Unemori et al. Infectious Agents and Cancer 2010, 5(Suppl 1):A74
http://www.infectagentscancer.com/content/5/S1/A74

INFECTIOUS AGENTS AND CANCER

MEETING ABSTRACTS Open Access

T cell immunosenescence is associated with the presence of Kaposi's sarcoma in antiretroviral treated human immunodeficiency virus-infected persons

Patrick Unemori[1,2*], Peter Hunt[2], Kieron Leslie[1], Elizabeth Sinclair[3], Jeffrey Martin[2], Steve Deeks[2], Toby Maurer[1]

From 12th International Conference on Malignancies in AIDS and Other Acquired Immunodeficiencies (ICMAOI)
Bethesda, MD, USA. 26-27 April, 2010

Background

We reported an atypical cohort of antiretroviral-treated patients who developed or had unremitting Kaposi's sarcoma (KS) despite having undetectable viral loads and high CD4 cell counts. The KS course of these patients is indolent, resembling elderly or classical HIV- KS. Since HIV infection is associated with accelerated immunologic aging ("immunosenescence"), and since classical HIV- KS of the elderly may be related to age-associated T cell dysfunction, we hypothesized that T cell immunosenescence would be associated with the presence of this atypical KS.

Materials and methods

We identified 19 individuals on antiretroviral therapy (ART) who developed or had unremitting KS after an interval of at least 24 months with viral loads <75 copies RNA/mL and peripheral CD4 cell counts >300 cells/mm^3. We also recruited 47 HIV+ KS- controls on ART with viral loads <75 copies RNA/mL and peripheral CD4 cell counts >300 cells/mm^3. Global immunosenescence markers CD28 and CD57, as well as naïve cell phenotypic coexpression of CD27+/CD28+/CD45RA+, were examined in peripheral blood via flow cytometry.

Results

All cases and controls were men. Cases and controls were not significantly different with regard to CD4 or CD8 cell count and viral load, though age was significantly different (p<0.001, Table 1). Cases had a higher proportion of CD57+CD8+ T cells vs. controls (median of 41.5% vs. 27.7%, age-adjusted p=0.005). There was a trend suggesting that cases had a higher frequency of CD57+CD4+ T cells than controls (median of 7.4% vs. 3.7%, age-adjusted p=0.07). Cases also had a higher proportion of CD28-/CD4+ cells (median of 9.1% vs. 4.8%, age adjusted p=0.030) and CD28-/CD8+ cells (median of 60.5% vs. 51.3%, age adjusted p=0.044) vs. controls. Cases had a lower proportion of CD27+/CD28+/CD45RA+ naive CD8+ T cells vs. controls (median of 11.3% vs. 20.7%, age adjusted p=0.022). There was a trend suggesting that cases had a lower frequency of CD27+/CD28+/CD45RA + naive CD4+ cells vs. controls (median of 23.0% vs. 32.2%, age adjusted p=0.11).

Conclusion

The indolent KS observed among antiretroviral-treated patients is associated with a higher frequency of immunosenescent T cells, characterized by global immunosenescence markers and decreased numbers of naive cells. These markers provide more evidence that KS in these patients may be a consequence of enduring HIV-associated T cell dysfunction and T cell immunosenescence. This association of immunosenescence in otherwise well-treated HIV infection with an AIDS-defining malignancy may provide important insights into the role of immune dysfunction as a cause of premature morbidity commonly observed in the HIV+ cohorts.

*Correspondence: patrick.unemori@ucsf.edu
[1]Dermatology, University of California, San Francisco, San Francisco, CA, USA
Full list of author information is available at the end of the article

Table 1 Age and Markers of HIV Infection in HIV+ KS+ Cases and HIV+ KS- Controls

	Number of Subjects (N)	Median Age (years)*	Median CD4 cell count (cells/mm^3)	Median CD8 cell count (cells/mm^3)	Median Viral Load (copies RNA/mL)
HIV+ KS+ Cases	19	54*	701	933	<75
HIV+ KS- Controls	47	43*	521	1200	<75

*p<0.05

Acknowledgements
This article has been published as part of *Infectious Agents and Cancer* Volume 5 Supplement 1, 2010: Proceedings of the 12th International Conference on Malignancies in AIDS and Other Acquired Immunodeficiencies (ICMAOI). The full contents of the supplement are available online at http://www.biomedcentral.com/1750-9378/5?issue=S1.

Author details
[1]Dermatology, University of California, San Francisco, San Francisco, CA, USA. [2]Internal Medicine, University of California, San Francisco, San Francisco, CA, USA. [3]Center for AIDS Research Core Immunology Laboratory, University of California, San Francisco, San Francisco, CA, USA.

Published: 11 October 2010

doi:10.1186/1750-9378-5-S1-A74
Cite this article as: Unemori *et al.*: T cell immunosenescence is associated with the presence of Kaposi's sarcoma in antiretroviral treated human immunodeficiency virus-infected persons. *Infectious Agents and Cancer* 2010 **5**(Suppl 1):A74.