Prevalence of Herpes Simplex Virus Infection in Patients with Relapsing-Remitting Multiple Sclerosis: A Case-Control Study in the North of Iran

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Abstract

Background: Multiple sclerosis (MS) is a debilitating autoimmune and inflammatory disease of the central nervous system associated with both infectious and non-infectious underlying factors. Many recent studies suggest that infection with herpes viruses has a contributing role in the pathogenesis of MS.

Objectives: The current case-control study aimed to evaluate the prevalence of herpes simplex virus (HSV) in peripheral blood mononuclear cells (PBMCs) of patients with MS compared to those of the healthy controls.

Methods: PBMC samples of 82 relapsing-remitting patients with MS (23 males, 59 females; mean age 36.99±30 years) and 89 subjects in the healthy control group (34 males, 55 females; mean age 34.32±10.56 years), from the North of Iran (2013-2014) were enrolled in a case-control study. The enzyme-linked immune sorbent assay (ELISA) and polymerase chain reaction (PCR) were applied to investigate the frequency of HSV in the participants.

Results: Totally, 63 (76.8%) patients with MS showed a history of HSV exposure by anti-HSV testing compared to 70 (78.7%) subjects in the healthy group (P value = 0.855). The HSV-DNA test was positive in 37 (45.1%) and 3 (3.4%) patients with MS and healthy subjects, respectively (P value < 0.001). Family history of MS was positive in 15 (18.3%) subjects, of whom 3 (8.1%) and 12 (26.7%) were HSV-DNA positive and HSV-DNA negative, respectively (P value = 0.026).

Conclusions: Herpes simplex virus was present in more patients with MS than healthy cases. HSV may be directly or indirectly associated with MS development. Further comprehensive molecular studies are needed to confirm the etio pathologic association between HSV and MS disease.

Keywords: Multiple Sclerosis, Herpes Simplex Virus, Autoimmune Diseases