

Original Research Article

Clinical profile of young females with systemic lupus erythematosus: an observational study

Rishman Tandi^{1*}, Tanvi Kumar², Atamjeet Singh³, Harmanpal Kathura¹

¹Department of Internal Medicine, Government medical college, Amritsar, Punjab, India

²Department of Internal Medicine Saraswati Mission Hospital, Kurukshetra, Haryana, India

³Medical Officer Primary Health Centre, Ramdass, Punjab, India

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*Correspondence:

Dr. Rishman Tandi,

E-mail: rishmankaur11@gmail.com

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ABSTRACT

Background: Systemic lupus erythematosus (SLE) is an autoimmune disorder predominantly affecting women of child bearing age group and is known to require significant lifestyle modifications. The manifestations of SLE are myriad and it may virtually affect every system of affected individual. We Undertook this study to know the clinical profile of young female patients having SLE. The aim of the study was to study clinical features and medical therapy of young female patients having SLE.

Methods: This was a prospective study in which 60 female patients diagnosed to be having lupus were included on the basis of a predefined inclusion and exclusion criteria. Investigations relevant to the diagnosis such as Antinuclear antibodies, Antiphospholipid Antibodies, Anti B2GP1 IgG, Anti-dsDNA antibody, Anti Smith Antibody and complement (C3 and C4) levels were done in all the cases. Other investigations such as imaging studies were done in selected cases. Clinical features and medical management being taken by these patients were analyzed. SSPS 21.0 software was used for statistical purpose.

Results: The mean duration of the disease in studied cases was found to be 6.96±4.51 years. Malar rash was the commonest type of rash seen in these patients and was present in 53 (88.33%). Arthralgia with or without arthritis was seen in 54 (90%) of the cases. Anemia was the most common hematological abnormality and was seen in 17 (28.33%) patients. Renal involvement in the form of proteinuria was seen in 25 (41.67%) cases. The most common form of pulmonary involvement was pleural effusion which was seen in 4 (6.67%) patients. Cardiovascular manifestations were seen in 11 patients (18.33%).

Conclusions: SLE usually affect women of child bearing age group and have a myriad clinical presentation. A thorough knowledge of various clinical presentations and a high index of suspicion is necessary to diagnose SLE particularly in its early stages.

Keywords: Systemic lupus erythematosus, Antinuclear antibodies, Clinical features, Drug therapy

INTRODUCTION

Systemic lupus erythematosus (SLE) can be defined as an autoimmune disorder which is characterized by presence of autoantibodies against nuclear and cytoplasmic antigens resulting into multisystemic inflammation and a relapsing and remitting course. Multiorgan involvement is the

hallmark of SLE. It commonly affects young women almost 90% of the affected cases are women of child bearing age group.¹

Its clinical manifestations are protean and involves multiple systems and organs. Although the common clinical features include malar rash, mucocutaneous

lesions, fever, lymphadenopathy, hemolytic anemia and nephropathy the classical triad of SLE include fever, joint pain and rash.² In addition to this the other manifestations which may be seen in these individuals include findings such as arthritis, avascular necrosis, impaired renal function, pleural effusion, pulmonary hypertension and leucopenia.³ Cardiac involvement may include pericarditis and myocarditis. Presence of classical triad of fever, rash and joint pains in women particularly of child bearing age group should arouse suspicion of SLE. In all these cases a family history of autoimmune disorders should be actively sought.⁴

The basic pathophysiology of SLE is development of autoantibodies against nuclear and cytoplasmic antigen causing dysregulated lymphocytes targeting intracellular antigens thereby causing formation of immune complexes resulting into multisystemic involvement.⁵ Many of the systemic manifestations are the result of circulating immune complexed that were formed because of autoantibodies and intracellular antigens.⁶

The diagnosis of SLE is usually done on the basis of The American College Of Rheumatology (ACR) and the European League against Rheumatism (EULAR).^{7,8} The work up of patients with suspected SLE include complete blood count, ANA titers, Renal and hepatic function tests. In selected patients imaging including X-Rays or computerized tomography or Magnetic resonance imaging may be required depending upon the systemic involvement. Presence of antinuclear antibodies in the titer of 1:80 is essential for diagnosis. If ANA antibodies are found in a titer of at least 1:80 then additive criteria is applied which consist of clinical domain and immunology

domain criteria. Presence of ANA antibodies (in a titer of at least 1:80) and score of at least 10 in clinical and immunology domain is essential for labeling a patient to be having systemic lupus erythematosus.

Once the diagnosis of SLE is made it requires a significant life style modification and multidisciplinary management. Treatment usually depends upon factors such as age of patient, severity and involvement of particular system. Various treatment options available for managing patients with SLE include Nonsteroidal anti-inflammatory drugs (NSAIDs), Steroids, disease modifying antirheumatic drugs that include cyclophosphamide, methotrexate, azathioprine and cyclosporine and IV immunoglobulins.⁹ In severe cases fully humanized IgG1 monoclonal antibodies such as Belimumab and rituximab may also be used. Despite all these modalities of treatment SLE usually have a remitting and relapsing cycle affecting lifestyle in majority of the affected individuals. With advances in management of SLE there has been a steady increase in life expectancy of patients.¹⁰

We conducted this prospective study of young women having systemic lupus erythematosus to analyze the demographic profile, clinical features and management of these cases.

METHODS

This was a prospective study in which 60 female patients diagnosed to be having lupus erythematosus, as defined by the American College of Rheumatology (ACR) criteria, were included on the basis of a predefined inclusion and exclusion criteria.⁷

Table 1: American College of Rheumatology (ACR) criteria for diagnosis of lupus erythematosus.

Essential criteria : Antinuclear antibodies in the titer of at least 1:80			
Clinical domain	Points	Immunologic domain	Points
Constitutional domain			
Fever	2		
Cutaneous domain			
Non-scarring alopecia	2	Antiphospholipid antibody domain	
Oral ulcers	2		
Subacute cutaneous or discoid lupus	4		
Acute cutaneous lupus	6	Anticardiolipin IgG > 40 GPL or Anti B2GPI IgG > 40 units or lupus anticoagulants	2
Arthritis domain			
Synovitis in at least 2 joints or tenderness in least 2 joints and at least 30 minutes morning stiffness		Complement Proteins Domain	
Neurological domain			
Delirium	2	1. Low C3 or low C4	3
Psychosis	3	2. Low C3 and Low C4	4
Seizures	5	Highly specific antibodies Domain	
Serositis domain			
Pleural/pericardial effusion	5	1. Anti-dsDNA antibody	6
Acute pericarditis	6	2. Anti-smith antibody	6
Hematological domain			
Leukopenia	3		

Continued.

Essential criteria : Antinuclear antibodies in the titer of at least 1:80	
Thrombocytopenia	4
Autoimmune hemolysis	4
Renal domain	
Protinuria > 0.5 gms/24 hrs	4
Class II or V lupus nephritis	8
Class III or IV lupus nephritis	10

A written informed consent was obtained from all the cases. The study was conducted in the Department of Internal Medicine saraswati mission hospital Haryana. The duration of study was 1 year from March 2020 to February 2021. As this was observational study ethical committee approval was not required. Patients were diagnosed to be having SLE if they were found to have antinuclear antibodies in the titer of at least 1:80 and having a score of at least 10 in clinical and immunology domain (Table 1).

Demographic details, clinical features and treatment were noted in all the cases. A detailed history with respect to age at diagnosis, past history and relevant family history was noted down. A thorough assessment was made about the way SLE has impacted the quality of life of these patients. status of health care utilization by these patients was also analyzed. Significant past history was noted in all the cases. Drug therapy, type of drugs and duration of treatment was noted in all the cases. A through clinical examination was done in all the cases. Particular attention was given to find out presence of features such as non-scarring alopecia, mouth ulcers and rash which are part of clinical criteria of ACR. A standard hematological profile consisting of complete blood count, Erythrocyte sedimentation rate, serum electrolytes, blood urea and serum creatinine was done in all cases.

Imaging studies to find out presence of pleural or pericardial effusion was done in selected cases. Immunological tests such as Antinuclear antibody tests, anti-ds DNA, antiphospholipid antibodies and complement levels were done in all cases. Status and severity of symptoms at the time of study were noted in all the cases. Presence of co-morbidities and complications were also analyzed. Statistical analysis was done using SSPS 21.0 software.

Inclusion criteria

Young females between age group of 18-40 years. Those who had given informed written consent to be part of study. Those who fulfilled American college of Rheumatology criteria for SLE.

Exclusion criteria

Patients with co-morbidities likely to interfere in the assessment of outcome or presence of complications such as acquired immunodeficiency syndrome, malignancies and decompensated cardiac diseases. Patients who refused

consent. Patients lost to follow up. Patients on any medication for concomitant medical conditions which may hamper assessment of outcome or presence of complications due to SLE.

RESULTS

A total of 60 patients with SLE were included in this study on the basis of a predefined inclusion and exclusion criteria. All were females. Male patients were excluded from this study. The analysis of age group of the patients showed that the most common affected age group was 26-30 (40%) years followed by 31-35 years (26.67%). Relatively less number of patients were seen above 35 (6.67%) and below 20 years of age (6.67%). The mean age of studied cases was found to be 27.78±4.72 years (Table 2).

Table 2: Age distribution of studied cases.

Age (years)	No. of cases	Percentage
18--20	4	6.67
21-25	12	20.00
26-30	24	40.00
31-35	16	26.67
36-40	4	6.67
Total	60	100.00
Mean age	27.78±4.72 years	

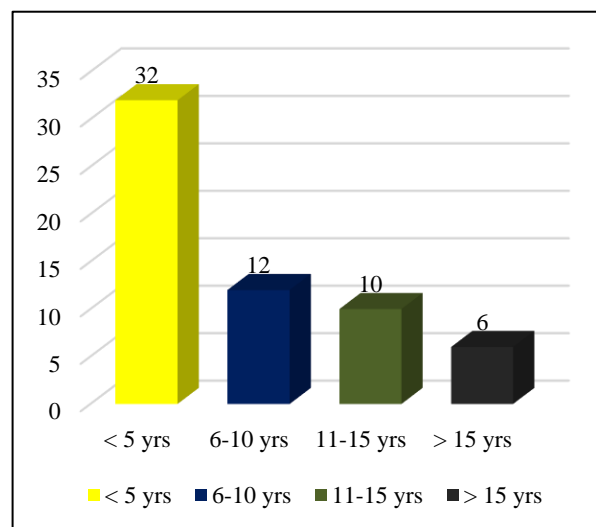


Figure 1: Duration of illness in studied cases.

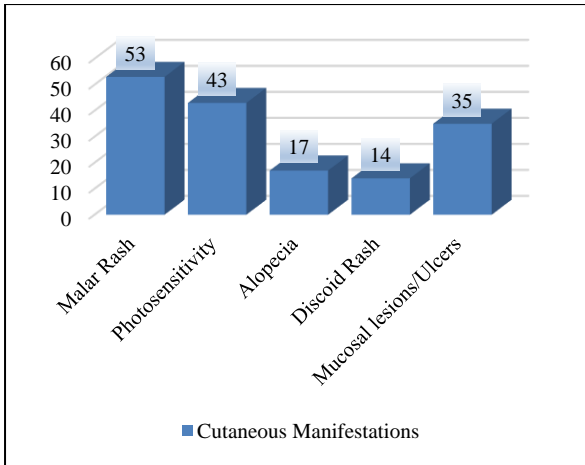


Figure 2: Cutaneous manifestations in studied cases.

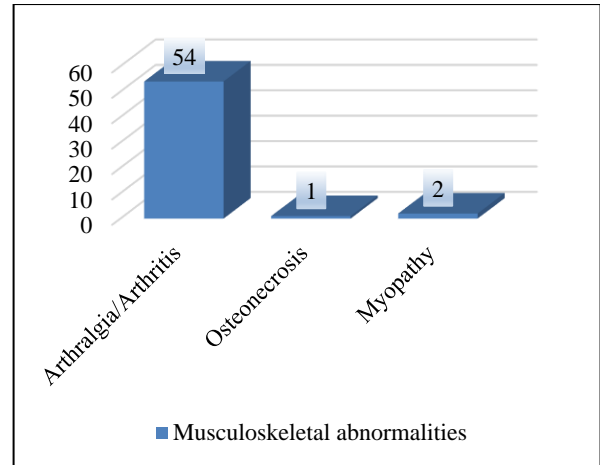


Figure 3: Musculoskeletal abnormalities in studied cases.

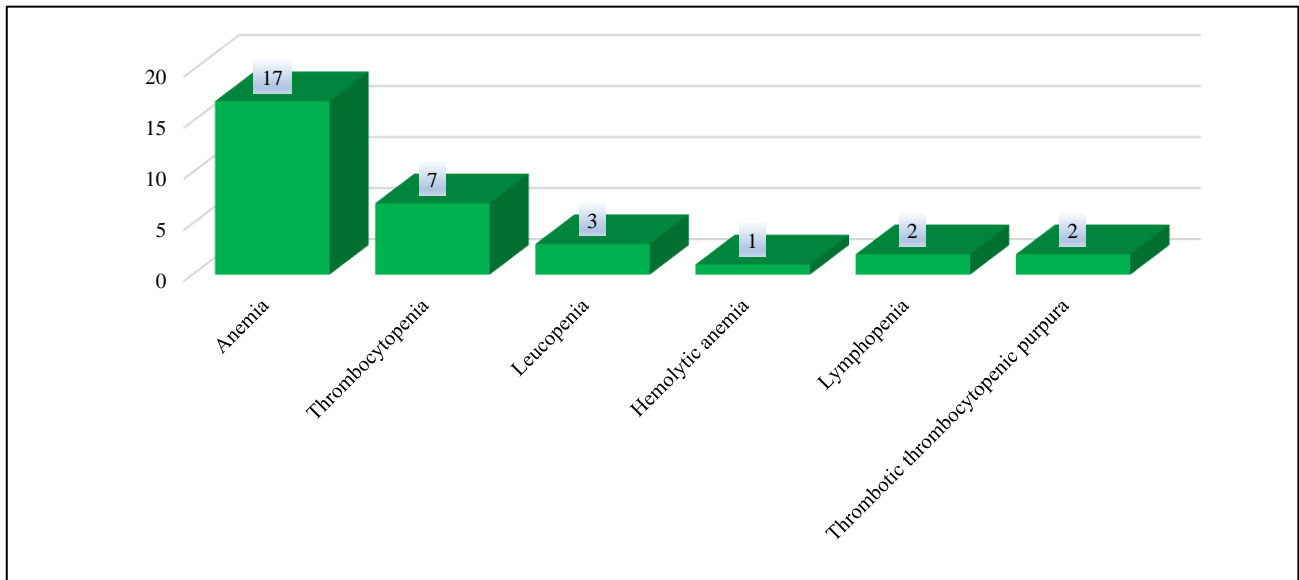


Figure 4: Hematological abnormalities in studied cases.

Table 3: Renal abnormalities in studied cases.

Renal Abnormality	No. of patients	Percentage
Proteinuria	Nephrotic Range (> 3.5 gm/day)	3 (5)
	Non-nephrotic range (<3.5 gm/day)	22 (36.66)
Haematuria	21	35.00
Nephritis on renal biopsy	3	5.00

Amongst 60 studied cases 32 patients (53.33%) were found to have SLE since less than 5 years. 12 patients (20%) had disease since 6-10 years whereas remaining 10

(16.67%) and 6 (10%) patients were found to have a disease duration of 10-15 years and more than 15 years. The mean duration of the disease in studied cases was found to be 6.96 ± 4.51 years (Figure 1).

The analysis of the patients on the basis of clinical profile showed that cutaneous manifestations were one of the common forms of presentation for which patients sought consultation. Malar rash was the commonest type of rash seen in these patients and was present in 53 (88.33%). The other common forms of cutaneous manifestations included photosensitivity (71.67%), mucocutaneous ulcerations (58.33%) and alopecia (28.33%) (Figure 2).

Arthralgia with or without arthritis was the most common musculoskeletal involvement seen in these patients and was present in 54 (90%) of the cases. Myopathy was seen

in 2 (3.33%) patients. Osteonecrosis of femoral head was seen in 1 (1.67%) patient (Figure 3).

Table 4: Pulmonary involvement in studied cases.

Pulmonary involvement	No. of patients	Percentage
Pleural effusion	4	6.67
Pneumonia	1	1.67
Interstitial lung disease	1	1.67
Pulmonary hypertension	2	3.33

Table 5: Neuropsychiatric manifestations in studied cases.

Neuropsychiatric manifestations	No. of patients	Percentage
Altered sensorium	1	1.67
Seizures	4	6.67
Peripheral neuropathy	1	1.67
Headache	3	5.00

The analysis of patients on the basis of hematological abnormalities showed that Anemia was the most common hematological abnormality and was seen in 17 (28.33%) patients. The other hematological abnormalities such as thrombocytopenia (11.67%), leucopenia (5%) and lymphopenia (3.33%) were relatively uncommon (Figure 4).

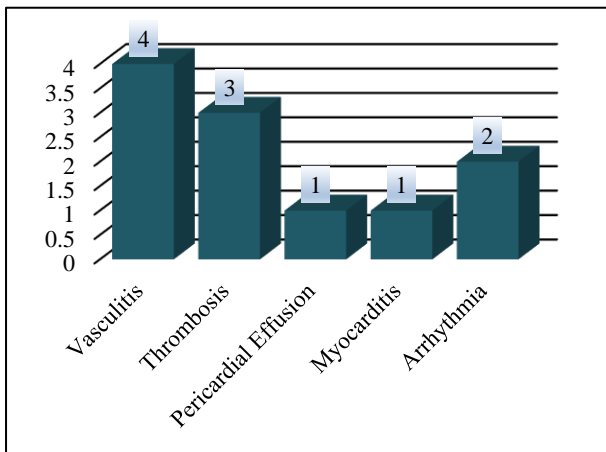


Figure 5: Cardiovascular involvement in studied cases.

Renal involvement in the form of proteinuria was seen in 25 (41.67%) cases. Out of these 25 patients having proteinuria 3 patients (5%) were found to have nephrotic range proteinuria (>3.5 gm/day). Hematuria was seen in 21 (35%) of the cases. Biopsy proven nephritis was seen in 3 (5%) patients (Table 3).

Pulmonary involvement was seen in 8 (13.33%) patients. The most common form of pulmonary involvement was pleural effusion which was seen in 4 (6.67%) patients. All

4 patients were found to have bilateral pleural effusion and was diagnosed on ultrasound examination. Pulmonary hypertension was seen in 2 (3.33%) patients. Pneumonia and interstitial lung disease was seen in 1 (1.67%) patients each (Table 4).

Cardiovascular manifestations were seen in 11 patients (18.33%). The most common form of cardiovascular manifestation was vasculitis which was seen in 4 (6.67%) cases. The other manifestations included arrhythmias (3.33%), myocarditis (1.67%) and pericardial effusion (1.67%) (Figure 5).

Neuropsychiatric manifestations were seen in 9 (15%) patients. The most common form of neuropsychiatric manifestations included seizures which were seen in 4 patients (6.67%). All patients had generalized tonic clonic seizures. The other neuropsychiatric manifestations included headache (5%), peripheral neuropathy (1.67%) and altered sensorium (1.67%) (Table 5).

Ocular manifestations were less common and were seen in 3 patients (5%). Retinopathy was seen in 2 (3.33%) patients whereas Painful eye movements, and iridocyclitis were other ocular manifestations seen in 1 (1.67%) patient each (Table 6).

Out of 60 studied cases 32 (53.33%) patients were treated by combination therapy of steroids (Prednisolone) and hydroxychloroquine. 12 (20%) patients were receiving only prednisolone and 6 (10%) patients were on hydroxychloroquine alone. 7 (11.66%) patients were on Non-steroidal anti-inflammatory drugs for arthralgia or arthritis. 3 (5%) patients were on prednisolone, hydroxychloroquine as well as mycophenolate mofetil for biopsy proven nephritis.

DISCUSSION

In our study of 60 patients with lupus erythematosus most common affected age group was found to be 26-30 (40%) years followed by 31-35 years (26.67%). Relatively less number of patients were seen above 35 (6.67%) and below 20 years of age (6.67%). The mean age of studied cases was found to be 27.78±4.72 years. In a similar study of patients with lupus erythematosus Saigal et al found that The mean age at onset of disease was 28 years (range 13-56 years).¹¹ Mean age of onset in male patients was 33.70±19.13 year and that in female patients was 27.45±10.12 year. Sixty-six per cent of the patients were less than 30 years in age. The mean age of female patients in this study was found to be quite similar to our study. Similar mean age of patients were reported by the authors such as Medhat et al and Dey et al.^{12,13}

Amongst 60 studied cases 32 patients (53.33%) were found to have SLE since less than 5 years. 12 patients (20%) had disease since 6-10 years whereas remaining 10 (16.67%) and 6 (10%) patients were found to have a disease duration of 10-15 years and more than 15 years.

The mean duration of the disease in studied cases was found to be 6.96±4.51 years. Aghdashi et al conducted a study of 75 patients with SLE and found the mean duration of SLE to be 56.44±40.57 months.¹⁴ Other studies such as those conducted by Gladman et al (12.9 year) and Przywara-Chowaniec et al (10.21±7.69 years) found mean duration of the disease to be more than our study but it may be because of the fact that we only included the patients of SLE up to the age of 40 years only thereby reducing the mean age of patients.^{15,16}

Malar rash was the commonest type of rash seen in these patients and was present in 53 (88.33%). The other common forms of cutaneous manifestations included photosensitivity (71.67%), mucocutaneous ulcerations (58.33%) and alopecia (28.33%). Kole et al conducted a study of cutaneous manifestations in 150 patients with SLE fulfilling the clinical and laboratory criteria of the American Rheumatology Association, the authors found that malar rash in was the most common cutaneous manifestation which was seen in 120 patients (80%).¹⁷ The other cutaneous manifestation in studied cases were found to be photosensitive dermatitis in 75 patients (50%), generalized maculopapular rash in 40 patients (26.67%), discoid rash in 30 patients (20%), subacute cutaneous lupus erythematosus (SCLE) in 5 patients (3.34%) and lupus profundus in 5 patients (3.34%). Similar to our study the authors also found malar rash to be most common cutaneous manifestation of SLE.

The analysis of musculoskeletal manifestations showed that arthralgia or arthritis was present in 54 (90%) of the cases. Myopathy was seen in 2 (3.33%) patients. Osteonecrosis of femoral head was seen in 1 (1.67%) patient. Renal involvement in the form of proteinuria was seen in 25 (41.67%) cases whereas biopsy proven nephritis was seen in 3 (5%) patients. In our study Neuropsychiatric manifestations were seen in 9 (15%) patients. The most common form of neuropsychiatric manifestations was seizures which were seen in 4 patients (6.67%). Cardiovascular manifestations were seen in 11 patients (18.33%). The most common form of cardiovascular manifestation was vasculitis which was seen in 4 (6.67%) cases. The other manifestations included arrhythmias (3.33%), myocarditis (1.67%) and pericardial effusion (1.67%). Singh et al conducted a study to study the clinical profile of systemic lupus erythematosus (SLE) patients.¹⁸ In this study Nephritis was seen in 36%, deforming arthritis in 8%, and pleural involvement in 36% while ILD in 12%. Pericarditis was seen in 16%, and myocarditis was seen in 12%. Neurological involvement was seen in 36% patients with two cases of thrombotic CVA, one case of SAH and three cases of seizure disorder. Psychiatric symptoms were observed in 16% cases. Similar clinical features were also reported by the authors such as Jonsson and Agarwal et al.^{19,20}

The limitations of our study were small number of patients and in some cases renal biopsy could not be done because of patients refusal to give consent for biopsy.

CONCLUSION

Lupus in young females may have myriad features including arthritis, cutaneous lesions and multisystem involvement. It's imperative for physicians to have a high index of suspicion to diagnose LE particularly in its early stages. Early diagnosis and appropriate treatment in the form of steroids and antimalarials (hydroxychloroquine) with immunomodulatory drugs is the mainstay of treatment and will halt or at least hinder the progression of the disease.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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