Cognitive Dysfunction in Systemic Lupus Erythematosus

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Date received: 2/11/2010
Date accepted: 10/3/2011

Background: Is to investigate and detect the incidence of cognitive dysfunction in SLE patients by the different psychometric methods of assessment and to correlate them to disease activity by Systemic Lupus Erythematosus Disease Activity Index (SLEDAI), functional disability index by Health Assessment Questionnaire (HAQ), the presence of Antiphospholipid antibodies (APL) and EEG, P300 (latency and amplitude).

Subjects & Methods: Thirty female patients with SLE had been studied in this work. They were selected according to the American College of Rheumatology (ACR) criteria for diagnosing SLE (The American College of Rheumatology, Liang, 1999), their age ranged between 17 and 37 years with a mean age of onset 25.37+SD of 4.468, mean disease duration of 5.92+3.72 years. This represents group I, as well as 20 healthy controls of matched age and sex. This represents group II. Both groups were subjected to different psychometric testing to detect cognitive dysfunction including Wechsler Adult Intelligence Scale (WAIS), Logical Memory Subtests of Wechsler Memory Scale and Trail Making test (part A and part B). The results of testing were correlated with disease activity measurement by SLEDAI and Health Assessment Questionnaire (HAQ), presence of Antiphospholipid antibodies (APL) and also EEG changes, P300 (latency and amplitude).

Results: The results showed statistically significant difference between SLE patients and controls on the arithmetic subtests of WAIS while there was highly statistically significant difference in information, vocabulary, picture arrangement, picture completion and block design subsets of WAIS, logical memory (A) and (B) subsets of Wechsler memory scale. The percentage of cognitive dysfunction among SLE patients according to verbal IQ and Full scale IQ subtests of WAIS was 43.3% while performance IQ was 33.3%, the percentage of cognitive dysfunction according to logical memory scale was 86.7%. Also, 43.3% showed functional impairment, 33.3% showed organic impairment according to Trail Making (A) While 16.7% showed functional impairment. As regards APL antibodies there were positive significant correlation between APL titre and SLEDAI score. As regards the correlation between cognitive dysfunction and APL subtypes, there was no statistically significant difference in the percentage of patients with any APL subtypes and patients with cognitive dysfunction. Also there was statistically significant difference between cognitive dysfunction and HAQ. In addition there was statistically significant difference between cognitive dysfunction and P300 (amplitude and latency). There were 13 patients with abnormal EEG frequency and 8 patients with generalized EEG paroxysms, while there were 12 patients having abnormal P300 latency and 7 patients with abnormal P300 amplitude.

Conclusion: There was a high evidence of the presence of cognitive dysfunction in SLE patients in the study. A positive significant correlation between APL titre and SLEDAI score, but there was no statistically significant difference between cognitive dysfunction and APL subtypes. Some of SLE patients have abnormal EEG and abnormal P300 latency and amplitude.

Keywords: SLE, Cognitive dysfunction, SLEDAI, HAQ, APL, EEG.

Abbreviations:
SLEDAI: Systemic Lupus Erythematosus Disease Activity Index
HAQ: Health Assessment Questionnaire
EEG: Electroencephalogram
ACR: American College of Rheumatology
WAIS: Wechsler Adult Intelligence Scale
APL: Antiphospholipid antibodies
SLE: Systemic Lupus Erythematosus
IQ: Intelligent Quotient

INTRODUCTION

Neuropsychiatric Lupus Erythromatosis (NPSLE) refers to the manifestations that develop secondary to involvement of the CNS in patients with SLE. These clinical features are characterized by some investigators as either diffuse e.g., organic brain syndrome, coma, depression and psychosis or complex e.g. organic brain syndrome with stroke or seizure and psychiatric presentation with stroke or seizure disturbances of mental function are the most common symptoms (West, et al. 1995).

A psychiatric disturbance due to CNS lupus is a diagnosis of exclusion, all other possible causes of the observed symptoms must therefore be considered,