



## **COMPARISON OF CORPUS CALLOSUM ATROPHY IN SYSTEMIC LUPUS ERYTHEMATOSUS ACCORDING TO THE AGE OF ONSET OF THE DISEASE**

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### **BACKGROUND**

Childhood-onset systemic lupus erythematosus (cSLE) is a chronic, autoimmune disease with multisystem involvement. The involvement of the central nervous system (CNS) in cSLE occurs in more than 50% of patients. Studies have shown that corpus callosum atrophy and cerebral atrophy in cSLE patients are associated with disease duration, history of CNS involvement, and cognitive disorders.

### **MATERIALS AND METHODS**

We selected 75 patients with cSLE [mean age of 24.6 years (SD 4.6) and disease duration of 11.6 years (SD 4.8)] and two control groups: 1. Matched by disease duration, consisting of 51 patients with adult-onset SLE [mean age of 32.4 (SD 3.2)] and disease duration of 11.5 years (SD 4.2)] and 2. Matched by age consisting of 77 healthy controls [mean age of 28 years (DP 3.6)]. MRI images were obtained using a 3 Tesla device, with coronal, sagittal and axial acquisitions. All individuals had a complete neurological and psychiatric evaluation performed at the day of MRI. All relevant clinical information (autoantibodies, medication, past clinical information) were obtained from chart review. Segmentation of the corpus callosum was performed through automated segmentation method.

### **RESULTS**

Patients with cSLE had a significant reduction in the volume of the corpus callosum [mean value = 6383.8 (SD = 2037.8)], compared to healthy controls ([mean value = 7276.3 (SD 2008.7)],  $p = 0.002$ ), and significantly smaller than aSLE ([mean value = 6640.3 (SD = 2090.2)],  $p = 0.022$ ).

### **CONCLUSION**

We observed that cSLE have greater corpus callosum atrophy when compared to healthy acontrols and aSLE with similar disease duration. Due to younger age and brain development in cSLE, these findings can explain the more severe cognitive impairment observed in cSLE.