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HYDROXICHLOROQUINE IS ASSOCIATED WITH INCREASED GRAY MATTER VOLUME IN CHILDHOOD-ONSET SYSTEMIC LUPUS ERYTHEMATOSUS

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BACKGROUND

Childhood-onset systemic lupus erythematosus (cSLE) patients have frequently cognitive impairment that impairs school and work performance. The objective of this study was to perform a comprehensive magnetic resonance imaging (MRI) analysis of cSLE brains to determine areas that are more frequently abnormal when compared to healthy controls.

METHODS

We included 76 consecutive cSLE patients [median age 18 years (range 10–27)] from a pediatric rheumatology outpatient unit and 77 healthy controls [median age 20.1 years (12–30), with similar sex and sociodemographic distribution]. All individuals underwent three-tesla magnetic resonance imaging (3T-MRI) exams. A complete clinical, laboratory and neurological evaluation was performed in all subjects. Neurological manifestations were analyzed according to the ACR classification criteria. Mood and anxiety disorders were determined through Beck depression (BDI) and Beck anxiety inventory (BAI). Systemic lupus erythematosus patients were further assessed for clinical and laboratory SLE manifestations, disease activity [SLE disease activity index (SLEDAI)], damage [Systemic Lupus International Collaborating Clinics/American College of Rheumatology Damage Index (SDI)] and current drug exposures. Data were compared by nonparametric tests. Multivariate regression was done to identify independent variables associated with volume reduction.

RESULTS

We observed significant reduction of gray matter structures volumes (amygdala, thalamus, hippocampus, caudate) ($p < 0.001$) when compared to healthy controls. Volume reductions were independently associated with total corticosteroid dose ($p = 0.001$). Length of use of hydroxychloroquine was associated with greater gray matter volumes ($p = 0.01$).

CONCLUSION

Gray matter structures had significantly lower volumes in cSLE when compared to controls. While corticosteroid use was associated with reduction of volumes, the length of hydroxychloroquine use is associated with a protective effect.