Retrovirology

Poster presentation

P16-34. Low frequency of regulatory T cells in peripheral blood from HIV-1+ elite controllers

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Background

A subset of T cells with immunosuppressive properties is the $CD4^+CD25^+FOXP3^+$ regulatory T cells (Treg). Two main hypotheses explain Tregs in HIV-1 infection: one stating that Tregs prevent chronic immune activation, and hence are beneficial, and another regarding Tregs as harmful because they suppress anti-HIV immune responses. To gain more information on the role of Tregs in chronic HIV-1 infection, we are evaluating the Treg population in chronic HIV-1 infected patients on HAART, treatment naïve viremic patients, and HIV-1 infected Elite Controllers (EC). Additionally, as Tregs are known to inhibit T cell activation, the T cell activation profile is also being tested.

Methods

PBMCs from 10 HAART patients and 10 ECs were tested. To identify Tregs, PBMCs were subjected to staining and flow cytometry using following antibodies: CD3, CD4, CD25, CD127, and FOXP3. To recognize the activation profile the following antibodies will be used: CD3, CD4, CD69, Ki67, CD38, HLA-DR, and FOXP3.

Results

Our data in this ongoing study show that Tregs constitute a smaller fraction of $CD4^+$ T cells in ECs than in HAART patients with median 1.46% (range 1.39 – 4.07) and 3.9% (range 1. 82 – 9.61), respectively. Furthermore, evaluating data in regards to CD25, FOXP3 and CD127low, another way to identify Tregs, also showed a lower frequency of Tregs in ECs compared with HAART patients, median 1.22% (range 0.07 – 2.70) and 3.10% (range 1.60 – 8.49), respectively.

Conclusion

To date, we have found lower frequencies of Tregs in ECs than in HAART patients. Seen in the light of ECs ability to control HIV-1 infection and studies showing polyfunctional $CD8^+$ T cell responses in ECs, these data support a harmful role of Tregs in the HIV-1 infected patient, e.g. by suppressing HIV-1 specific $CD8^+$ T cell responses.