

Objective: Our project study presents the results of measuring the volume of pathological foci in the brain tissue of patients suffering from systemic lupus erythematoses (SLE) with or without neuropsychiatric manifestations (NP). Magnetic resonance (MR) scans of patients with SLE and, in particular, signs of neuropsychiatric involvement show pathological foci in the cerebral white matter.

Methods: A total of 53 SLE patients, 29 with signs of neuropsychiatric syndromes (NPSLE), 24 without, and 16 healthy controls underwent prospective volumetric magnetic resonance imaging in a flow attenuated inversion recovery (FLAIR) sequence. The disease activity was expressed in terms of the Systemic Lupus Erythematosus Disease Activity Index (SLEDAI).

Results: All of the patients in this study were found to have a larger volume of pathological foci in the brain tissue than the healthy controls. The NPSLE subgroup had a larger volume of pathological foci than the SLE patients without NP ($p<0.001$). The largest volume of such foci was found in patients with a history of cerebrovascular disease ($p<0.05$). These were also noted for a correlation between the duration of the disease and the period of time elapsed from the onset of the first signs of neuropsychiatric lupus ($p<0.01$).

Correlation with SLEDAI-rated disease activity was found statistically significant in all of the patients ($p<0.05$), in those with NPSLE at a level of $p<0.01$.

Conclusion: We found that lesion load was significantly larger in NPSLE patients than in non-NPSLE patients and controls. Lesion load correlated with SLEDAI in the whole group of SLE patients and in the subgroup with NP manifestation. MR is so far the most sensitive method for visualising pathological foci in the brain tissue as abnormalities are demonstrable also in SLE patients free from NP. In the future, longitudinal volumetry might conceivably facilitate therapeutical effect rating.