CHANGES IN INTERLEUKIN AND VITAMIN E LEVELS AND CHOLINESTERASE ACTIVITIES IN PATIENTS WITH MULTIPLE SCLEROSIS

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Multiple sclerosis (MS) is an autoimmune disease characterized by neurodegeneration and neuroinflammation in the CNS. The cholinergic parameters and vitamin E play an important role in the regulation of immune response and are associated with systemic inflammation in MS; however, its etiology remains unclear. Therefore, the aim of the present study was to evaluate interleukin and α-tocopherol (vitamin E) levels in serum as well as cholinesterase activities in lymphocytes and serum of patients with the relapsing-remitting form of MS (RRMS). The sample consisted of 29 patients with RRMS and 29 healthy subjects as a control group. Blood was collected from each patient, and then the serum was separated for the quantification of interleukin-1, interleukin-6 and interleukin-10 by ELISA, likewise vitamin E levels were valued by a modified method of Hansen and Warwick (1969). Furthermore, the acetylcholinesterase (AChE) and butyrylcholinesterase (BChE) activities in lymphocytes and serum respectively were determined by spectrophotometric method of Ellman et al. (1961) with some modifications. All subjects gave written informed consent to participate in this study and the Human Ethics Committee of the Health Science Center from the Federal University of Santa Maria approved the protocol under number 26757114.4.0000.5346. For the statistical values, Student’s t-test for independent samples was used. \( P<0.05 \) was considered to represent a significant difference in all analyses used. Results showed elevated interleukin-1 and interleukin-6 levels, nonetheless, we observed a significant decrease in interleukin-10 and vitamin E (\( P<0.0001 \)) in RRMS patients when compared to control. Besides, AChE in lymphocytes and BChE activities in serum were increased significantly in RRMS patients (\( P<0.05 \)). In this context, it is plausible to suggest that alterations in interleukin, vitamin E, AChE and BChE activities may contribute to an increase of systemic pro-inflammatory response during remission phase. Moreover, it can be involved in the promotion and progression of MS.

Key words: multiple sclerosis, inflammation, cholinesterases.

Acknowledgments: CAPES, CNPq and FAPERGS.