A large cohort comparison of very late-onset systemic lupus erythematosus with younger-onset patients

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Abstract

Objective

Age has a significant impact on systemic lupus erythematosus (SLE). However, data on very late-onset SLE (vlSLE) are scarce. We have compared the clinical and serological features of vlSLE patients with younger-onset patients.

Methods

We assessed the clinical and laboratory data of all patients fulfilling SLE classification criteria evaluated at a university hospital from 1978 to 2023. Patients were divided into 4 groups according to age at diagnosis: juvenile SLE (jSLE <8 years); adult SLE (aSLE 18–49 years); late SLE (lSLE 50–59 years); vlSLE (≥60 years).

Results

845 patients were enrolled. The jSLE, aSLE, lSLE, and vlSLE groups included 153, 630, 47, and 15 patients, respectively. The vlSLE group tended to have a lower female-to-male ratio (4:1; p=0.282), was mainly Caucasian (93.3%; p<0.001), and had the lowest survival time (20.3 years; p<0.001). vlSLE patients had the lowest prevalence of positive anti-dsDNA antibodies (26.7%; p=0.010) and low C3 levels (13.3%; p<0.001). Although arthritis was less common among vlSLE patients (73.3%; p=0.043), they more commonly developed Sjögren's syndrome (SS 33.3%; p<0.001) and rheumatoid arthritis (RA 13.3%; p<0.001). Infections and malignancy were the main causes of death.

Conclusion

Compared with younger patients, in vlSLE, female predominance is less pronounced. Arthritis, anti-dsDNA antibodies and low C3 levels are less frequent. SS and RA are more common. Despite lower disease activity, vlSLE patients have the lowest survival rate. While uncommon, SLE should not be excluded as a possible diagnosis in the elderly.

Key words

systemic lupus erythematosus, very late-onset, elderly, diagnosis, clinical manifestations, prognosis

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Introduction

Systemic lupus erythematosus (SLE) is a chronic, systemic autoimmune rheumatic disease. Although SLE mainly affects women during the child-bearing years, it can develop at any age (1).

Age has a significant impact on SLE, with respect to disease activity, clinical manifestations, serological expression, comorbidities, and mortality (2-7). There is no agreed definition for the age cut-off for late- or early-onset SLE (2). Most studies define late-onset as occurring at or after age 50 (7, 8).

There is a paucity of data about late-onset SLE patients in comparison to younger patients. SLE has been reported to have a late onset in 2–20% of patients (4, 5, 8). It has been established that female predominance decreases with age, ranging from 7:1 to 18:1 in early-onset patients to 4:1 to 7:1 in late-onset cases (7, 9, 10). This variation has been associated with differences in oestrogen levels (5, 10). Late-onset patients are mostly Caucasian (5, 9). Late-onset SLE patients also suffer longer delays in diagnosis. This has been linked to a more insidious onset, with atypical clinical manifestations, comorbidities that may overlap typical symptoms, and clinician reluctance to consider SLE in the elderly (3, 5, 8, 9, 11).

The age cut-off of 60 or 65 years has increased importance in the context of increasing average life expectancy (7, 9). In an aging society, it is key to understanding the disease course in those whose SLE has an elderly presentation. However, data on SLE patients aged over 60 years are lacking.

We have characterised a large SLE patient cohort, followed for up to 45 years, and compared the clinical and serological features at different ages at diagnosis, focusing on those whose disease began at 60 or later. To the best of our knowledge, this is one of the first and largest SLE cohorts to include a very late-onset SLE patient subgroup.

Materials and methods

Study population

We conducted a single-centre observational retrospective study of 845 individuals with SLE. All patients with an SLE diagnosis according to the 1997 Revised American College of Rheumatology (ACR) Classification Criteria evaluated from January 1978 to May 2023 in the Centre for Rheumatology at the University College London Hospitals (UCLH) were included. Patients were divided into four groups according to age at diagnosis: juvenile SLE (jSLE <18 years); adult SLE (aSLE 18–49 years); late SLE (lSLE 50–59 years); very late SLE (vlSLE ≥60 years).

Clinical evaluation

Sociodemographic data, SLE clinical manifestations, and laboratory features including autoantibody levels, comorbidities, and mortality were assessed. Survival time was defined as time from SLE diagnosis to May 2023, or death. The assessment of clinical manifestations was made for each patient since the initial evaluation at UCLH. Serological data refers to the moment of diagnosis. These data were obtained from hospital notes (from 1978 onwards) and electronic records (from 2003 onwards).

Statistical analysis

Descriptive statistics were used to evaluate the collected data of patients in each group. Continuous data were described as mean ± standard deviation, and median [interquartile range]. Categorical variables were described as percentages. Proportions were compared using the Chi-square test. Cumulative survival probability and mean survival time were estimated using the Kaplan-Meier analysis. Factors significantly related to death in univariate analyses were inputted in an age-stratified Cox proportional hazards model to adjust for possible confounders. All *p*-values are two-sided, and *p*-values less than 0.05 were considered statistically significant. All statistical analyses were conducted using IBM SPSS Statistics software v. 29.

Results

Characteristics of the study population

A total of 845 patients were enrolled. The jSLE, aSLE, lSLE, and vlSLE groups comprised 153 (18.1%), 630 (74.6%), 47 (5.56%), and 15 (1.78%) patients, respectively (Table I). The female-to-male ratio was not significant-

ly different between groups, although it tended to decrease in the vlSLE group (4:1; p=0.282). The mean age at SLE diagnosis in the vlSLE group was 66.7±5.85 years. The follow-up period was shortest among vlSLE patients (13.0 [9.00]; p=0.002). vlSLE patients were mainly Caucasian (93.3%; p<0.001) and had the lowest survival time (20.3 years; p<0.001).

Clinical features

The frequency of cumulative SLE clinical features is shown in Table II. The most frequent clinical feature at follow-up in all groups was arthritis. Nevertheless, arthritis was least common among vlSLE patients (73.3%; p=0.043).

Although mucocutaneous features ingeneral, malar and/or discoid rash, photosensitivity, and alopecia were less frequent among lSLE and vlSLE patients, the difference was not statistically significant. In contrast, oral ulcers tended to be more frequent in vlSLE patients (33.3%; p<0.05).

Serositis was most frequent in the aSLE group (37.6%; p=0.003), followed by the vlSLE group (26.7%). Renal involvement was most frequent in jSLE (42.5% *vs*. 26.7% in vlSLE; p<0.001). Neuropsychiatric involvement was more frequent in jSLE and aSLE patients (19.6% and 19.8%, respectively; p<0.05). It did not occur among vlSLE patients. There were no statistically significant differences between groups regarding haematological features.

The vlSLE patients more commonly developed concomitant Sjögren's syndrome (SS 33.3%; p<0.001) and rheumatoid arthritis (RA 13.3%; p<0.001). The two vlSLE patients with RA both presented initially with an erosive arthritis typical of RA. Anti-CCP antibodies evaluation was not available at the time of presentation. Both of these RA patients have later on developed clinical and serological criteria to the SLE diagnosis. Regarding the SS diagnosis, salivary gland biopsies were performed in 7 patients, 1 of these from the vlSLE group. Nevertheless, the EULAR/ACR classification criteria were met in all SLE patients with RA and SS diagnosis. The prevalence of anti-phospholipid syndrome did not differ significantly between the age groups. Myositis did not occur among the vlSLE patients.

The SLE classification criteria for each of the vlSLE patients are detailed in Table III.

Laboratory features

Although there was no statistically significant difference compared with younger patient groups, the vlSLE patients tended to have a lower prevalence of antinuclear antibody (ANA) positivity (86.7%; p=0.203) at diagnosis (Table IV). The vlSLE patients also had the lowest prevalence of positive anti-double-stranded (anti-dsDNA) antibodies (26.7%; p=0.010) and low C3 levels (13.3%; p<0.001).

Likewise, anti-Ro positive patients were also least common among vlSLE patients (26.7%; p=0.045). On the contrary, although the vlSLE patient group tended to have the lowest levels of anti-La antibody positivity, the difference was not statistically significant in comparison to younger patients (p=0.714).

Rheumatoid factor (RF) levels tended to increase among the age groups, reaching a prevalence of 33.3% in the vlSLE group (p=0.066).

There were no statistically significant differences between SLE age at diagnosis groups in regard to anti-RNP, anti-Sm, anticardiolipin antibodies and lupus anticoagulant positivity.

Survival rate

At the end of follow-up, six of 15 patients in the vlSLE group and 114 of the 845 patients in the overall study popula-

Table I. Demographic characteristics of systemic lupus erythematosus patients.

	Juvenile SLE	Adult SLE	Late SLE	Very-late SLE	p-value
Number of patients	153	630	47	15	
F:M (ratio)	7:1	13:1	11:1	4:1	0.282*
Female sex, %	87.6	92.7	91.5	80.0	
Ethnic					
Caucasian	71 (46.4)	351 (55.7)	33 (70.2)	14 (93.3)	<0.001*
Asian	51 (33.3)	145 (23.0)	5 (10.6)	0	<0.001*
African	28 (18.3)	124 (19.7)	8 (17.0)	0	0.300*
Hispanic	0	2 (0.32)	0	0	0.879*
Age at diagnosis, years					
Mean±SD	13.9± 2.57	30.2 ± 8.29	53.4 ± 2.86	66.7 ± 5.85	
Median [IQ range]	14.0 [3.00]	29.0 [13.0]	53.0 [5.00]	64.0 [11.0]	
Mean survival time, years (95% CI)	41.2 (39.3-43.2)	49.3 (46.8-51.8)	33.9 (28.7-39.1)	20.3 (12.8-27.8)	<0.001**

Data shown as number (percentage). CI: confidence interval; F: female; IQ: interquartile; M: male; SD: standard deviation; SLE: systemic lupus erythematosus. * Chi-square test; ** Log-rank test.

Table II. Clinical features of systemic lupus erythematosus patients during follow-up.

	Juvenile SLE n=153	Adult SLE n=630	Late SLE n=47	Very late SLE n=15	p-value*
Arthritis	129 (84.3)	557 (88.4)	45 (95.7)	11 (73.3)	0.043
Mucocutaneous	125 (81.7)	480 (76.2)	33 (70.2)	11 (73.3)	0.350
Malar and/or discoid rash	104 (70.0)	415 (65.9)	23 (48.9)	8 (53.3)	0.071
Photosensitivity	63 (41.2)	256 (40.6)	13 (27.7)	5 (33.3)	0.303
Alopecia	43 (28.1)	150 (23.8)	9 (19.1)	3 (20.0)	0.554
Oral ulcers	46 (30.1)	161 (25.6)	10 (21.3)	5 (33.3)	0.537
Serositis	36 (23.5)	237 (37.6)	11 (23.4)	4 (26.7)	0.003
Renal involvement	65 (42.5)	180 (28.6)	1 (2.13)	4 (26.7)	<0.001
Neuropsychiatric disorder	30 (19.6)	125 (19.8)	2 (4.26)	0	0.015
Haematological disorder	119 77.8)	496 (78.7)	36 (76.6)	13 (86.7)	0.865
Haemolytic anaemia	10 (6.54)	19 (3.02)	0	0	0.071
Leucopenia	35 (22.9)	161 (25.6)	10 (21.3)	2 (13.3)	0.649
Lymphopenia	113 (73.9)	451 (71.6)	36 (76.6)	11 (73.3)	0.923
Thrombocytopenia	21 (13.7)	85 (13.5)	3 (6.38)	5 (33.3)	0.080
Sjögren's syndrome	5 (3.27)	72 (11.4)	11 (23.4)	5 (33.3)	<0.001
Antiphospholipid syndrome	2 (1.31)	17 (2.70)	0	1 (6.67)	0.336
Myositis	4 (2.61)	20 (3.17)	0	0	0.553
Rheumatoid arthritis	0	4 (0.63)	2 (4.26)	2 (13.3)	<0.001

Data shown as number (percentage). SLE: systemic lupus erythematosus. *Chi-square test.

Table III. The 2019 European Alliance of Associations for Rheumatology (EULAR)/American College of Rheumatology (ACR) classification criteria for systemic lupus erythematosus among very late-onset patients (vlSLE).

vlSLE patient	EULAR/ACR classification criteria	Total points
1	Arthritis [6], discoid lupus [4], thrombocytopenia [4], anti-Sm [6]	20
2	Arthritis [6], renal biopsy class V lupus nephritis [8]	14
3	Acute cutaneous lupus [6], arthritis [6], LA [2]	14
4	Arthritis [6], serositis [5], oral ulcers [2]	13
5	Arthritis [6], leukopenia, thrombocytopenia [4] non-scarring alopecia [2]	12
6	Arthritis [6], leukopenia [3], anti-Sm [6]	15
7	Serositis [5], renal biopsy class IV lupus nephritis [10]	15
8	Acute cutaneous lupus [6], renal biopsy class IV lupus nephritis [10]	16
9	Discoid lupus [4], renal biopsy class III lupus nephritis [10], anti-dsDNA [6]	20
10	Arthritis [6], oral ulcers, active cutaneous lupus [6]	12
11	Arthritis [6], active cutaneous lupus [6], serositis [5], anti-dsDNA [6]	23
12	Serositis [5], thrombocytopenia [4], anti-dsDNA [6]	15
13	Active cutaneous lupus [6], arthritis [6]	12
14	Acute cutaneous lupus [6], oral ulcers, anti-Sm [6]	12
15	Active cutaneous lupus [6], oral ulcers, arthritis [6], LA [2]	14

anti-dsDNA: anti-double-stranded DNA antibody; anti-Sm: anti-Smith antibody; LA: lupus anticoagulant.

Table IV. Laboratory features of systemic lupus erythematosus patients at diagnosis.

	Juvenile SLE n=153	Adult SLE =630	Late SLE n=47	Very late SLE n=15	*p*-value*
Antibodies**					
ANA	141 (92.2)	589 (93.5)	47 (100.0)	13 (86.7)	0.203
Anti-dsDNA	101 (66.0)	404 (64.1)	31 (66.0)	4 (26.7)	0.010
Anti-Ro	56 (36.6)	273 (43.3)	13 (27.7)	4 (26.7)	0.045
Anti-La	20 (13.1)	94 (14.9)	8 (17.0)	1 (6.67)	0.714
Anti-Sm	33 (21.6)	122 (19.4)	6 (12.8)	2 (13.3)	0.521
Anti-RNP	51 (33.3)	194 (30.8)	11 (23.4)	5 (33.3)	0.625
Anticardiolipin	29 (19.0)	145 (23.0)	11 (23.4)	3 (20.0)	0.642
Lupus anticoagulant	22 (14.4)	93 (14.8)	3 (6.4)	2 (13.3)	0.591
Rheumatoid factor	20 (13.1)	143 (22.7)	11 (23.4)	5 (33.3)	0.066
Low C3 levels	86 (56.2)	322 (51.1)	12 (25.5)	2 (13.3)	<0.001

Data shown as number (percentage). ANA: antinuclear antibodies; Anti-dsDNA: anti-double-stranded DNA; SLE: systemic lupus erythematosus; anti-Sm: anti-Smith.
*Chi-square test; ** The ratio of patients in each group with positive values for each autoantibody.

tion had died. The five-year survival rate after SLE diagnosis was lowest in vlSLE group (92.3%), increasing to 97.1%, 97.3%, and 95.6% in the jSLE, aSLE, and lSLE groups, respectively. Likewise, the vlSLE patients had the lowest ten-year survival rate after SLE diagnosis (83.1%), in comparison to 95.6%, 94.5%, and 90.0% in the jSLE, aSLE, and lSLE groups, respectively (Fig. 1; $p<0.001$). When analysing survival time at or after age 60, vlSLE patients tended to show the lowest survival time. However, the difference was not statistically significant (Fig. 2; $p=0.919$).

Infectious disease and malignancy were the main causes of death both in the overall study SLE population and in the vlSLE patient group. Infectious disease was the first overall cause of death (n=29; 25.4%), followed by malignancy (n=27; 23.7%), cardiovascular disease (n=22; 19.3%), and SLE-related disease (n=10; 2.63%). Among the vlSLE group, two patients (13.3%) died from infectious causes, 2 (13.3%) died due to malignancy, 1 (6.67%) from stroke and 1 (6.67%) from an unknown cause (Table V). No deaths due to SLE-related disease were reported.

Concerning possible confounders contributing to the difference in survival rate among groups, Cox regression was applied to the available data on malignancy. The multivariate analysis showed that a positive correlation between vlSLE and mortality was still present after adjusting for the presence of a malignant neoplasm (HR 2.42, $p=0.044$).

Discussion

Despite being more common in women of childbearing age, SLE can develop at almost any age. Age at the onset can significantly impact SLE clinical and serological manifestations, as well as patient outcomes. Data on late- and very-late SLE are still scarce. In this study, we evaluated similarities and differences between very late-onset SLE patients and younger SLE onset groups in a single-centre cohort.

There is no agreement on age cut-off for late- and very late-onset LSE. Considering that SLE occurs more frequently during the fertile period, we defined late-onset SLE as occurring after fifty years of age, and very-late onset after sixty years, according to the World Health Organization (WHO) definition for the elderly, and removing bias from the menopause period in women (14).

In this study, we report a cohort with 845 patients, with 15 (1.78%) patients with vlSLE, and compare them to earlier onset SLE patients (153 with jSLE, 630 with aSLE, and 47 with lSLE). These frequencies are consistent with previously published data, although some minimal differences can be seen due to different age cut-offs (5, 9, 15).

Age at SLE onset seems to be associated with ethnicity. Patients with vlSLE in our cohort are mostly Caucasian (93.3%), which is consistent with other studies that also included older Asian, African American, and Latin American SLE patients (5, 16). Female-to-male ratio tended to fall with increasing age (13:1 in aSLE *vs*. 4:1 in vlSLE), which may relate to changes in oestrogen production, in line with other previous reports (5, 7, 9, 10, 21).

Systemic lupus erythematosus in elderly patients presents less frequently with overt clinical features, such as mucocutaneous, renal, and articular symptoms, which may lead to delayed diagnosis and treatment (4-7, 10). Immune senescence could be an explanation for this delay, as well as a driver for a more insidious and benign disease course with lower organ involvement in elderly patients (4, 5, 18).

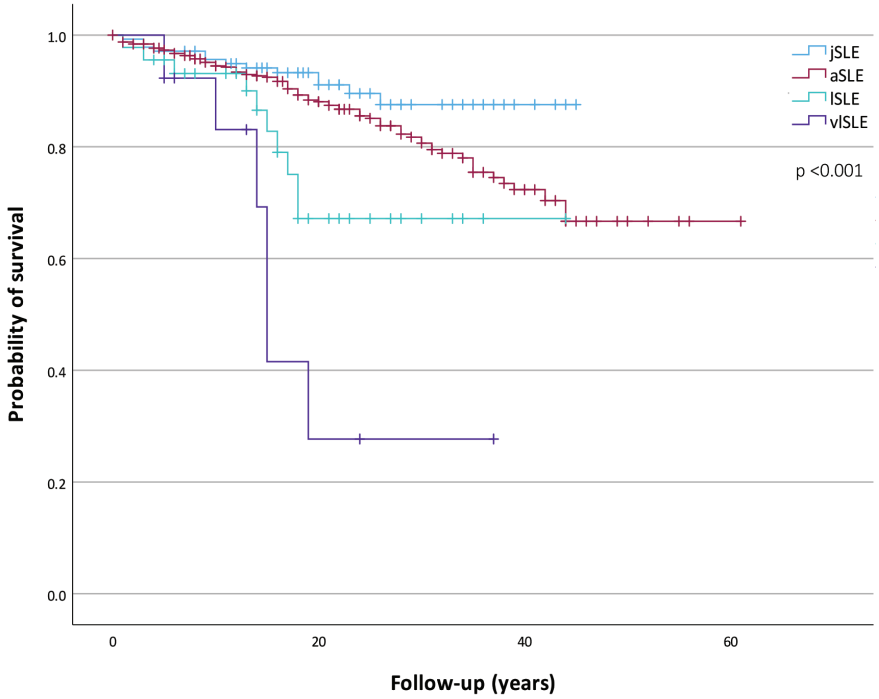

Fig. 1. Probability of survival from the time of disease diagnosis to death for SLE patients according to age at diagnosis.
SLE: systemic lupus erythematosus; jSLE: juvenile SLE; aSLE: adult SLE; lSLE: late-onset SLE; vlSLE: very late-onset SLE.

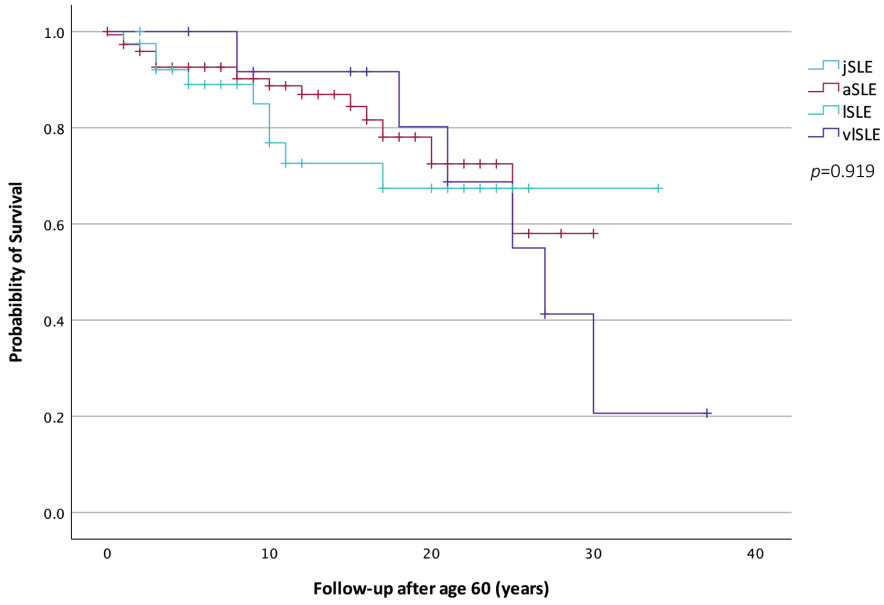

Fig. 2. Probability of survival after age 60 to death for SLE patients according to age at diagnosis.
SLE: systemic lupus erythematosus; jSLE: juvenile SLE; aSLE: adult SLE; lSLE: late-onset SLE; vlSLE: very late-onset SLE.

In our cohort, arthritis frequency was significantly lower in vlSLE patients, contrasting with other reports that suggest that musculoskeletal involvement seems to be more frequent in older age groups (2, 5, 7, 18). A diagnosis of RA was significantly more frequent among vlSLE patients. In both patients with RA and vlSLE, the RA diagnosis has preceded the SLE presentation. This is consistent with evidence that 'Rhupus' patients at SLE diagnosis are older than patients with SLE alone (19). The development of 'Rhupus', often undiagnosed (21), should be considered in vlSLE. Rheumatoid factor positivity tended to increase with age, in line with both the RA diagnosis occurring more frequently in vlSLE and well documented increased RF prevalence after age 65 (9, 24).

One of the most consistently reported age-related differences, renal involvement, also showed a significant decrease with age in our cohort (7).

Serositis has been reported as occurring more frequently in older SLE patients. This could be linked to the lower female-to-male ratios in these groups, since serositis is more common in male patients (5, 6, 10, 21). However, in our population, serositis was most frequent in the aSLE patient group.

In a Korean cohort study fever, anaemia, and thrombocytopenia were reported as less frequent in lSLE (4). However, no statistically significant differences were observed in our cohort with respect to the haematological involvement in SLE.

Sjögren's syndrome was more common among vlSLE patients, which is consistent with other publications (4, 5, 7). Despite that, the frequency of anti-SSA/Ro and anti-SSB/La autoantibodies positivity was lower in this group, which could be related to the increasing immune senescence in elder patients. However, these results conflict with other studies on lSLE (5, 7, 9).

No significant differences between SLE age groups with respect to the frequency of antiphospholipid syndrome, anticardiolipin antibodies and lupus anticoagulant positivity was found. This is consistent with other lSLE studies (4, 5, 9, 10).

No myositis or neuropsychiatric involvement was seen in vlSLE patients in our cohort. A lower frequency of seizures and psychosis in older patients has been described elsewhere (7).

In line with previously reported data, older SLE patients had the lowest frequency of anti-dsDNA antibody positivity and low complement levels at diagnosis. (2, 4, 5, 7, 9, 20) This serological profile could affect or reflect disease activity. (4)

As expected, the vlSLE patients had a significantly shorter survival time af-

Table V. Causes of death in systemic lupus erythematosus patients.

	Total SLE	Juvenile SLE	Adult SLE	Late SLE	Very late SLE
SLE-related disease					
Haemolytic anaemia	1	0	1	0	0
Pulmonary hypertension	2	0	2	0	0
Renal failure	6	1	4	1	0
TTP	1	0	1	0	0
Infectious disease					
Cytomegalovirus, NE	1	0	1	0	0
Necrotising fasciitis	1	1	0	0	0
Peritonitis	1	1	0	0	0
Pneumonia	13	1	11	0	1
Sepsis, NE	12	2	8	1	1
Viral pericarditis	1	1	0	0	0
Cardiovascular disease					
Atherosclerosis, NE	1	0	1	0	0
Carditis	1	1	0	0	0
Heart failure	6	0	6	0	0
Myocardial infarction	9	0	9	0	0
Stroke	5	0	3	1	1
Malignancy					
Anus	2	1	1	0	0
Breast	2	0	2	0	0
Cholangiocarcinoma	1	0	1	0	0
Gallbladder	2	0	2	0	0
Haematological	8	2	3	3	0
Liver	1	0	0	1	0
Lung	5	0	4	1	0
Melanoma	1	0	1	0	0
Pancreas	2	0	1	1	0
Prostate	2	0	1	0	1
Unknown primary	1	0	0	0	1
Thrombosis					
Cerebral	1	0	1	0	0
Pulmonary	2	0	2	0	0
Others					
Alcoholism	1	0	1	0	0
ARDS post-B-cell depletion	1	1	0	0	0
Bleeding diathesis	1	0	1	0	0
COPD exacerbation	1	0	1	0	0
Liver failure	3	0	3	0	0
Renal tubular acidosis	1	0	1	0	0
Respiratory failure	1	0	1	0	0
Suicide	3	0	3	0	0
Unknown	11	1	8	1	1
Total	114	13	85	10	6

ARDS: acute respiratory distress syndrome; COPD: chronic obstructive pulmonary disease; NE: not specified; SLE: systemic lupus erythematosus; TTP: thrombotic thrombocytopenic purpura.

ter diagnosis. However, there were no significant differences in survival time between vlSLE patients and younger-onset patients after age 60. In fact, no deaths due to SLE related diseases were reported. Death is more likely secondary to cumulative comorbidities that occur during the aging process. (9, 11) In our cohort, infectious diseases were the main cause of death in all groups, followed by malignancy, cardiovascular disease, and SLE-related disease. Although infection has been reported as the main cause of death elsewhere, an Italian cohort study observed that cardiovascular events were the most frequent cause of death in late-onset SLE (18, 22) In fact, it is well-known that SLE patients have accelerated atherosclerotic processes, which carries a higher cardiovascular risk than the healthy population. (18, 23) Systemic lupus erythematosus management should contemplate control of comorbidities.

Our study has limitations inherent to its cross-sectional design, in a single medical centre. In addition, socioeconomic status, a predictor of poor survival in SLE was not evaluated. (24). However, the fact that the National Health Service bears the vast majority of the treatment costs, and is free at the point of entry does allow to feel that socio-economic factors are not as important as in North America for example, where patients consider that lack the funds to pay for their care. In addition, the large number of patients and the homogeneity of the series give consistency to our results. We were able to characterise the clinical and laboratory features of SLE across the lifespan, with a special focus on vlSLE, an often-neglected subgroup in both literature and clinical practice.

Conclusion

We report a detailed analysis of a large SLE cohort under long-term follow-up. Age at SLE diagnosis is associated with varying frequency of clinical and serological features, and prognosis. In vlSLE, female predominance is less pronounced. Arthritis, a high anti-dsDNA antibody level, and low C3 levels are less frequent. However, concomitant SS and RA are more common. Our results indicate that older-onset SLE patients have lower disease activity. Importantly, vlSLE patients have the lowest survival rate among SLE patients. Early diagnosis and management with a focus on comorbidities could improve prognosis. While very uncommon, SLE should not be excluded as a possible diagnosis in the elderly.

Key messages

- Very late-onset SLE (vlSLE) is characterised by less female predominance and lower disease activity.
- vlSLE is more frequently associated with Sjögren's syndrome and rheumatoid arthritis.
- vlSLE management should contemplate focus on comorbidities.

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