Original article:

Pattern of Systemic Lupus Erythematosus in Tabuk, Saudi Arabia

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Abstract:

Background and aim: Systemic lupus erythematosus (SLE) is a multisystem autoimmune disease that has different demographic, clinical, and immunological characteristics. Both environmental and genetic factors determine the clinical variety of the disease. The aim of this study was to show the manifestations of SLE in Tabuk City, Saudi Arabia.

Materials and Methods: A cross-sectional hospital-based study was conducted from June 2014 to April 2015 in SLE patients who attend the rheumatic outpatient clinic in the North West Armed Force Hospital, Tabuk, Saudi Arabia. A rheumatologist interviewed 73 patients above the age of 18 years confirmed to have SLE based on the criteria of the American College of Rheumatology (ACR). A structured questionnaire was filled; data include the socio-demographic, clinical features, hematological and immunological tests, and complications of the disease.

Results: Of the 73 SLE patients, 63 (86.3%) were female; the mean age was 34.8 years. The most common disease manifestation was arthritis (71.2%). Almost all patients (98.8%) had positive anti-nuclear antibodies, 15.1% of patients had hypertension, 26% had renal involvement,35.6 % developed neuropsychiatric manifestation, and 8.2% of patients had a stroke.

Conclusion: This study showed a pattern of SLE manifestation among Saudi patients, the remarkable finding was the dominance of neuropsychiatric events and relatively high prevalence of renal involvement.

Keywords: patients, immune, systemic lupus erythematosus.

1. Introduction

Systemic lupus erythematosus (SLE) is a multisystem, autoimmune disease that mostly affects young females in 80-90% of cases (1). It has a complex pathogenesis and poorly understood etiologies, involving immunological, genetic, hormonal and environmental factors. The disease is chronic in nature with episodes of remissions and relapses (1, 2).

Systemic lupus has a broad range of clinical and immunological abnormalities; the most severe were the renal and neurological complications leading to kidney failure and stroke respectively. Other serious disease manifestations include cardiovascular, mucocutaneous, immunological, and hematological abnormalities. The diagnosis of SLE based on fulfilling four or more criteria as defined by the 1997 revised American College of Rheumatology (ACR) (3).

Neuropsychiatric systemic lupus erythematosus (NPSLE) is a serious and well-known complication of systemic lupus erythematosus (SLE). (4) SLE is a typical autoimmune disease that can cause neurological and psychiatric syndromes. Because SLE can be complicated by almost all neuropsychiatric disorders, accurate classification and diagnosis are essential. (5)

There is a wide variation in the natural history of SLE among different ethnic and geographic groups, the genetic and climatic factors may lead to the different presentation of lupus (6).The aim of this study was to show the manifestations of SLE in population belong to the north-west region like Tabuk province of Saudi Arabia.

2. Subjects and methods:

A cross-sectional hospital-based study carried out from June 2014 to April 2015 among SLE patients attending

the rheumatic outpatient clinic in North West Armed Force Hospital. The ethical committee of North West Armed Force Hospitalcommittee approved the research.We enrolled 73 patients at the age of 18 to 65 years after obtaining their consent; a rheumatologist in the clinic interviewed the patient and completed a structured questionnaire including the socio-demographic data, the eleven criteria of ACR, and the complications of the SLE. The investigations include urinalysis, full blood count, renal and liver function tests, lipid profile, complement level, erythrocyte sedimentation rate (ESR), high sensitive C-reactive protein (CRP), and antinuclear antibody profile (ANA). The diagnosis of systemic lupus erythematosus is based on the American College of Rheumatology (ACR) criteria. We followed the eligible patients during the study period for the emergence of any complication. We analyzed the data by the Graph Instat Prism version 6.0.

3. Results

Among the 73 patients with SLE, 63 (86.3%) were female, and the mean age was 34.8. There were 52 (71.2%) with arthritis, 46 (63%) with photosensitive rash, 45 (61.6%) with malar rash, and 11 (15.1%) with a discoid rash. Almost all patients (98.8%) had positive anti-nuclear antibodies. Anti-smith (SM) antibodies were detected in 26% of patients, anti-phospholipids in 3.9%, and anti-Ro (SSA) in 28 out of 37 available (77.8%). Forty-seven (64.4%) of patients had anemia, 40 (54.8%) had leukopenia, and 16 (21.9%) had thrombocytopenia. Other features are shown in Table (1)

Table (2) illustrates other immunological and inflammatory markers. 93.7% of patients had raised ESR, 13.7% had positive anticardiolipin antibodies, 20.5% had elevated anti-RNP antibodies, and 9.9% had positive anti b2 glycoprotein antibodies.

Table (3) demonstrates the significant association between patients who developed neuropsychiatric manifestation and hypertriglyceridemia (P-value = 0.0195).

The lipid profile showed raised total cholesterol in 11% of patients, 14.8% had elevated low-density lipoprotein, 18.5% had increased triglycerides, and 42.3% had a low level of high-density lipoprotein.

Renal involvement and hypertension were developed in 26% and 15.1% of patients respectively. Table (4) illustrates other complications among the study group.

Table 1: Comparison of SLE manifestations between present and previous cohorts:

Authors	Present study	Alballa SR et al.7	Mahmood KBARIAN 8	Ulthman I et al.9	Al-Jarallah K et al.10	Cervera R et al.11,12
Geographic area	Middle East	Middle East	Middle East	Middle East	Middle East	Europe
Population	Saudi	Saudi	Iranian	Lebanese	Kuwait	European
Number of patients	73	87	2280	100	108	1000
Female to male ratio	9/1	9/1	9/1	6.1/1	10/1	9.8/1
Mean age of onset	29.3	25.3 _ 10.5 (mean)	21.7	25	31.5	29
Photosensitivity	63%	26%	56.4%	16	48	22
Malar rash	61.6%	56%	60%	52%	43%	31.3
Discoid lesion	15.1%	18%	14.6%	19%	10%	7.8%
Oral ulcer	47.9%	16%	38.5%	40%	33%	12.5%
Arthritis	71.2%	91%	51.9%	95%	87%	48.1%
Renal	44.1%	65.4%	65.4%	50%	37%	27.9%
Neuropsychiatric	35.6%	23.4%	23.4%	19%	23%	19.4%
Leukopenia	54.8%	NR	35.1%	17%	83%	NR
hemolytic anemia	NR	NR	4.1%	10	NR	4.8%
Thrombocytopenia	21.9%	NR	17.6%	33%	26%	13.4%
ANA	98.6%	98%	86.4%	87%	94%	96%
Anti-dsDNA	100%	82.3%	82.3%	50%	58%	78%

Table 2 immunological markers in SLE patients:

ImmunologicalMarker	**NO (%)**
anti-dsDNA	73(100%)
Anti-phospholipids antibodies	3 (3.9%)
Anti-Smith (SM) Antibodies	19 (26%)
Anti-Ro antibodies	28 (77.8%)
Anti-cardiolipin antibodies	10 (13.7.9%)
anti-b2-glycoprotein I antibodies (ab2GPI)	7 (9.9%)
Anti RNP	15 (20.5%)

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Table 3 Neuropsychiatricsyndrome and its association with hypertriglyceridemia

	Neuropsychiatry	**Others**	**P value**
Total cholesterol (< 5.2 mmol)	4.88 + 1.4	4.63 + 1.02	0.5121
Triglycerides (< 1.7 mmol)	1.96 + 1.4	1.43 + 0.92	**0.0195**
LDL (< 3.4)	2.98 + 0.74	2.74 + 0.63	0.2713
HDL (Male > 1 mmol; Female > 1.5 mmol)	1.206 + 0.27	1.07 + 0.23	0.0995

Table (4): Complications and disease associations among the study group:

Complication andAssociation	**No (%)**
Cardiopulmonary	
Pulmonary embolism	4 (5.5%)
Myocardial infarction	11 (1.4%)
Stroke	6 (8.2%)
Hypertension	11 (15.1%)
Pre-hypertension	19 (26%)
Hypotension	25 (43.2%)
Endocrine	
Hypothyroidism	7 (9.7%)
Cushing's syndrome	5 (6.8%)
Other	
Anemia	47(64.4%)
Antiphospholipid syndrome	3 (3.9%)
Sjogren's syndrome	3 (3.9%)
Bleeding tendency	7 (9.6%)

4. Discussion

There are different reports on the prevalence and characteristics of SLE worldwide; probable explanations of these differencesare environmental and genetic variations. In the present study, we aimed to show the manifestations of SLE among 73 Saudi patients in Tabuk, which is the capital of the region that includes several administrative districts. It has a desertous continental weather with hot summers and mild winters. Temperatures in the summer are between 26 and 46 °C, while in winter they are between –4 and 18°C, with widespread frosts. Snowing is common, with temperatures reaching low –6 °C in some winters. In Table 1, we compare the characteristics of our patients to those reported from Saudi Arabia (different regions) and other countries in the Middle East mainly Lebanon and Kuwait as well as large series from Europe.

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Our study displayed female dominance similar to other reports. The age of disease onset was similar to Lebanon, Kuwait but different from Iranian patients who developed the disease at a younger age, a plausible explanation is a genetic variance. The prevalence of photosensitive rash among the study group was similar to Iran and Kuwait but higher than the Lebanon and Europe, which showed low prevalence, the possible reason is the more intense ultraviolet irradiation exposure in our study group. The prevalence of Malar rash was similar to all other studies except that from Europe, which was reported low (7, 8, 9, 10, 11).

The most common clinical manifestation of SLE was arthritis (71.2%) similar to Abid et al and Zomalheto et al. (12, 13) studies. Its prevalence is comparable to the studies (7, 8, 9, 10, 11), likewise renal involvement in our study was comparable to the previous studies.

Remarkably, the neuropsychiatric (NP) syndromes of SLE (NPSLE) were reported in 35.6% of our patients which is higher than other studies which we could not explain. However, there was a significant association between the (NPSLE) and hypertriglyceridemia in our study group. Table 3 which may be due to the steroid therapy.14 . Leucopenia was the dominant hematological manifestation in our study group; it was reported in 54.8% of patients which is higher than the Lebanese study but less than the study from Kuwait. Thrombocytopenia was reported similar to studies (7,8,9,10,11).

Ourstudy showed that 1.4% of patients developed acute myocardial infarction less frequentthan in the study conducted by Fernandez-Nebro et al. (3.8%) Possibly due totherelatively higher mean of age in the latter study.15 Positive ANA in our study was similar to the previous studies, but anti-dsDNA was higher than some countries of our region9, 10 and similar to European countries, 11, 13 which we could not explain.

Conclusion

This study showed a pattern among northern Saudi SLE patients of relatively higher joint and skin involvement, an alarming dominance of neuropsychiatric features which is significantly associated with hypertriglyceridemia.

There are some shortcomings of our study; firstly it was a single center observational study that subjected to bias. Secondly, we didn't include the treatment received by patients. Therefore larger multi-center studies are needed to ensure generalization, as well as longitudinal follow-up records, are necessary to explore the effects and response to therapy in this chronic relapsing disease.

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