International Journal Dental and Medical Sciences Research
Volume 3, Issue 2, Mar-Apr. 2021 pp 727-732 www.ijdmsrjournal.com ISSN: 2582-6018

The clinical and immunological profile of systemic lupus erythematosus patients of Rajasthan, India

Dr. Vikas Kumar[1], Dr. Madhvi Sanwelka[2], Dr. Yadvendra Gupta[3], Dr. Ram narayan Yadav[4]

1)Post graduate resident, Department of Medicine, S.M.S. medical college and Hospital, Jaipur
2)Demonstrator, Department of Pathology, National institute of medicine and research, Jaipur
3)Senior resident, Department of Medicine, S.M.S. medical college and Hospital, Jaipur
4)Professor, Department of Medicine, S.M.S. medical college and Hospital, Jaipur
Corresponding author- Dr. Madhvi Sanwelka

Submitted: 30-03-2021 Revised: 05-04-2021 Accepted: 08-04-2021

ABSTRACT:INTRODUCTION:Systemic lupus erythematosus (SLE) is the prototypic multisystem autoimmune disorder with a broad spectrum of clinical presentations encompassing almost all organs and tissues. The extreme heterogeneity of the disease has led some investigators to propose that SLE represents a syndrome rather than a single disease. The aim of this study is to evaluate the clinical manifestations, frequency of various autoantibodies found in patients with SLE in Rajasthan.

MATERIAL AND METHOD:This is a hospital-based observational, cross sectional and descriptive study carried in tertiary care hospital for one year, i.e. from April 2019 to March 2020. Total of 45 cases were included in this study.

RESULT:Out of forty-five patients, majority (48.84%) of patients were present in age group 18-30 years followed by 33.3% in age group 31-45 years. Mean age was 34.73 years. Females were dominant in this study with 95.46% of population and 4.44% of male population . 86.58% patients complained chest pain followed by 62.16% palpitation. 37.74% patients had dyspnoea and 33.3% patients had photo sensitivity. 13.32% had oral ulcer and 8.88% patients had raynaud's phenomenon as clinical symptom . 99.9% patients showed sign of malar rash followed by 44.4% patients of arthritis. Mean pulse rate of our patients was 94.88/min whereas Mean Systolic BP was 120.57mmHg and mean Diastolic BP was 76.62mmHg . We found mean of various investigations among which abnormal value were of 24 hr urine protein and ESR which was 557.66 and 56.64 .When investigations were done , it was found that 95.56% patients were ANA marker positive and 24.44% patients were DsDNA marker positive.

CONCLUSION:Most of the patients are females of childbearing age group. To diagnose the disease at its initial stages require high suspicion and autoantibody profiling should be done for diagnosis and to determine its prognosis.

KEYWORDS: SLE, auto antibody tests, autoantibody profile, female

I. INTRODUCTION

Systemic lupus erythematosus (SLE) is the prototypic multisystem autoimmune disorder with a broad spectrum of clinical presentations encompassing almost all organs and tissues. The extreme heterogeneity of the disease has led some investigators to propose that SLE represents a syndrome rather than a single disease. Prevalence rates in lupus are estimated to be as high as 51 per 100 000 people in the USA. The incidence of lupus has nearly tripled in the last 40 years, mainly due to improved diagnosis of mild disease. Estimated incidence rates in North America, South America, and Europe range from 2 to 8 per 100 000 per year. The disease appears to be more common in urban than rural areas. Sixty-five per cent of patients with SLE have disease onset between the ages of 16 and55 years, 20% present before age 16, and 15% after the age of 55. Men with lupus tend to haveless photosensitivity, more serositis, an older age at diagnosis, and a higher mortality compared to women. SLE tends to be milder in the elderly with lower incidence of malar rash, photosensitivity, purpura, alopecia, Raynaud's phenomenon, renal and central nervous system involvement, but greater prevalence of serositis, pulmonary involvement, sicca symptoms, and musculoskeletal manifestations. The aetiology of SLE includes both genetic and environmental components with female sex strongly influencing pathogenesis. These factors lead to an irreversible break in immunological tolerance manifested by immune responses against endogenous nuclear antigens.

For diagnosis there are serological tests

International Journal Dental and Medical Sciences Research
Volume 3, Issue 2, Mar-Apr. 2021 pp 727-732 www.ijdmsrjournal.com ISSN: 2582-6018

like antinuclear antiboidies and antibodies to extractable nuclear antigens (ENAs) . The ANA assay is an ideal screening test because of its sensitivity (95% when using human cultured cells as the substrate) and simplicity. The entity of 'ANA- negative lupus' described in previous years is usually associated with the presence of other cytoplasmic autoantibodies such as anti-Ro (SS-A) and anti-ribosomal P protein. The specificity of ANAs for SLE is low, since they are found in many other conditions such as scleroderma, polymyositis, dermatomyositis, rheumatoid arthritis, autoimmune thyroiditis, autoimmune hepatitis, infections, neoplasms, and in association with many drugs Also, some healthy individuals test positive for ANAs. The formation of ANAs is age-dependent; it is estimated that 10–35% of individuals older than 65 years have ANAs. However, the titres are generally lower (<1:40) than those in systemic autoimmune diseases. In contrast to the low positive predictive value of ANA testing, a patient with a negative test has less than a 3% chance of having SLE; thus, a negative ANA test is useful for excluding the diagnosis of SLE. However, in the presence of typical features of lupus, a negative ANA test does not exclude the diagnosis. This is especially true for laboratories that employ enzyme immunoassays or other automated assays which display marked inter-manufacturer variation in performance. In such cases, reported sensitivity against positive immunofluorescence ANA with titre at 1:160 ranges from 70 - 98%.

Antibodies to extractable nuclear antigens (ENAs) is the nucleosome - a complex of DNA and histones - was the first identified lupus autoantigen. Autoantibodies to single stranded DNA (ssDNA) and individual histones are common in SLE as well as in drug-induced lupus. Antibodies to double stranded (ds) DNA are found in up to 70% of SLE patients at some point during the course of their disease, and are 95% specific for SLE, making them a valuable disease marker. Anti-Sm (Smith) antibodies are detected in 10-30% and their presence is pathognomonic for SLE. Anti-nRNP antibodies are associated with anti-Sm but are not disease specific. Anti-ribosomal antibodies are specific for SLE but less sensitive than anti-dsDNA or anti-Sm antibodies.

The aim of this study is to evaluate the clinical manifestations, frequency of various autoantibodies found in patients with SLE in Rajasthan.

II. MATERIAL AND METHOD

This is a hospital-based observational, cross sectional and descriptive study carried in tertiary care hospital for one year, i.e. from April 2019 to March 2020. Total of 45 cases were included in this study. Patients of age between 18-80 years irrespective of their gender, fulfilling the revised American College of Rheumatology Criteria (2012) for SLE and willing to give written informed consent were selected. Patients who had history of heart failure, chronic renal disease, diabetes mellitus and acute coronary disease were excluded.

Detailed history of patient including complaints, disease duration, and any other significant history was noted. A complete clinical examination was performed, and the patients were subjected to laboratory investigations such as complete blood count, urine microscopic examination, 24 h protein excretion, liver function tests and renal function tests. Antibodies against nuclear antigens (ANA, DSDNA) were also analyzed.

Statistical analysis was done. Qualitative data was present as percentage and proportion and quantitative data will be present as mean and SD.

III. RESULT

Out of forty-five patients, majority (48.84%) of patients were present in age group 18-30 years followed by 33.3% in age group 31-45 years. Mean age was 34.73 years (table 1). Females were dominant in this study with 95.46% of population and 4.44% of male population (table 2). 86.58% patients complained chest pain followed by 62.16% palpitation. 37.74% patients had dyspnoea and 33.3% patients had photo sensitivity. 13.32% had oral ulcer and 8.88% patients had raynaud's phenomenon as clinical symptom (figure 1). 99.9% patients showed sign of malar rash followed by 44.4% patients of arthritis. Among cardiovascular sign 28.86% patients showed S3, 15.54% patients showed pericardial rub (table3).

We calculated the mean of the vitals. Mean pulse rate of our patients was 94.88/min whereas Mean Systolic BP was 120.57mmHg and mean Diastolic BP was 76.62mmHg (table 4). We found mean of various investigations among which abnormal value were of 24 hr urine protein and ESR which was 557.66 and 56.64 (table 5).

When investigations were done , it was found that 95.56% patients were ANA marker positive and 24.44% patients were DsDNA marker positive (table 6).

International Journal Dental and Medical Sciences Research
Volume 3, Issue 2, Mar-Apr. 2021 pp 727-732 www.ijdmsrjournal.com ISSN: 2582-6018

TABLE 1: Distribution according to age in SLE patients

Age Distribution (years)	No. of Patients	Percentage
18-30	22	48.84
31-45	15	33.3
46-60	3	6.66
61-75	3	6.66
76-90	2	4.44
Total	45	100
Mean ± SD	34.73±15.53	

TABLE 2: Distribution according to gender in SLE patients.

Gender Distribution (years)	No. of Patients	Percentage
Female	43	95.46
Male	2	4.44
Total	45	100

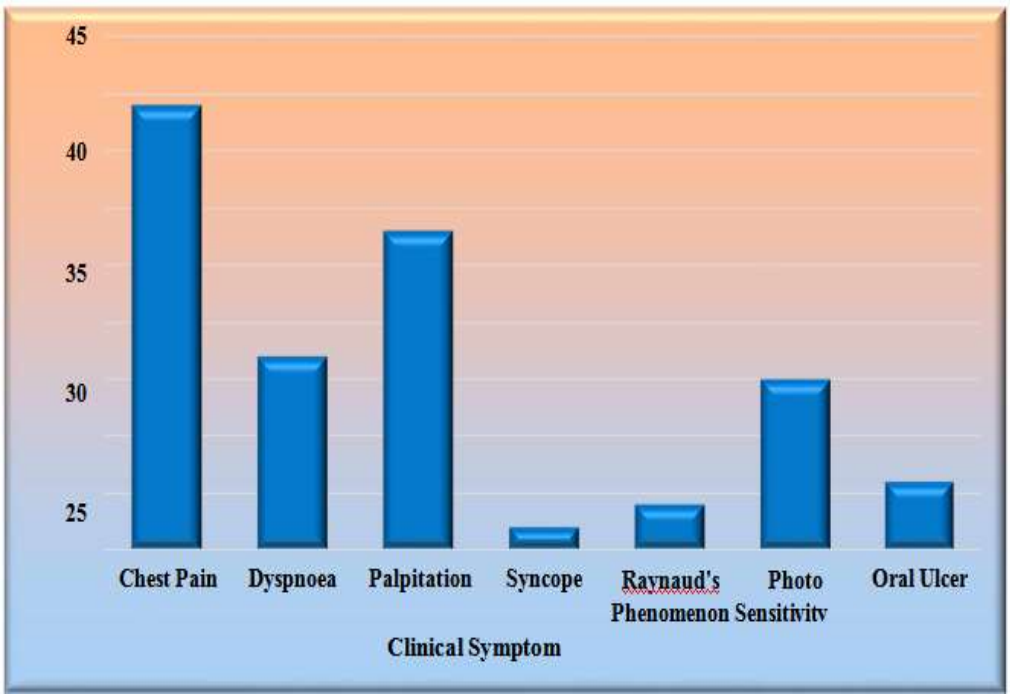

Figure 1: Distribution according to clinical symptom in SLE patients.

International Journal Dental and Medical Sciences Research
Volume 3, Issue 2, Mar-Apr. 2021 pp 727-732 www.ijdmsrjournal.com ISSN: 2582-6018

TABLE 3: Distribution according to signs in SLE patients.

Sign	No. of Patients	Percentage
Malar Rash	45	99.9
Arthritis	20	44.4
Raised JVP	2	4.44
Loud A2	2	4.44
Loud P2	3	6.66
S3	13	28.86
Pericardial Rub	7	15.54

TABLE 4: Distribution according to sign in SLE patients

Sign	Mean	SD
Pulse Rate	94.88	11.46
Systolic BP	120.57	19.9
Diastolic BP	76.62	11.7

TABLE 5: Distribution according to investigastion in SLE patients.

Investigation	Mean	SD
Hb	9.38	1.6
Platelet	2.24	0.92
TLC	6.43	3.1
RBS	89.08	12.95
S. Urea	27.02	8.25
S. Creatinine	0.81	0.15
24-hour Urine Protein	557.66	162.13
ESR	56.64	25.7

International Journal Dental and Medical Sciences Research
Volume 3, Issue 2, Mar-Apr. 2021 pp 727-732 www.ijdmsrjournal.com ISSN: 2582-6018

TABLE 6: Distribution according to investigation (markers) in SLE patients.

Investigation (Markers)	No. of Patients	Percentage
ANA	43	95.56
DS DNA	11	24.44

IV. DISCUSSION

This study was conducted in General medicine OPD, Rheumatology OPD and ward of Department of Medicine, SMS Medical College and attached group of hospitals, Jaipur. We included 18-80 years of patients in our study.

In our study out of 45 patient, majority (48.84%) of patients were present in age group 18-30 years followed by 33.3% in age group 31-45 years. Mean age was 34.73 years. Our study was female dominant study with 95.46% of female population and 4.44% of male population. A study conducted by Ashamallah G A et al[1] found that their study group ranged between 18 to 55 years with mean age of 30.1 years and there were 3 males and 17 females. A similar study conducted by Mohamed A A A et al[2] found that mean age of study group was 31.3 years and out of 59 patients 86% patients were female which was similar to our study.

In our study 86.58% patients complained chest pain followed by 62.16% palpitation. 37.74% patients had dyspnoea and 33.3% patients had photo sensitivity. 13.32% had oral ulcer and 8.88% patients had raynaud's phenomenon as clinical symptom. A study conducted by Ashamallah G A et al[1] found that patients were clinically presented with chest pain (n=14), shortness of breath (n=11) and hypertension (n=6) with overlapping symptoms. Gegenava T et al[3] found that All patients had neuropsychiatric symptoms, but after the extensive multidisciplinary assessment, only 43 patients (42%) were diagnosed with neuropsychiatric SLE. The prevalence of comorbidities was as follows: 32 of patients with SLE (31%) had hypertension (any grade), one (1%) had previously diagnosed CAD, four (4%) had diabetes mellitus, and 33 (32%) had hypercholesterolemia.

We found that 99.9% patients showed sign of malar rash followed by 44.4% patients of arthritis, 28.86% patients showed S3, 15.54% patients showed pericardial rub. A study conducted by Allam N T et al[4] found that 88% patients show Malar rash, 26% patients showed arthritis. These result is similar to our study. Gegenava T et al[3]found similar sign in his study. We calculated mean of the vitals. Mean pulse rate of our patients was 94.88/min. Mean Systolic BP was 120.57mmHg and mean Diastolic BP was 76.62mmHg. We also calculated clinical investigations. Mean S. urea was 27.02, mean S. Creatinine was 0.81, 24-hour urine protein was 557.66, Mean ESR was 56.64, Mean RBS was 89.08, mean haemoglobin was 9.38 and mean platelets was 2.24. A study conducted by Allam N T et al[4] found that diastolic BP, systolic BP were higher in SLE patients and mean Hb, Platelet, ESR, 24-hour urine protein were 10.44, 2.72, 69.42 and 1.14 respectively. A similar study conducted by Mohamed A A A et al[2] found that mean ESR was 34, systolic BP was 120 and mean diastolic BP was 80.

We found that 95.56% patients were ANA marker positive and 24.44% patients were DsDNA marker positive. A study conducted by Allam N T et al[4] found that all the patients in his study was ANA positive and 70% patients were DsDNA positive which was slightly higher than our study. Gegenava T et al[3] found that 100% patients of his study were ANA positive and 58% patients were DsDNA positive in his study. The associations of myocarditis or fibrosis with SLEDAI scores and anti-ds DNA antibodies may indicate a mechanistic link between SLE activity, autoimmunity, and subclinical myocardial pathology. Although the exact pathophysiological mechanisms underlying the development of myocardial abnormalities were not clear, global diseases activity may be accompanied by subclinical end organ injury[5,6.]

Differential diagnosis from other polyarticular diseases affecting young women, such as rheumatoid arthritis or Still's disease, may not be easy at the initial stages. Other diseases to be considered include undifferentiated connective tissue disease, primary Sjögren's syndrome, primary antiphospholipid syndrome, fibromyalgia with positive ANA, idiopathic thrombocytopenic

purpura, drug induced lupus, and autoimmune thyroid disease. Patients presenting with fever or splenomegaly/ lymphadenopathy must be differentiated from infectious diseases or lymphoma. In febrile patients with known SLE, leucocytosis, neutrophilia, shaking chills, and normal levels of anti-DNA antibodies favour infection. Lupus may present with localised or generalised lymphadenopathy or splenomegaly, but the size of lymph nodes is rarely >2 cm while splenomegaly is mild-to-moderate. Patients with known or suspected SLE with prominent lymphadenopathy, massive splenomegaly or expansion of a monoclonal CD19+/ CD22+ B cell population should raise the suspicion of non-Hodgkin lymphoma. In patients presenting with neurological symptoms, infections, cerebrovascular accidents or immune mediated neurologic diseases such as multiple sclerosis or Guillain-Barré disease must be considered. Finally, in patients presenting with pulmonary–renal syndrome, the disease must be differentiated from Goodpasture's syndrome, or antineutrophil cytoplasmic antibody (ANCA) associated vasculitis. The differential diagnosis of glomerulonephritis includes post-infectious glomerulonephritis (streptococcal, staphylococcal, subacute bacterial endocarditis, or hepatitis C virus), membranoproliferative glomerulonephritis, or renal vasculitis (ANCA or anti-GBM associated).

V. CONCLUSION

The clinical manifestations in SLE patients can vary between fever, arthritis, and skin rash to severe systemic involvement. Most of the patients are females of childbearing age group. To diagnose the disease at its initial stages require high suspicion and autoantibody profiling should be done for diagnosis and to determine its prognosis. Appropriate treatment should be started to prevent disease progression.

REFERENCES

[1]. Ashamallah G A, El-salam N A, Adawy A H, Zaki S M, Sobh D M, Helmy A. Cardiac Involvement in Systemic Lupus Erythematosus Patients: Imaging Approach. International Journal of Medical Research & Health Sciences, 2018, 7(9): 98-106.

[2]. Mohamed AAA, Hammam N, Zohri M H E, Gheita T A. Cardiac Manifestations in Systemic Lupus Erythematosus: Clinical Correlates of Subclinical Echocardiographic Features. BioMed Research International 2019; Article ID 2437105, 8 pages https://doi.org/10.1155/2019/2437105.

[3]. Gegenava T, Gegenava M, Steup-Beekman G M, Huizinga T W J, Bax J J, Delgado V, Marsan N A. Left Ventricular Systolic Function in Patients with Systemic Lupus Erythematosus and Its Association with Cardiovascular Events. Journal of the American Society of Echocardiography 2020; 33:1116-22.

[4]. Allam N T, Darweesh H E A, Hamadnallah N, Ashour ZA. Evaluation of left ventricular myocardial function in Egyptian patients with systemic lupus erythematosus: Tissue Doppler study and its relation to disease activity. The Egyptian Rheumatologist 2013; 35: 217-223.

[5]. Mavrogeni, S., et al. "Complementary role of cardiovascular imaging and laboratory indices in early detection of cardiovascular disease in systemic lupus erythematosus." Lupus, Vol. 26, No. 3, 2017, pp. 227-36.

[6]. Hitomi, Nobuhiko, et al. "A frameshift deletion mutation in the cardiac myosin-binding protein C gene associated with dilated phase of hypertrophic cardiomyopathy and dilated cardiomyopathy." Journal of Cardiology, Vol. 56, No. 2, 2010, pp. 189-96.

FUNDING
None as stated by authors

CONFLICT OF INTEREST
None as stated by autors