Clinical pattern of systemic lupus erythematosus in Western Saudi Arabia

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ABSTRACT

Objective: The aim of this study is to demonstrate the clinical laboratory, treatment and course of systemic lupus erythematosus (SLE).

Methods: A total of 65 patients with positive double strand antibodies were collected at the Immunology Laboratory of King Abdul-Aziz University Hospital, Jeddah, Kingdom of Saudi Arabia over a 2 year period between January 2000 and December 2001. The data included personal data, clinical manifestations, laboratory, results, and different modalities of treatment and outcome of treatment. Group results were presented as median $\pm$ standard deviation or as a percentage.

Results: Sixty-five patients with SLE were included in the study. The female to male ratio was 5.5:1. Median age of 23$\pm$11.33 years. Seventy percent had a multiple system involvement, 60% presented with arthralgia or arthritis and 55.4% had lupus nephrites, proved by kidney biopsy in 22 patients. Most were treated by intermittent cycolphoamide and steroids with an excellent outcome. Laboratory results and modalities of treatment were similar to previous results. Male SLE is more common in our study group with serious organ damage. Our mortality rate was 3% only.

Conclusion: Systemic lupus erythematosus presentation is similar to pervious studies and it is more common in male. Lupus nephritis is a common prevention with excellent outcome.

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Systemic lupus erthematosus (SLE) is a chronic, occasionally life threatening, multisystem disorder. Patients suffer from a wide area of symptoms and have a variable prognosis depending upon the severity and type of organ involvement. Due to its uncertain course, effective treatment requires ongoing patient - doctor communication to correctly interpret laboratory tests, alleviate symptoms, prevent and treat relapse and lessen effects to drug therapy. There is a wide variation in the natural history of SLE among different ethnic and geographical groups. This study aims to demonstrate the clinical and laboratory features and course of disease at King Abdul-Aziz University Hospital (KAUH), Jeddah, Kingdom of Saudi Arabia (KSA).

Methods. King Abdul-Aziz University Hospital, Jeddah, KSA, is a governmental teaching hospital providing health care to a multinational population of mixed socioeconomic status. Sixty-five patients with positive double strand antibodies were collected at the Immunology Laboratory of KAUH over a 2 year period between January 2000 and December 2001. The medical charts of all patients with a final diagnosis of SLE were reviewed. The diagnosis was confirmed by applying the American Rheumatism Association (ARA) the revised criteria for diagnosis of SLE. The diagnosis was made if 4 of the criteria were met, irrespective of the time onset of these criteria. The medical records were analyzed retrospectively for relevant data such as patients'

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age, sex and nationality with ethnic origin. The data include clinical manifestation at presentation and during follow up. Treatments either early or during follows up were also recorded, as well as recording the complications. Laboratory data includes leucopenia (white blood cells<4000\mm[9]), anemia (hemoglobin <11gm\dL) and thrombocytopenia (platelets<100,000/mm[9]). Raised erythrocyte sedimentation rate, positive Anti-nuclear antibodies (ANA), positive rheumatoid factor, high anti-DNA, anti-smith, smith antibody, ribonuclear protein/smith antibodies and low C_3, C_4 were recorded (**Table 1**) Lupus nephritis was confirmed by renal biopsy, which graded according to World Health Organization classification of II, III, IV, V.

Statistical analysis was carried out using the Statistical Package for Social Sciences (SPSS) 7.5. Group results were presented as median $\pm$ standard deviation or as a percentage.

Results. A total of 65 patient medical records were analyzed. Fifty-five (84.6%) were females and 10 (15.4%) were males, with female to male ratio of 5.5:1. Thirty-eight (58.4%) patients were Saudis, 27 (41.6%) were expatriates (13 Yemenis, 2 Palestinian, 2 Sudanese, 4 Pakistani, one Filipino, 2 Indonesians and 3 Chadians). The median age was 23 $\pm$ 11.33, with a range of 14-52 years.

Clinical presentation. Multiple systems involved as shown in **Table 1**, and this was considered when 3 or more systems were involved. In this study 45 (70%) patients had multisystem involvement. Arthralagia and arthritis were the most common clinical presentation. It was present in 39 patients (60%). One patient has knee effusion and 2 cases were presented with a vascular necrosis of hip. Lupus nephritis accounted for 36 (55.4%) cases, 22 had renal biopsies showing type IV in 16 cases (72.4%), type II in 3 cases, type III in 2 cases and type V in one case. Other clinical presentation includes protinurea and hematuria. All renal cases were treated with oral steroids. Intermittent intravenous methylprednisolone pulse therapy and cyclophosphamide was added to all 18 cases with glomerulonephritis. Almost all lupus nephritis cases showed improvement except in 2 cases who developed chronic renal failure requiring hemodialysis. Skin manifestations in the form of photosensitive rash was reported in 16 cases, malar rash in 13 cases and alopecia in 14 cases. Neurological manifestations accounted for 17 patients, 9 had psychosis and 6 had seizures. Cardiopulmonary presentations, either myocarditis with refractory heart failure as seen in 5 patients and pleural effusion in 3 cases. General manifestation such as fever was accounted for 6 cases and 5 patients had hepatosplenomegaly. **Table 2** shows all the laboratory abnormalities in our patients. Anti-nuclear antibodies were positive in 24 (36.9%) patients, anti-double stand antibodies were positive in all our patients with median titer of 527 $\pm$ 1091.99 IU\ml (NR<200 iu\ML), in which anti-Smith antibodies and anti-ribonuclear protein antibodies were positive in 45 cases. Rheumatoid factor (RF) was detected in 10 patients only. Complement components C_3 and C_4 level were low in 42 patients with active disease. Lupus anticoagulants were positive in 10 patients presents either with repeated abortion or venous thrombosis. **Table 3** shows the different drugs used in treatment ranged from non-steroidal anti-inflammatory drug (NSAID) has been used in 10 patients only, hydroxychloroquine, steroids and intermittent cyclophosphamide with intravenous methylprednisolone in lupus nephritis. Anticoagulant (warfarin) was used in 3 cases with venous thrombosis. **Table 4** shows the complications noted during the natural history of the disease such us chronic renal failure in 2 patients requiring dialysis.

Male patients with systemic lupus erythematosus. There were only 10 cases of documented SLE in males with a mean age of <21 years. Five of them had lupus nephritis, 3 with skin manifestations, one with seizure and one had multisystem involvement.

Mortality. Mortality rate in our series was 3%. The cause of death was pulmonary embolism 1%, septicemia 1% and disseminated intravascular coagulopathy with refractory heart failure 1%.

Discussion. A total of 65 patients with the diagnosis of SLE was confirmed by applying the ARA at KAUH in a period between January 2000 to December 2001. The mean age was <20 years which is younger than that reported from European counties however, it is similar to studies from KSA or other Arab counties. The female to male ratio in our study is 55:10 with ratio of 5.5:1, which reflect female preponderance, as well male SLE is more common in our study group compared to other studies. This is due to involvement of non-Saudi patients. Most cases (60%) presented with arthralgia or arthritis which is similar to other studies in Saudis and Arab countries, however fatigue was reported in 9.2% of cases only, which was very low compared to other study. This could be explained that our patients did not considered fatigue as an important symptom. Multisystem involvement was less than the Siddique's report of SLE at KAUH in 1994, which is 90%, however it was 70% in our study group but similar from reports of Western countries. Lupus nephritis is common in our study, which proved by kidney biopsy to have different stages of glomerulonephritis. This could be explained that KAUH is a referral center for lupus nephrites. The outcome was excellent due to careful monitoring and immunosuppressive drugs mainly intermittent intravenous pulse cyclophosphamide therapy

Table 1 - Clinical pattern of systemic lupus erythematosus.

Clinical features	n of patients	(%)
Skin rash	28	(43)
Malar rash	13	(26)
Butterfly rash	16	(24.6)
Alopecia	14	(21.5)
Oral ulcers	6	(9.2)
Vasculitis	2	(3)
Discoid lupus	1	(1.5)
Skeletal system	48	(73)
Fatigue	6	(9.2)
Arthritis	39	(60)
Knee effusion	1	(1.5)
A vascular necrosis of hip joints	2	(3)
Renal	36	(55.3)
Glomerulonephritis	22	(33.8)
Proteinuria	9	(13.8)
Hematuria	2	(3)
CRF	3	(4.6)
Neurological	17	(26)
Psychosis	9	(13.8)
Seizures	6	(9.2)
Other	2	(3)
Cardiac	6	(9.2)
Pericarditis	1	(1.5)
Myocarditis with heart failure	5	(7.6)
Pneumonia	1	(1.5)
Pleural effusion	3	(4.6)
Hepatosplenomegaly	5	(7.6)
Fever	6	(9.2)
Deep vein thrombosis	4	(6.5)
Repeated abortion	2	(3)
Thrombocytopenia	1	(1.5)

n - number, CRF - corticotropin-releasing factor

Table 2 - Laboratory results in patients with systemic lupus erythematosus.

Laboratory results	n of cases
Leucopenia (<40000/mm^3)	24
Anemia (11gm/dL)	22
Thrombocytopenia (<100,000/mm^3)	1
Raised sedimentation rate	24
Positive ANA	55
High unit-DNA	60
Low C_3	40
Low C_4	42
Antiphospholipid antibody	11
Positive rheumatoid factor	10

n - number, ANA - antinuclear antibody,
DNA - deoxyribose nucleic acid,
C_3 - complement 3, C_4 - complement 4

Table 3 - Drugs used in treatment.

Drugs	n
NSAID	10
Steroids	12
Hydroxychloroquine	3
Steroid + hydroxychloroquine + azathioprine	16
Steroid + IV cyclophosphamide	18
NSAID + hydroxychloroquine	3
Anticoagulant	3
Others	4

n - number,
NSAID - non-steroidal anti-inflammatory drug,
IV - intravenous

Table 4 - Complications of systemic lupus erythematosus.

Complications	n
Hypertension	9
Thrombosis	4
Pulmonary embolism	1
Stroke	3
GIT bleeding	1
DIC	2

n - number, GIT - gastrointestinal tract,
DIC - disseminated intravascular coagulopathy

combined with low dose steroids to control the clinical activity of lupus nephritis. Clinical manifestations and laboratory findings mainly serological results in our study was similar to that reported from previous study. Male SLE is more common in our study group. Which could be explained by increased awareness of doctor that disease can present in male patient. One patient with Graves disease whose treated by Neamarcazole result in SLE induced by medication and showed remarkable improvement after discontinue of Neamarcazole. In our study group, the clinical manifestations and serologic findings, the treatment response and outcome of Saudi patients was similar to expatriate which were mostly Arabs (Yemen, Sudan, Palestinian). The common factors may be shared between them (genetic, environmental and diet) that could trigger or control the disease presentation. The low mortality rate (3%) compared favorably with 4%, and 5.4% in 2 previous studies from the KSA. This could be attributed to early diagnosis and excellent treatment to control the disease activity.

In conclusion, SLE is presented common in females in Western part of KSA, as well more common in males. Arthritis or renal and skin manifestations were the common clinical presentations. Early diagnosis and treatment is the only way to prevent irreversible organ damage. Inspite of young age, severe lupus nephritis and multisystem involvement of disease at presentation, the prognosis was excellent due to proper treatment and monitoring disease activity.

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