

ORT_25 - EBV and HHV-6 infection in multiple sclerosis: search for possible association with clinical phenotypes

Jéssica Gonçalves Pereira^{1*}; Fabricia Lima Fontes Dantas²; Jéssica Vasques Raposo¹; Luciane Almeida Amado Leon¹; Soniza Alves de Leon³; João Gabriel Dib Farinhas⁴; Renan Amaral Coutinho⁴; Valéria Coelho Santa Rita Pereira⁴; Vanessa Salete de Paula¹.

¹Fiocruz/IOC;

²UFRJ - Universidade Federal do Rio de Janeiro;

³UNIRIO;

⁴UFRJ/ HUCFF.

Introduction: Multiple sclerosis (MS) is an autoimmune disease that affects the central nervous system (CNS) characterized by inflammation, demyelination, and neuronal damage. Human herpesvirus-4 (HHV-4), also known as Epstein-Barr virus (EBV) and Human herpesvirus-6 (HHV-6) are latent viruses responsible for infections that can reactivate over the years and is among the most well-established environmental risk factors in MS. MS is the most common autoimmune disease that affects the CNS, affecting > 2.5 million people worldwide. The average age at onset is 30 years old and prevalence according to geographic distribution and ethnicity. The frequency of MS in Brazil is 1.36 / 100,000 to 27.2 / 100,000 inhabitants. MS causes motor, sensory, autonomic, sensitive and cognitive disability, with severe functional impairment in young individuals.

Objective: The aim of this study was to investigate the frequency of EBV and HHV-6 infection in patients with relapsing remitting (RRMS) and primary progressive MS (PPMS).

Methodology: For this, 167 blood plasma samples from MS patients were tested by real-time PCR assay for detection and quantification of EBV (EBNA-1) and HHV-6 (U56).

Results: Among them, the average age found was 44.4 years, of which 34.1% (57/167) are male and 65.9% (110/167) are female. The detection of EBV and HHV-6 in MS patients were 1.7% (3/167) and 8.9% (15/167), respectively. These prevalences are considered low if compared to previous studies. Regarding positive patients, for EBV there were 66.6% (2/3) male patients and for HHV-6, 46.7% (7/15). And for these positive patients, 100%(3/3) EBV and 93.4%(14/15) HHV-6 are RRMS and 6.6%(1/15) HHV-6 are PPMS, according to the literature, information about HHV-6 is in agreement, but about EBV there is still no information, relating RRMS x PPMS. About to clinical phenotype of these patients, upper and lower limbs paresthesias, facial paralysis, myelitis and optic neuritis were the main CNS manifestations.

Conclusion: These are the first data on the infection of these viruses in MS patients in Brazil and our findings up to date confirm a higher prevalence of female MS patients, demonstrate a low frequency of EBV, a high frequency of HHV-6 and we observed a high prevalence of herpesviruses in RRMS patients present in the city of Rio de Janeiro. Screening of EBV and HHV-6 in blood donors and evaluation of clinical information are necessary to assess the impact of these viruses on the course of MS and to contribute data on epidemiological and clinical characteristics in patients with MS.

Keywords: Multiple Sclerosis; EBV; HHV-6