



POSTER PRESENTATION

Open Access

Impaired T cell receptor signaling in HTLV-1-infected CD4⁺ cells from HAM/TSP patients

Ryuji Kubota^{1*}, Hiroshi Takashima², Shuji Izumo¹

From 16th International Conference on Human Retroviruses: HTLV and Related Viruses
Montreal, Canada. 26-30 June 2013

HAM/TSP patients show increased HTLV-1 proviral load in peripheral blood mononuclear cells (PBMCs), however, little is known about the character of HTLV-1-infected cells. It has been considered that the immune system of HTLV-1-infected individuals are impaired, however, the details are unknown. Here, we investigated HTLV-1-infected cells from HAM/TSP patients for their surface markers and immune function. PBMCs were obtained from the patients and cultured for several hours. HTLV-1-infected cells were identified by detection of intracellular HTLV-1 Tax protein. The Tax-positive, HTLV-1-infected cells showed a phenotype of CD2⁺CD4⁺CD5⁺CD26⁻CD45RO⁺CD45RA⁻CCR4⁺CCR7⁻ and a reduced expression of T cell receptor (TCR) and CD3 antigen. Next, PBMCs were stimulated with CD3 antibody and TCR signaling was detected by phospho-specific antibodies for Lck and ZAP70, which are early signaling molecules of TCR. The degree of phosphorylation in whole CD4⁺ cells from HAM/TSP patients were lower than that from normal controls. In addition, Tax-positive CD4⁺ cells showed reduced phosphorylation of these molecules compared to Tax-negative CD4⁺ cells in HAM/TSP patients. Finally, cytomegalovirus (CMV)-specific, HTLV-1-infected CD4⁺ cells showed a decreased production of interferon-gamma by stimulation of CMV antigens compared to CMV-specific, non-infected cells in the patients. These results indicate that HTLV-1-infected cells reduced expression of TCR/CD3 complex in HAM/TSP patients, resulting in a reduction in TCR signaling and impaired immune function.

Authors' details

¹Center for Chronic Viral Diseases, Kagoshima University, Kagoshima, Japan.

²Department of Neurology and Geriatrics, Kagoshima University, Kagoshima, Japan.

* Correspondence: kubotar@m2.kufm.kagoshima-u.ac.jp

¹Center for Chronic Viral Diseases, Kagoshima University, Kagoshima, Japan
Full list of author information is available at the end of the article

Published: 7 January 2014

doi:10.1186/1742-4690-11-S1-P65

Cite this article as: Kubota *et al.*: Impaired T cell receptor signaling in HTLV-1-infected CD4⁺ cells from HAM/TSP patients. *Retrovirology* 2014 **11** (Suppl 1):P65.

Submit your next manuscript to BioMed Central
and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit

