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Poster presentation

P16-10. IL-2 therapy mediates expansion of Treg cells, maintains IL-17 expressing CD4+ T-cells and selectively suppresses HIV specific T-cell responses

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Background

Preservation of IL-17 producing CD4 + T (Th17) cell populations may be beneficial in HIV-1 disease. Despite broad interest in the role of Th17 cells in regulating human immune responses little is known about the manipulation of IL-17 in humans in vivo. IL-2 has been used in conjunction with antiretrovirals to increase CD4+ T-cell counts in HIV-1, and is approved in some European countries for this purpose. We sought to gauge the effects of IL-2 administration on IL-17 production and inflammatory T cell responses among recently HIV infected persons who had achieved virologic suppression on an antiretroviral regimen.

Methods

We randomized persons to receive or not receive a course of IL-2 over 1 year and measured by flow cytometry T cell responses to polyclonal and viral peptide specific stimulation, T regulatory populations (T-reg, CD3+CD4+CD25+/CD127-FoxP3+) T cell activation (CD38/HLA-DR) and changes in maturation profiles of T cells (CD27, CD28, CD45RA).

Results

Those who received IL-2 showed a significantly greater expansion of CD4+ T cells and T-regs compared with participants who did not receive IL-2. Counts of Th17 cells did not change in response to IL-2 administration. The degree of expansion in T-regs was significantly associated with the degree of drop in inflammatory T cell responses, a relationship which was independent of T cell activation. We observed that administration of IL-2 mediated: an expansion of T-regs, that was not associated with a change in Th17 cells; expanded naive CD4+ T cells; and a selective decline in HIV-1 Gag-specific T cell IFN-γ responses in participants that received IL-2.

Conclusion

Our data suggests IL-2 limits production of but does not reverse Th17 cells in humans and to achieve a state of increased CD4+ T cell IL-17 expression additional immune based in vivo interventions will need to be evaluated.