HIV Controllers Maintain Viral Suppression despite Waning T Cell Responses on ART

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Abstract

Background: Reduced HIV-specific T-cell responses are a hallmark of HIV controller (HC). We assessed the impact of antiretroviral therapy (ART) on HIV-specific T-cell responses and the ability of HC to maintain viral suppression after discontinuation of ART.

Methods: A5308 is a prospective, open-label study of 88 HCs and 32 discordant transmissional donors (DT). Participants were on ART (FTC/RPV/TDF in 19%) or no ART (91%) for at least 6 months and had ≥ 1% HIV-specific polyfunctional T-cell responses. Outcomes were evaluated by measured responses in 60% of HC, and viral load was assessed in 14% of HC with observed virologic responses after ART discontinuation.

Results: The median CD4+ and CD8+ T-cell counts were not significantly different between HIV-negative and HIV-positive donors at baseline. After 24 weeks of ART, significant increases were seen in HIV-specific T-cell responses (ρ < 0.004**). HIV-specific cytokine expression was maintained in comparable donors for up to 5 years after ART discontinuation. These results were further validated in HC with dual ART exposure.

Conclusions: ART has a profound impact on HIV-specific and cell-mediated immunity in HC. ART may improve viral suppression in HC.

Background

HIV/AIDS, a viral infection of the CD4+ T lymphocytes, has had significant impact worldwide. The use of antiretroviral therapy (ART) has transformed the care of HIV/AIDS patients. The role of ART in preventing transmission and improving immune function is well-established. However, the impact of ART on long-term immune function has not been fully explored.

Methods

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Conclusions

ART has a profound impact on HIV-specific and cell-mediated immunity in HC. ART may improve viral suppression in HC.

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