33 REVISED SDI

Ian Bruce. *Queen's University, Belfast, UK*

10.1136/lupus-2024-la.34

A key lupus outcome measure is the assessment of damage, which is considered as a separate domain to disease activity and health related quality of life and has been shown to independently predict mortality.[1] It is also known that damage begets damage and therefore prevention of damage is a key goal of novel systemic lupus erythematosus (SLE) therapies. Currently, the key damage assessment tool is the Systemic Lupus International Collaborating Clinics, ACR/American College of Rheumatology (SLICC/ACR) Damage Index (SDI). This was developed 30 years ago and is widely used in lupus cohort studies.[1] Over time, several limitations of the SDI have been noted. It has a significant floor effect and, in any cohort, up to 50% of patients have no damage scored. The current SDI also only defines items using clinical examination and the results of simple investigations. Such definitions do not align with modern medical practice. Finally, any damage occurring prior to the diagnosis of lupus, for example in a patient with mixed connective tissue disease and pulmonary fibrosis who later that evolves into lupus, the pulmonary fibrosis is not counted in the damage index. For these and other reasons, damage takes a long time to accumulate and so is not used as a primary endpoint in SLE trials.

Recently, the SLICC group, in collaboration with the ACR and the Lupus Foundation of America, have initiated a project to revise the SDI. By consensus we have agreed a new definition of the construct of damage; 'the SDI is a measure of morbidity in SLE, independent of disease activity or impact on the patient but related to mortality. It is an evaluative index primarily intended for research purposes and should take a life-course approach. Damage can occur before a diagnosis of SLE but, if so, it should be attributable to SLE. Damage to an organ is irreversible, but the functional consequences on that organ may improve over time through physiological adaptation or treatment'.[2]

We have subsequently entered an item generation and item reduction phase, which included three rounds of a Delphi process as well as scrutiny by expert organ specific subgroups and an overall steering group.[3] After the most recent round we have identified 45 proposed items to be included. Of note, 11 of these items have staging within their proposed definitions suggesting that such an index may have more sensitivity. It also opens the possibility to consider reduction as well as increase in scores over time.[3]

The revised SDI will likely offer a more detailed and clinically relevant assessment of organ damage in SLE patients. It will reflect current evidence based medical practice and is likely to improve sensitivity of the index in SLE populations. Further validation in cohorts and consideration of weighting of grades across clinical organ systems are now underway.

REFERENCES

1. Sutton EJ, Davidson JE, Bruce IN. The Systemic Lupus International Collaborating Clinics (SLICC) damage index: A systematic literature review. *Semin Arthritis Rheum.* 2013;**43**(3):352–61. doi: 10.1016/j.semarthrit.2013.05.003.
2. Johnson SR, Gladman DD, Brunner HI, *et al*. Evaluating the construct of damage in systemic lupus erythematosus. *Arthritis Care Res (Hoboken).* 2023;**75**(5):998–1006. doi: 10.1002/acr.24849.
3. Kundakci B, Barber M, Clarke AE, *et al*. POS1139 lupus damage index revision - item generation and reduction phase. *Annals of the Rheumatic Diseases.* 2024;**83** (Suppl 1):1009. doi: 10.1136/annrheumdis-2024-eular.5207.

Learning Objectives

At the end of this presentation participants will be able to:

- Explain the importance of measuring damage accrual in the assessment of an SLE patient
- Describe the limitations of the current SLICC/ACR Damage Index
- Discuss the updated construct of damage in SLE

34 SLERPI

George Bertsias. *University of Crete, Medical School, Greece*

10.1136/lupus-2024-la.35

Systemic lupus erythematosus (SLE) is a clinically and immunologically heterogeneous autoimmune disease that can be challenging to diagnose, especially in its early stages. Although developed in the context of clinical studies, evidence suggests that existing classification criteria have high sensitivity and specificity for identifying SLE patients in daily practice.[1–3] Under this premise, and using advanced feature selection and machine learning methodologies, we found that a combination of simple, variably weighted clinical and serological features could provide high accuracy for the identification and diagnosis of SLE patients, including those with early, organ-dominant, or severe forms of the disease.[4] The new tool, SLE Risk Probability Index (SLERPI), can operate both in binary (SLE or not-SLE) and probabilistic formats, enabling the monitoring of individuals at risk for connective tissue disease/SLE.[4] Subsequent validation studies by various groups in different regions and settings have confirmed the high sensitivity (with sufficient specificity) of SLERPI.[3 5–7] Such approaches, pending further confirmation and calibration, support the endeavour of ultimately developing diagnostic criteria for SLE.

REFERENCES

1. Aringer M, Costenbader K, Daikh D, *et al*. 2019 EUropean League Against Rheumatism/American College of Rheumatology classification criteria for systemic lupus erythematosus. *Arthritis Rheumatol.* 2019;**71**(9):1400–12. doi: 10.1002/art.40930.
2. Petri M, Orbai AM, Alarcon GS, *et al*. Derivation and validation of the Systemic Lupus International Collaborating Clinics classification criteria for systemic lupus erythematosus. *Arthritis Rheum.* 2012;**64**(8):2677–86. doi: 10.1002/art.34473.
3. Tan BCH, Tang I, Bonin J, *et al*. The performance of different classification criteria for systemic lupus erythematosus in a real-world rheumatology department. *Rheumatology (Oxford).* 2022;**61**(11):4509–13. doi: 10.1093/rheumatology/keac120.
4. Adamichou C, Genitsaridi I, Nikolopoulos D, *et al*. Lupus or not? SLE Risk Probability Index (SLERPI): A simple, clinician-friendly machine learning-based model to assist the diagnosis of systemic lupus erythematosus. *Ann Rheum Dis.* 2021;**80** (6):758–66. doi: 10.1136/annrheumdis-2020-219069.
5. Castaneda-Gonzalez JP, Mogollon Hurtado SA, Rojas-Villarraga A, *et al*. Comparison of the SLE Risk Probability Index (SLERPI) scale against the EUropean League Against Rheumatism/American College of Rheumatology (ACR/EULAR) and Systemic Lupus International Collaborating Clinics (SLICC) criteria. *Lupus.* 2024;**33** (5):520–24. doi: 10.1177/09612033241238053.