CONVULSION AND ITS RELATION TO ANTI-DNA ANTIBODY LEVELS IN SYSTEMIC LUPUS ERYTHEMATOSUS

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Abstract - The neuropsychiatric manifestations of systemic lupus erythematosus are frequent. One of the most serious presentations is convulsion. This study was carried out to evaluate the relation between convulsion and anti-DNA antibody levels. An analytic, retrospective case-controlled study was carried out, with reference to 1001 recorded cases of systemic SLE lupus erythematosus in Lupus Unit, Rheumatology Center, Shariati Hospital, Tehran University of Medical Sciences. The frequency of convulsion was 13.3%. There was no significant difference in the frequency of convulsoin in patients with different levels of anti-DNA antibodies. Anti-DNA antibody is not an important diagnostic and activity criterion for neuropsychiatric manifestations of SLE.

Acta Medica Iranica 37 (2): 95 - 97; 1999

Key words: Anti-DNA autibody, SLE, convulsion

INTRODUCTION

Systemic lupus erythematosus (SLE) is a chronic autoimmune inflammatory disease of unknown etiology that may affect the skin, joints, kidneys ,lungs, nervous system, serous membranes, and other organs of the body. The clinical course of SLE is characterized by periods of remission and chronic and acute exacerbation (1). Central nervous system (CNS) involvement is one of the most important and hazardous clinical manifestations of SLE. It was first described by Kaposi (2) at the end of the previous century as altered mental function and was confirmed by Sir William Osler early in this century (3). Around 70 years later Dubois described the different aspects of CNS lupus (4). Nervous system involvement can occur during the different stages of the disease (5,6). Neuropsychiatric symptoms are common in SLE patients and occur in 25% to 75% of the patients (10,11). Although most of these manifestations are functional, there are many symptoms with organic etiologies such as: convulsion, different types of neuropathy and vascular disorders which cause very serious problems in SLE patients. There are no definitive diagnositic tests or criteria for CNS lupus. Therefore it is difficult to assign an etiology or select an appropriate therapy for the latter (1,9). The pathogenesis of cerebral lupus is not well understood. Vascular changes as well as autoantibody-induced damage appear important. Episodes of cerebral lupus may be unrelated to other clinical or serological exacerbations of the disease (7,8). Neuropsychiatric manifestations are different in SLE patients and as a matter of fact, there is no single part of the CNS which remains unaffected. The prognosis of SLE is adversely affected by neurological involvement, and CNS involvement is second only to renal disease as the cause of death. Estes and Christian found a 4-year survival rate of 76.9% for SLE patients in general; compared to 55% for those suffering from CNS involvement (12). Epileptic seizures have been observed in 10-15 percent of lupus patients and in over one-third of those suffering from neuropsychiatric dysfunction. Grand mal seizures are by far the most common type, although petit mal, temporal lobe, focal and jacksonian seizures have also seen described (13-14). Seizures almost invariably occur during an active phase of the disease and are frequently accompanied by other neuropsychiatric symptoms and signs (7,16). By the time of death, 30 to 53 percent of patients with CNS lupus experience one or more seizures (6,17). There are many differences in the clinical manifestations, frequency and severity of organ or system invovlement, and cause of death between SLE patients in Iran and those from other countries

(15). An analytic retrospective case-controlled study was carried out to evaluate the frequency of convulsion, its relation to age and sex and increased levels of anti-DNA antibody.

MATERIALS AND METHODS

This is an analytic retrospective case-controlled study with reference to SLE patients carried out by the lupus study group, at our center during 1976-1994. In the first step, 395 patients were selected to have anti-DNA antibodies (radioimmunoassay) tests; and then these patients were divided in two groups: those who were convulsive (case group), and those who were nonconvulsive (control group). The SPSS software was used for statistical calculation.

RESULTS

Overally 134 patients (34 percent) had history of an episode of convulsion (case group) and 259 patients (66%) had no history of convulsion (control group).

The frequency of convulsion was 13.3% (134 out of 1001). Male/female (M/F) ratio was 1/8.3 (44 male and 351 female). Male/female ratio in convulsive patients was 1/10.1 (12 male and 122 female)and 1/7.6 (30 male and 229 female) in non-convulsive patients. There was no significant difference in M/F ratio between two groups ($P>0.05$). The most common age of the onset of disease was the second decade of life (10-19 yrs) in the convulsive patients, and the third decade of life (20-29 yrs) in the non-convulsive group. Different levels of anti-DNA antibodies, were categorized in four levels, normal (0-7), mild (7-49), moderate (50-99), severe (>100). Chi-square test revealed no significant difference in various levels of anti-DNA antibodies between the two groups.

DISCUSSION

Based on this study as one of the most comprehensive studies in this regard, the following results are elicited:

1. The prevalence of convulsion in Iranian patients is 13.3 percent which is compatible with finidings of other studies (12,15).
2. There is no positive and meaningful correlation between occurrence of convulsion and increased levels of anti-DNA antibodies (18).
3. The most common age of disease onset and the mean age of convulsive patients were significantly lower than non-convulsives, indicating an earlier initiation of SLE in convulsive patients in comparison to that of the non-convulsive group.

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