Do 2019 European League against rheumatism/American College of Rheumatology classification criteria for systemic lupus erythematosus also indicate the disease activity?

The 2019 European League against rheumatism/American College of Rheumatology classification criteria (2019 criteria) for systemic lupus erythematosus (SLE) has introduced a new scoring system to classify SLE.[1] It is a thrill for rheumatologists to get the new SLE classification criteria, which has both excellent sensitivity and specificity, and further demonstrated by other studies to be effective in the early SLE diagnosis and distinguish patients with SLE from patients with primary Sjögren's syndrome.[2 3] It has also been reported that higher scores of 2019 criteria were associated with higher rates of organ damage.[4] While using antinuclear antibody (ANA) as an entry criterion, these hierarchically clustered and weighted criteria made a significant breakthrough compared with the past several criteria. However, based on the thinking of weighted criteria, we are curious as to whether they can reflect the disease activity of SLE? Because assessing tools such as SLE disease activity index (SLEDAI) and revised systemic lupus activity measure (SLAM-R) also use weighted scores widely, could these weighted items in the new criteria have the same trend?

Thus, we enrolled 96 consecutive and hospitalised new-onset SLE patients in the Department of Rheumatology and Immunology of Ruijin Hospital from August 2016 to June 2018. The data were collected through the electronic medical records. Two qualified senior rheumatologists (JT and CY) confirmed the diagnosis of SLE according to the 2019 criteria. SLEDAI and SLAM-R were recorded when the patients were hospitalised and confirmed by another two qualified rheumatologists (JY and ZZ). British Isles Lupus Assessment Group was not used in this study. Because it should be compared with the previous visit's disease activity, while, there is only one visit available for new-onset patients. This study was approved by the Ethics Committee of Ruijin Hospital.

As a result, the mean age was 41±16 years and the mean duration was 19±53 months. Eighty-three (86%) were female and 13 (14%) were male. The detailed distribution of clinical characteristics according to 2019 criteria were shown in table 1. It was interesting to find out that 2019 criteria correlated positively with SLEDAI ($p<0.0001$, $r^2=0.65$) and SLAM-R ($p<0.0001$, $r^2=0.37$) (figure 1). Compared with SLAM-R, SLEDAI were more convergent and correlated better with the scores of 2019 criteria. Both correlations provided some clues that the score of 2019 criteria might also indicate the disease activity.

Table 1 The clinical characteristics of new-onset SLE patients diagnosed with 2019 criteria

Clinical criteria	Positive/total patients (%)
N	96
Fever	40/96 (42)
Cutaneous domain	
Acute cutaneous lupus	24/96 (25)
Subacute cutaneous lupus or discord rash	25/96 (26)
Non-scaring alopecia	19/96 (20)
Oral ulcer	18/96 (19)
Arthritis domain	51/96 (53)
Serositis domain	25/96 (26)
Pleural or pericardial effusion	21/96 (22)
Acute pericarditis	4/96 (4)
Renal domain	37/96 (39)
Protein >0.5 g/24 hours	37/96 (39)
Class II or V lupus nephritis	0/96 (0)
Class III or IV lupus nephritis	0/96 (0)
Neurologic domain	
Seizure	0/96 (0)
Psychosis	0/96 (0)
Delirium	0/96 (0)
Haematologic domain	
Leucopenia	61/96 (64)
Thrombocytopenia	31/96 (32)
Autoimmune haemolysis	57/96 (59)
Laboratory criteria	Positive/total patients (%)
Immunologic	
Anticardiolipin antibodies	10/96 (10)
Antibeta2-glycoprotein antibodies	23/96 (24)
Lupus anticoagulant	26/96 (27)
Complement domain	86/96 (90)
Highly specific antibodies domain	
Anti-dsDNA antibody	87/96 (91)
Anti-Sm antibody	20/96 (21)

Anti-dsDNA, antibodies to double-stranded DNA; Anti-Sm, anti-Smith; SLE, systemic lupus erythematosus.

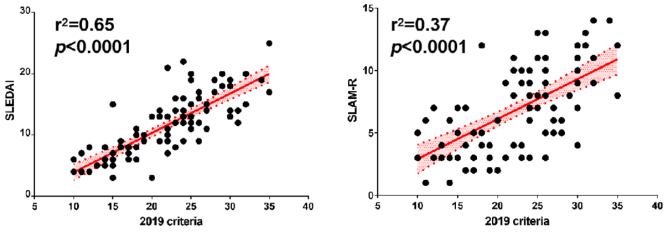

Figure 1 The correlation of 2019 criteria with SLEDAI and SLAM-R. 2019 criteria correlated positively with SLEDAI ($p<0.0001$, $r^2=0.65$) and SLAM-R ($p<0.0001$, $r^2=0.37$). SLAM-R, revised systemic lupus activity measure; SLEDAI, SLE disease activity index.

In our study, it is the first attempt to associate 2019 criteria with SLEDAI and SLAM-R. SLEDAI correlates better with 2019 criteria, partly because items in 2019 criteria are similar to those in SLEDAI. However, in 2019 criteria, with each domain, only the highest weighted criterion is counted, while, in SLEDAI, they are counted separately.[1 5] SLAM-R has items that exist neither in 2019 criteria nor in SLEDAI,which may finally lead to the difference in the analysis of correlation.

Besides, when using 2019 criteria in the clinic, it increases burden for rheumatologists to calculate scores, and then to calculate SLEDAI or SLAM-R. Considering the efforts for the rheumatologists to memorise 2019 criteria and two more disease activity score systems, it raises a question whether it is possible in the future we will have new criteria that could be used both as disease activity and classifying criteria?

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