

Virology October 06-08, 2014 Hilton San Antonio Airport, TX, USA

The association of EBV and vitamin D in Multiple Sclerosis patients with a unique cytokine signature

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Multiple Sclerosis is a debilitating autoimmune and inflammatory disease of the central nervous system, which is associated to both infectious and non-infectious environmental factors. We investigated the role of EBV, vitamin D status, and cytokine signature in MS patients with inflammatory complications. Molecular and serological assays were used to investigate immune biomarkers, vitamin D level, and EBV status in MS patients and sex/age matched healthy controls. EBNA-1 specific IgG antibody was examined to check the prior exposure to EBV in patients with MS and healthy controls. 98.8 % of MS patients showed a history of EBV exposure compared to 88.6 % for healthy group (p=0.005). EBV DNA load was significantly higher in MS patients than healthy subjects (p<0.0001). Looking at the expression levels of a panel of biomarkers, we found a distinct signature in MS patients compared to healthy group. Indeed, the mRNA levels of CD73 and IL-17 were significantly elevated in MS patients compared to healthy group (p<0.0001). Rather, the levels of mRNA for TGF- β , IDO, and S1PR1 were found to be significantly lower in MS patients than healthy controls (p<0.0001). Interestingly, in MS patients, an inverse correlation was found between the concentration of vitamin D and EBV load, but not EBNA-1 IgG antibody. Our data strongly support the importance of EBV load and vitamin D status in facilitating the risk of MS development.

Biography

Sayed Mahdi Marashi completed his PhD from University College London in 2011. His PhD project was mainly focused on functional competence of virus specific CD8 T cells in immunocompromised settings. He is currently Assistant professor of virology in Tehran University of Medical Sciences Iran.

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