The 1st International Neuroinflammation Congress and 1st Student Festival of Neurosience

Shefa Neuroscience Research Center, Tehran, Iran, 11-13 April, 2017

The Neuroscience Journal of Shefaye Khatam

Volume 5, No. 2, Suppl 2

Poster Presentation

A Review of Novel Biomarkers Involved in the Neuroinflammation Caused by Human T Lymphotropic Virus-1

Samaneh Abolbashari[1], Zahra Meshkat[2*], Majid Ghayour-Mobarhan[1, 3]

[1]Department of Modern Sciences and Technology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

[2]Antimicrobial Resistance Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

[3]Cardiovascular Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

***Published:* 11 April, 2017**

Abstract

HTLV-1 is the causative agent for a neurologic disease named HTLV-I- associated myelopathy/tropical spastic paraparesis (HAM/TSP). Paraparesis of the lower limbs which appears gradually is the most common clinical feature of this disease. It has been shown that the indirect involvement of the nervous system by lymphocytes is more probable than the direct attack of the virus to the neurons. HTLV-1 infected CD4+ T cells may primarily contribute to development of HAM/TSP. It has recently been shown that ex vivo CD80+ B cells positively correlating to disease severity. Moreover, CD4+ CD25+ CCR4+ T cells, which mainly include suppressive T cell subsets such as regulatory T (Treg) cells under healthy conditions, have been demonstrated as the predominant viral reservoir of HTLV-1 in HAM/TSP. This unique T cell subset is shown to be abnormally increased and functionally altered in this retrovirus-associated inflammatory disorder of the central nervous system. On the other hand, HAM/TSP patients demonstrate reductions in the amount and efficacy of cellular components of innate immunity as the numbers and functions of CD56+ CD16+ natural killer (NK) cells in HAM/TSP patients are significantly lower than those observed in healthy controls. Another study has revealed that HBZ (an important HTLV-1-encoded protein) is exclusively localized in the cytoplasm of peripheral blood mononuclear Cells (PBMC) from patients suffering of HAM/TSP. Long Terminal Repeat (LTR) Circular DNA is also presented as a marker of active viral replication. LTR circles were detected both in chronically infected cells lines and also in the PBMCs of almost all HTLV-1 positive patients. Involvement of miRNAs in the HTLV-1 life cycle and in the progression of HAM/TSP has also recently gained notice. Studies of the epidemiology and pathogenesis of HAM/TSP have led to the identification of several biomarkers. However, these findings have not yet led to an optimal therapeutic strategy for this neurological disease.

Keywords: HTLV-1, HAM/TSP, Biomarker

Corresponding Author: Zahra Meshkat

E-mail: *meshkatz@mums.ac.ir*

[Downloaded from shefayekhatam.ir on 2026-11-28]