ORIGINAL ARTICLE

SYSTEMIC LUPUS ERYTHEMATOSUS AT KARACHI AND LARKANA: A COMPARATIVE STUDY OF 94 PATIENTS

Ghulam Akber Solangi, Bader Faiyaz Zuberi, Sikander Ali Shaikh, Wazir Muhammad Shaikh and Mukhtar Azeem Mirza*

ABSTRACT

Objectives: Systemic lupus erythematosus (SLE), a multisystem disease thought to be an uncommon disease in our country was studied to see and compare its presentation and clinical features at Karachi and Larkana.

Design: A cross-sectional and observational study.

Place and Duration of Study: It was conducted at Karachi and Larkana during the period from January, 1991 to August, 1993 and March, 1997 to June, 2000 respectively.

Subjects and Methods: All patients confirming the diagnostic criteria of American Rheumatism Association were included in the study. Clinical and physical examination details were recorded and laboratory investigations like complete blood count, urine detailed report, serum urea, liver bio-chemistry, immurological tests ANA, ASMA, AMA and Anti ds-DNA were carried out. Muscle, liver and skin biopsies, muscle enzymes and electromyography were done in selected cases only where indicated.

Results: Among 94 patients, evaluated during the study period, 55 included 10 (18.18%) males and 45 (81.81%) females who were diagnosed at Karachi center while 39 patients 6 (15.38%) males and 33 (84.62%) females at Larkana center. Fever was the most common symptom at the time of presentation in Karachi (80.0%) while arthralgia and arthritis (82.05%) were most common symptoms presented at Larkana ($p < 0.05$). The most common complication reported at Karachi was proteinuria (90.91%) while at Larkana it was anemia (84.62%).

Conclusions: The presentation and clinical features of SLE at Karachi and Larkana were nearly similar.

KEY WORDS: *Lupus erythematosus, systemic. Sign and symptoms. Fever. Arthralgia. Arthritis.*

INTRODUCTION

Systemic lupus erythematosus (SLE) is a multisystemic disease characterized by alterations in the regulation of both cellular and humoral immune responses. B cell hyperactivity and genetic aberrations lead to formation of compliment-fixing IgG autoantibodies including anti-DNA and anti-nucleosome antibodies. Pathological T cell clones that recognize double-stranded DNA and nucleosomes further drive B cell production of DNA autoantibodies. Deposition of autoantibodies within the skin, kidney, brain and other organ systems contributes to the pathophysiology and clinical manifestations of SLE.

Experimental evidence indicates that DNA antibodies contribute to the histological changes observed in lupus nephritis. The binding of anti-DNA and other autoantibodies to basement membranes and cellular structures within the glomerulus results in activation of compliment and recruitment of inflammatory cells into the glomerulus.

In 1933 Klinge first drew attention to the damage of fine collagen network of myocardium in acute rheumatic fever and suggested that the condition is predominantly a disease of collagen and therefore, called it "Collagen disease" which applies to all inherited or acquired disorders of connective tissue system and referred as Connective Tissue Disease (CTD). This group comprises Systemic Lupus Erythematosus (SLE), Systemic Sclerosis or Scleroderma (SS), Polymyositis (PM), Dermatomyositis (DM), and Mixed Connective Tissue Disease (MCTD).

The clinical presentation depends on the organ involved, so it may be either localized or systemic. The course is often unpredictable with variable periods of exacerbation and remissions. The symptoms and signs that occur in these disorders are variable and overlapping. Prolonged latent interval between the symptomatology and ultimate diagnosis is the characteristic feature common to all these connective tissue disorders.

The reported data on SLE from our country is very scanty, this study compares the features of SLE in patients presenting at Karachi and Larkana.

PATIENTS AND METHODS

This prospective, cross-sectional, observational study was conducted from January, 1991 to August, 1993 at Civil Hospital Karachi and from March, 1997 till June, 2000 at Chandka Medical College Hospital Larkana. All the patients of SLE presenting to Medical and Dermatology Departments of respective institutes were enrolled for further evaluation. The diagnosis of SLE was made on the clinical criteria of

Department of Medicine, Chandka Medical College, Larkana, Pakistan.
*Department of Medicine, Dow Medical College, Karachi, Pakistan.

Correspondence: Dr. Ghulam Akbar Solangi, Bungalow # 8, Professors' Colony, Chandka Medical College, Larkana, Pakistan. Tel: 459700

Received December 9, 2000; accepted April 7, 2001.

American Rheumatism Association. Manifestations of the disease present were noted and recorded. All patients were subjected to complete blood counts, urine examination, serum urea, liver bio-chemistry, immunological tests ANA, ASMA, AMA and Anti ds-DNA. The cut off value of Anti ds-DNA was taken as 7.0 IU/dl done by EIA. Muscle, liver and skin biopsies. Muscle enzymes and electromyography were done in selected cases where indicated. History of weight loss of more than 10% over the last one year was also noted.

Statistical analysis was done using difference of means for normal distribution. P value of < 0.05 was taken as significant.

RESULTS

Among 94 patients diagnosed as SLE at the corresponding centers evaluated during the study period, 55 were diagnosed at Karachi center while 39 cases at Larkana center. At Karachi these included 10 (18.18%) males with the mean age of 35.5 ±14.3 years and 45 (81.81%) female of mean age 27.7 ±11.3 years. Although the mean age of females was less as compared to males but the difference was not statistically significant (p=0.13).

Out of 39 patients presenting at Larkana 6 (15.38%) were males while 33 (84.62%) were females, their mean ages were 40.2 ±4.4 years and 34.8 ±7.3 years respectively. Age of presentation at Larkana was slightly higher as compared to Karachi, ($p < 0.05$).

Fever was the most common symptoms at the time of presentation in Karachi (80.0%) while arthralgia and arthritis (82.05%) were the most common symptoms at Larkana ($p < 0.05$). Proportion of the patients suffering weight loss was also significantly higher at Larkana than in Karachi 54.55% vs 71.79% ($p < 0.05$). Details are given in **table I.**

Presenting symptoms

Symptoms	Karachi (n =55)	%	Larkana (n=39)	%
Fever	44	80.00	31	79.49
Arthralgia/Arthritis	42	76.36	32	82.05
Skin rash	39	70.91	27	69.23
Weight loss	30	54.55	28	71.79
Myalgia	22	40.00	18	46.15
Dyspnoea	11	20.00	10	25.64
Cough	13	23.64	10	25.64
Chest pain	8	14.55	7	17.95
Dysphagia	5	9.09	5	12.82

Complications present

Complication	Karachi (n = 55)	%	Larkana (n= 39)	%
Fever	44	80.00	31	79.49
Pleurisy	8	14.55	5	12.82
Pericarditis	7	12.73	5	12.82
Pneumonitis	6	10.91	3	7.69
Myopathy	3	5.45	2	5.13
Pleural Effusion	2	3.64	6	15.38
Cardiac Failure	2	3.64	3	7.69
Anaemia	40	72.73	33	84.62
Leukopenia	32	58.18	24	61.54
Thrombocytopenia	28	50.91	19	34.55
Proteinuria	50	90.91	32	82.05

TABLE III Status of ANA & Anti ds-DNA

	Karachi		Larkana		Total	
ANA	49	89.09%	34	87.18%	83	88.30%
Anti ds-DNA	53	96.36%	38	97.44%	91	96.81%

TABLE IV Biochemical Investigations

Investigation	Karachi (mean ± SD)	Larkana (mean ±SD)
Urea	45.6 ± 10.2 mg/dl	48.3 ± 9.3 mg/dl
Creatinine	1.4 ± 2.1 mg/dl	1.5 ± 1.6 mg/dl
Total Bilirubin	1.3 ± 0.9 mg/dl	1.1 ± 0.6 mg/dl
ALT	60.8 ± 3.3 IU	55.1 ± 4.4 IU
Alk. Phos	110.0 ± 25.5 IU	120.2 ± 30.5 IU
Hb	10.2 ± 5.9 mg/dl	9.1 ± 3.6 mg/dl
TLC	3900 ±1100/mm3	4400 ± 800/mm3

At Karachi the most common complication reported was proteinuria (90.91%) while at Larkana it was anemia (84.62%). as detailed in **table II.** The breakup of ANA and anti ds-DNA is given in **table III**, while the results of biochemical investigations are given in **table IV**.

DISCUSSION

The impression that SLE is rarity in our population is not correct. In our study we had 94 patients with SLE signifying the prevalence of this disorder. We may find significant prevalence of these disorders in our population if wide based and long spanned studies are conducted all over the country and prevalence data properly collected.

Comparing the presentations of SLE in two areas of Sindh province we found that in majority of cases, presentations were similar in interior Sindh and at Karachi.

Among 94 SLE patients 82.9% were females and 17.1% were males which is consistent with studies of Dubois and Tuffanelli (89.1% females and 10.9% males) and Hochberg *et al* (92% females and 8% males).[2] SLE is more common in black women as compared with white women and occurs primarily in women during childbearing age.[4] Goldman's figures are similar to this study which shows that maximum incidence of disease (60%) was between 20-39 years of age.[5] The age incidence of this study is almost similar when compared with the other studies on SLE .[2,3,6]

The skin lesion of SLE is pleomorphic. It varied from erythema alone to macules and bullous lesion. In about 20% of our patients no evidence of cutaneous involvement was seen. Classical butterfly rash was present in 53.2% patients and 16.6% had discoid rash. The incidence of typical butterfly rash in various studies varied from 36.7 - 61.0%.[2,3,7]

Systemic complication such as serositis, cardiac tamponade, hypertension, lupus pneumonitis, nephritis, renal failure, pancreatitis, perforation and neurological involvement were less frequently observed in our patients as compared with other studies on SLE.[2,3,8-11]

Cardiac involvement has been shown to be associated with antiphospholipid antibodies.[12-14] SLE can occur in association

with other auto-immune disorders like progressive systemic sclerosis.[15]

Cardiovascular and cerebrovascular diseases are common causes of morbidity and mortality in women with SLE and are also common in patients with end-stage renal disease (ESRD).[16,17] Recently analysis of data from the US Renal Data System compared incidence rates of hospitalizations for acute myocardial infarction and cerebrovascular accident between women with ESRD caused by lupus nephritis and women with ESRD from other causes.[18] The results showed that although morbidity and mortality from cardiovascular and cerebrovascular diseases are common among women with SLE, risks for these outcomes were not greater among women with ESRD caused by lupus nephritis than among other women without diabetes with ESRD.[18] It has also been shown that the outcome of renal transplantation in patients of SLE is comparable to those without SLE.[19] In a study in Malaysia where 85 patients of lupus nephritis on cyclophosphamide were studied for 10 years, the survival rate at 10 years was reported as 64%.[20]

Antinuclear antibodies were present in 88.3%, similar to what has been reported by McCarty.[21] Anti ds-DNA was present in 96.81% of our patients as compared to 70% reported in the literature.[21] Overall mortality in our patients was 5.25%. There were three deaths in 2 SLE patients due to renal failure and one patient who was on penicillamine therapy, developed marked bone marrow suppression with super added secondary infection.

Conclusions

In conclusion the clinical presentation of SLE at Larkana and at Karachi is nearly similar. And the disease is very much present in interior of Sindh. It needs better awareness to diagnose, as its diagnostic tests are available in all major cities of Sindh.

References

1. Dubois EL, Tuffanelli DL. **Clinical manifestations of SLE** -*JAMA* 1964;**190**:104-11.
2. Hochberg MC, Boyde RE, Ahearn JM. **SLE: a review of clinico-laboratory features and immunologic markers.** *Medicine* 1985; **64**(5):285-95.
3. Fessel WJ. **Epidemiology of SLE.** *Rheum Dis Clin N Am* 1988;**14**:1
4. Goldman RR. **Pregnancy and SLE.** *Rheum Dis Clin N Am* 1990; **16**:169.
5. Gill GY. **SLE: a multisystem disease.** *Med Digest Asia* 1992; **4**(5): 4-5.
6. Faiza S. **SLE: a review of literature and study of 15 patients** (Dissertation) Karachi *CPSP* 1981.
7. Reynolds SC, Inman RD, Kimberly RP. **Acute pancreatitis in SLE.** *Medicine* 1982; **61**: 25-32.
8. Dawani MLS, Osmani MH, Shaikh MA, *et al.* **A study of Lupus Nephritis** - *JPMA* 1985; 167-70.
9. Carette S. **Cardiopulmonary manifestation of SLE.** *Rheum Dis Clin N Am* 1988; **14**: 135-48.
10. McCume WJ, Golbus J. **Neuropsychiatric Lupus.** *Rheum Dis Clin N Am* 1988; **14**: 149-68.
11. Moder KG, Miller TD, Tazelaar HD. **Cardiac involvement in systemic lupus erythematosus.** *Mayo Clin Proc* 1999; **74**(3): 275-84.
12. Vaarala O. **Antiphospholipid antibodies and myocardial infarction.** *Lupus* 1998; **7** Suppl 2: S132-4.
13. Wilson WA, Faghiri Z, Taheri F, Gharavi AE. **Significance of IgA antiphospholipid antibodies.** *Lupus* 1998; **7** Suppl 2: S110-3.
14. Obata T, Takahashi H, Nosho K, Ikeda Y, Tokuno T, Kawahito Y, Honda S, Makiguchi Y, Imai K, Ikeda T. **A case of systemic lupus erythematosus overlapping with progressive systemic sclerosis accompanied by deposition of AA amyloid in the stomach.** *Ryumachi* 1998; **38**(6): 810-7.
15. Ward MM. **Cardiovascular and cerebrovascular morbidity and mortality among women with end-stage renal disease attributable to lupus nephritis.** *Am J Kidney Dis* 2000; **36**(3): 516-25.
16. Miller CS, Egan RM, Falace DA, Rayens MK, Moore CR. **Prevalence of infective endocarditis in patients with systemic lupus erythematosus.** *J Am Dent Assoc* 1999; **130**(3): 387-92.
17. Ward MM. **Cardiovascular and cerebrovascular morbidity and mortality among women with end-stage renal disease attributable to lupus nephritis.** *Am J Kidney Dis* 2000; **36**(3):516-25.
18. Clark WF, Jevnikar AM. **Renal transplantation for end-stage renal disease caused by systemic lupus erythematosus nephritis.** *Semin Nephrol* 1999; **19**(1): 77-85.
19. Chan AY, Hooi LS. **Outcome of 85 lupus nephritis patients treated with intravenous cyclophosphamide: a single centre 10 year experience.** *Med J Malaysia* 2000; **55**(2):14-20.
20. McCarty GA. **Autoantibodies and their relation in Rheumatic disease** - *Med Clin N Am* 1986; **70**: 2. 237.
21. Kelley VR; Wuthrich RP. **Cytokines in the pathogenesis of systemic lupus erythematosus.** *Semin Nephrol* 1999; **19**(1): 57-66.