and functionality of HIV-1 specific Th17 cells were induced in early and slow progressors but were significantly reduced ($p<0.001$) at late stage of infection in peripheral blood. Also a significant negative correlation ($\rho=0.55$; $P=0.0004$) was observed between HIV-1 plasma viral load and gag specific %IL-17 production via CD4-T cells.

Conclusion

This study showcases a comprehensive picture of Th17 cellular dynamics in HIV-1 subtype-C infection. Further, our data establishes that higher frequencies of HIV specific Th17 cells correlates with better control of viral replication and can be used as immune correlate of protection.

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