Abstract O17 Table 1 SLESIS-R index calculator

Predictor	Score
Age (years) ≥60	4
Previous SLE-related hospitalization	4
Previous serious infection	4
GC doses	
>5 mg and <10 mg	2
≥10 mg and <30 mg	2
≥30 mg	5

SLESIS-R: Systemic Lupus Erythematosus Infection Score-Revised; SLE: systemic lupus erythematosus; GC: glucocorticoids

Society of Rheumatology. A multivariable logistic model was constructed taking into account the variables already forming the SLESIS score, plus all other potential predictors identified in a literature review. Performance was analyzed using the C statistic and the area under the ROC (AUROC). Internal validation was carried out using a 100-sample bootstrapping procedure. OR were transformed into score items, and the AUROC was used to determine performance.

Results A total of 1459 patients who had completed 1 year of follow-up were included (mean age, 49 ± 13 years; 90% females). Twenty-five (1.7%) had experienced ≥1 severe infection. According to the adjusted multivariate model, severe infection could be predicted from 4 variables: age (years) ≥60, previous SLE-related hospitalization, previous severe infection, and glucocorticoid dose. A score was built from the best model (table 1). AUROC:0.861 (0.777–0.946). The cut-off chosen was ≥6, which exhibited an accuracy of 85.9% and a positive LR of 5.48.

Conclusions SLESIS-R is an accurate and feasible instrument for predicting infections in SLE patients. SLESIS-R could help to make informed decisions on the use of immunosuppressants and the implementation of preventive measures.

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REFERENCE

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O18 DATA-DRIVEN CLUSTERING OF CEREBROSPINAL FLUID PROTEOME REFLECTS CLINICAL PHENOTYPES OF SYSTEMIC LUPUS ERYTHEMATOSUS

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Objective Neuropsychiatric (NP) symptoms are frequent in patients with systemic lupus erythematosus (SLE) and signs of neuronal damage can be present in patients without evident NP involvement. The cerebrospinal fluid (CSF) protein patterns may reveal insights to the pathogenesis of NPSLE. We applied a data-driven approach to investigate the clinical differences in patients with SLE, clustered by their CSF proteomic profile. In addition, we explored the association between groups of proteins and clinical and serological data.

Methods CSF samples from a cross sectional cohort of 29 female outpatients recruited irrespectively of disease activity and organ involvement, were analyzed using label-free quantification liquid chromatography tandem mass spectrometry. Hierarchical clustering of proteomic data was used to identify sample clusters and clusters were analyzed for variance of clinical traits using Kruskal-Wallis and Wilcoxon tests. Proteins were clustered in modules using Weighted Gene Co-expression Correlation Network Analysis (WGCNA). Protein modules were analyzed for correlation to clinical traits using Pearson correlation coefficient.

Results Patient cluster 1 showed highest frequency of nephritis, depression and cognitive impairment. Cluster 2 was characterized by alopecia, SSA-antibodies, and low frequency of cognitive impairment. Cluster 3 had a clinical profile of autonomic neuropathy, lupus headache and increased neurofilament light concentrations in CSF. The protein modules (M1-M6) were characterized by nervous tissue proteins (M1), lipid lifecycle proteins (M2), macrophage derived proteins (M3), plasma proteins (M4), immunoglobulins (M5), intracellular metabolic proteins (M6). Modules 1 and 2 were associated with nephritis, depression, longer disease duration and cognitive impairment, and this pattern was most pronounced in patient cluster 1. The opposite clinical profile was associated with M4 and M5, which showed inverse correlation to cognitive impairment and brain atrophy and was most distinct in patient cluster 2.

Conclusion Data-driven clustering of patients using their CSF proteome forms subgroups reflecting clinical phenotypes of SLE. Two clinical phenotypes appear, where age of disease onset, level of disease severity, renal involvement and degree of neuronal damage differentiates the phenotypes. Variances in CSF proteomic patterns may represent differences in the SLE disease process.

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O19 CHATSLE – CONSULTING CHATGPT FOR 100 FREQUENTLY ASKED LUPUS QUESTIONS

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Objective Lupus is a rare and complex disease that affects almost all aspects of life. Inevitably, patients are constantly confronted with questions about their disease. Nevertheless,

the shortage of rheumatology expert care often stands in contrast with the patients' demand for sufficient information. To provide reliable disease-related information in a patient-friendly language, 'Lupus100.org' was launched, where experts have answered 100 common questions.

With the advent of widely accessible artificial intelligence, the question arises to what extent AI large language models (LLM) could fill in the information gap and support physicians in the care of patients. Therefore, this study aimed to assess the capability of the LLM ChatGPT-4 to comment on 100 frequently asked patient questions related to lupus.

Methods ChatGPT-4 responses were generated by entering the English questions from https://lupus100.org/ in a fresh session on October 16, 2023. Three senior rheumatologists who were blinded concerning authorship evaluated responses from ChatGPT-4 and Lupus100 independently. The evaluation criteria were quality, empathy (Likert scale 1–5 each) and the selection of a preferred answer. Differences between the scores were analysed using a two-tailed Student's t-test. A one-sample Chi-Square test was performed to assess whether there was a preferred source for the answers. All statistical analyses were conducted in SPSS, the significance threshold used was $p<.05$.

Results The quality of the answers provided by ChatGPT-4 was considered significantly greater than that of the Lupus100 responses (**table 1**). A similar trend was observed for empathy but the difference was not statistically significant. Regarding the responses scored as of 'poor' or 'very poor' quality and 'not empathetic', there were very few cases for either ChatGPT-4 or Lupus100. In general, more responses from ChatGPT-4 (n = 171, 57%) were preferred over those from Lupus100 (n = 129, 43%) and this difference was seen to be significant (p = 0.02).

Abstract O19 Table 1

	Lupus100	ChatGPT-4	p-value
Word count [mean (SD)]	241 (135)	372 (52)	0.001
Quality score [mean (SD) [CI]]	4.31 (0.72) [4.23 – 4.39]	4.55 (0.65) [4.48 – 4.62]	0.001
responses scored 'poor' or 'very poor' [n (%)]	5 (0.8%)	4 (0.7%)	
Empathy score [mean (SD) [CI]]	4.07 (0.84) [3.97 – 4.17]	4.14 (0.82) [4.05 – 4.23]	0.27
responses scored 'not empathetic' [n (%)]	1 (0.2%)	0 (0%)	
Responses preferred [n (%)]	129 (43%)	171 (57%)	0.02

Conclusions In this study, the LLM ChatGPT-4 generated quality and empathetic responses to patient questions concerning lupus. The study suggests that such models might be a valuable source of patient information and it may support physicians in generating beneficial patient information.

O20 LUPUS LOW DISEASE ACTIVITY STATE AND ORGAN DAMAGE IN RELATION TO QUALITY OF LIFE IN SLE: A COHORT STUDY WITH UP TO 11 YEARS OF FOLLOW-UP

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Objective Optimisation of health-related quality of life (HRQoL) is among goals of treatment in SLE. The Lupus Low Disease Activity State (LLDAS) has received attention as a goal whenever remission cannot be achieved. How SLE activity, organ damage, and LLDAS attainment relate to patient-reported outcomes (PROs) is not fully explored, which formed the scope of this investigation.

Methods We included 327 patients with SLE from a tertiary referral centre. Longitudinal registrations of disease activity using SLEDAI-2K and physician global assessment (PhGA), organ damage using the SLICC/ACR damage index (SDI), pharmacotherapies, HRQoL using EQ-5D-3L, as well as visual analogue scale (VAS) scores for fatigue, pain, and overall SLE-related health state over a median follow-up time of 8.5 years were analysed. Incident cases (N=90) were followed for 4.3 years (median), and 86 patients with moderately/highly active, autoantibody-positive SLE were followed for 5.2 years (median).

Results LLDAS was associated with favourable HRQoL by EQ-5D-3L (0.062; 95% CI 0.038–0.086). Increasing cSLEDAI-2K and PhGA were associated with decreasing EQ-5D-3L values (-0.009; 95% CI 0.005–0.013 and -0.064; 95% CI 0.048–0.080, respectively). Results were similar for incident cases and patients with moderately/highly active, autoantibody-positive disease. Increasing prednisone equivalent dose was associated with decreases in HRQoL on all PROs. Sustained LLDAS enhanced HRQoL by EQ-5D-3L (0.042; 95% CI 0.013–0.071) compared with not being in LLDAS or being in LLDAS for less than 18 consecutive months. Increasing SDI scores were associated with lower EQ-5D-3L values in the full population (-0.037; 95% CI 0.025–0.049), but not in incident cases or patients with moderately/highly active, autoantibody-positive disease. Advancing SDI scores were also associated with higher pain and worse overall SLE-related health state, but not fatigue. In fully adjusted models, low disease activity and being in LLDAS were associated with favourable PROs irrespective of organ damage or any history of antidepressant use.

Conclusion In one of the longest to date observational studies, we demonstrated that low disease activity and being sustainedly in LLDAS were coupled with favourable HRQoL, pain, fatigue, and overall health experience, irrespective of organ damage.

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