Introduction

Systemic lupus erythematosus (SLE) is an autoimmune disease of multifactorial etiology and diverse mechanisms. Although the disease is T-cell-dependent and antigen-driven, more than 100 autoantibodies were detected in the sera of lupus patients with differential correlation to disease activity ***(Blank and Shoenfeld, 2005).***

The involvement of the central nervous system (CNS) in SLE, causing neuropsychiatric syndromes (NPSLE), is one of the most serious complications of this disease. The NPSLE can vary from mild forms, such as headaches or mild cognitive deficits, mood swings to severe states, such as cerebritis, seizures, vascular accidents, psychosis and depression. A significant positive association of levels of serum antibodies against the specific astrocytic protein glial fibrillary acidic protein with NPSLE was reported suggesting a neural involvement in its pathophysiology ***(Kaluniam, 1997).***

Magnetic resonance spectroscopy (MRS) is a noninvasive method providing information about tissue metabolites in vivo. It has previously been used to show abnormalities in a variety, of disorders. It produces graphs but not images. According to ***Friedman et al., (1999)***, the following metabolites could be assessed:

N-acetyl aspartate (NAA)- which is a marker of neuronal density and viability and its concentration decreases with many brain insults and it represents the largest peak in the MRS.

Choline (t cho) is a constituent of the phospholipids metabolism of cell membranes so it reflects the membrane turnover. So increased level of choline reflects increase membrane synthesis or increase number of cells, it represents the second large peak in normal MRS.

Creatine (t Cr) plays a role in maintaining the energy dependant systems in brain cells by serving a reserve for high energy phosphate and a buffer in ATP-ADP reservoir. It is the most stable metabolite and it is a good standard in comparison with other metabolites, it represents the third peak in normal MRS.

Myoinsitol (MI) is the hormone sensitive neuroreception. It is a precursor of glucuronic acid, which detoxify xenobiotics by conjugation. Changes in its level could be seen in many disorders, it represents the fourth peak in MRS.

Other metabolites could be measured as lactate which are normally very low or absent in the brain, it could be found in necrotic and cystic lesions. Alanine and lipids could be raised in meningiomas and astrocytomas ***(Jacobs et al., 1999).***

Abnormalities reflecting altered perfusion or neurochemical changes can be demonstrated by functional imaging techniques even in the absence of morphological lesions detected by MRI, the abnormal areas identified by MRS predict future parenchymal damage ***(Castellino et al., 2005)***