"IFN similar to HC") and, using CIBERSORTx, according to the level of monocyte-associated gene expression.

Results Serum KYN/TRP and QA/KA ratios were higher in SLE versus HC ($p<0.01$) (table 1). SLE subjects were racially diverse, reflective of disease demographics, with a wide range of disease activity (SLEDAI scores ranging 0-29) and medication use. There were no demographic differences between SLE and HC. Nine hundred thirty-three genes were differentially expressed ≥2-fold in SLE versus HC, with 762 genes overexpressed and 171 underexpressed ($p<0.05$). Seventy of the top 100 most highly variant genes were ISG. Of the 762 overexpressed genes in SLE subjects, 144 positively correlated with KYN/TRP ratios ($p<0.05$) and 71 (49%) of these were ISG. Similarly, 81 of the 762 overexpressed genes positively correlated with QA/KA ratios in SLE subjects ($p<0.05$), and 38 (47%) of these were ISG. In 36 "IFN high" SLE subjects, IFN scores correlated with KYN/TRP ratios ($p<0.01$), but not with QA/KA ratios (table 2). Of these 36 "IFN high" SLE subjects, 23 had high monocyte-associated gene expression and in this subgroup, the IFN scores correlated with both KYN/TRP and QA/KA ratios ($p<0.05$) (table 3).

Conclusions SLE subjects demonstrate increased KYN/TRP pathway metabolite ratios, and high ISG expression correlated with elevated KYN/TRP ratios, suggesting IFN-mediated KYN/TRP pathway activation. High ISG expression also correlated with QA/KA ratios in SLE subjects with high monocyte-associated gene expression, suggesting that KYN/TRP pathway activation may be particularly important in monocytes. These results need validation, which may aid in determining which subset of patients may benefit from therapeutics directed at the IFN or KYN/TRP pathways to ameliorate a potentially neurotoxic QA/KA imbalance.

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Clinical Research

622 CHILDHOOD-ONSET SLE OUTCOMES IN THE CARRA LUPUS REGISTRY

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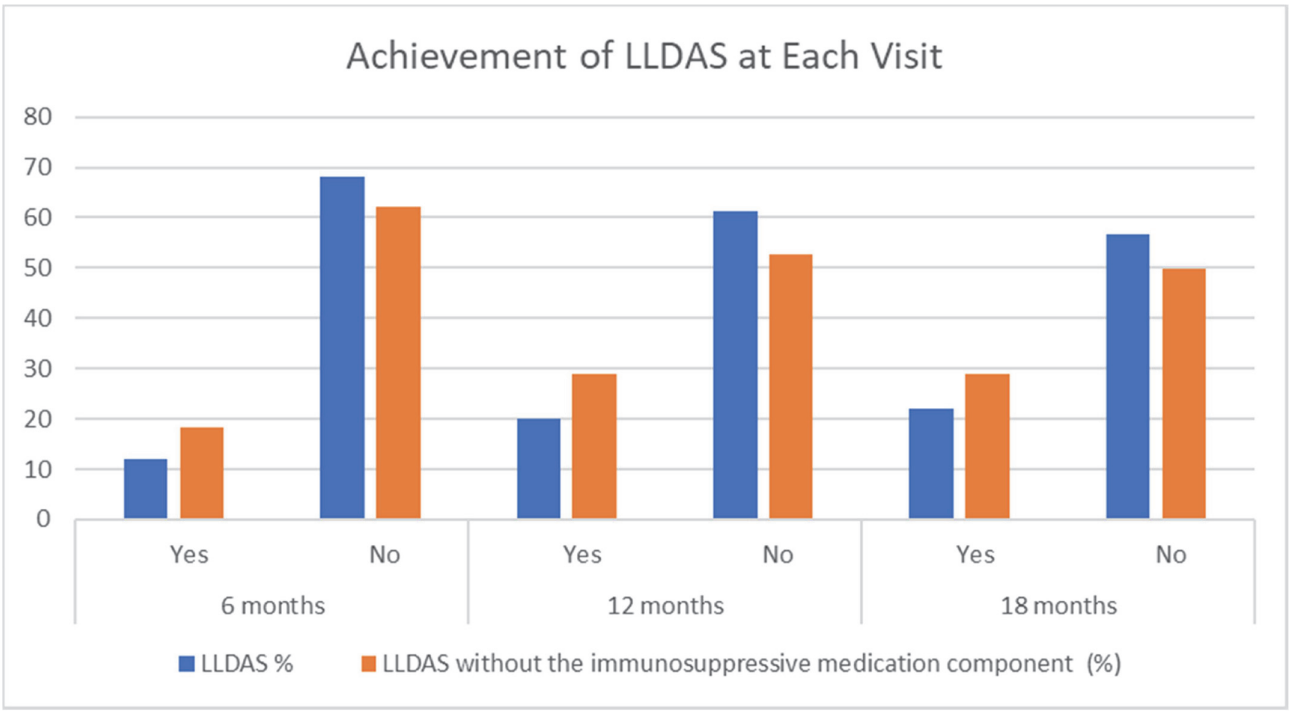
Objective This study aims to describe the demographic features, cumulative clinical manifestations, and treatments in a large childhood-onset (cSLE) cohort in the Childhood Arthritis and Rheumatology Research Alliance (CARRA) Registry. This study also assesses lupus low disease activity state (LLDAS) and examines predictors of the first attainment of LLDAS.

Methods We performed a retrospective cohort study of patients with cSLE enrolled in the CARRA Registry between March 2017 to December 2021. Inclusion criteria included: 1) diagnosis of cSLE at <18 years based on Systemic Lupus Erythematosus International Collaborating Clinics (SLICC) criteria; 2) enrollment within two years of cSLE diagnosis or at the time of a flare of lupus nephritis (LN); and 3) enrollment prior to 21 years of age. Sociodemographic and clinical data were summarized using descriptive statistics. A chi-squared test was used to assess the association between LLDAS and the categorical variables. We used logistic regression to assess enrollment predictors of LLDAS attainment at 6, 12 and 18 months of follow-up

Results The CARRA Registry includes 779 patients with cSLE (table 1). In this ethnically and racially diverse cohort, the median SLEDAI at enrollment was 4 (IQR 2-10) and median time from enrollment to end of follow up was 22 (IQR 11 to 33) months. At enrollment, 18% of patients had a SLICC damage index score greater than zero (table 2). At the end of the follow-up period, almost 50% of patients developed lupus nephritis. 5.7% and 12.4% had neurological manifestations per ACR and SLICC criteria, respectively. 94.6% were prescribed hydroxychloroquine and participants received a variety of immunosuppressive therapies. The percentage of visits where LLDAS was achieved is shown in figure 1. In multivariate analysis, statistically significant predictors of LLDAS attainment included time from diagnosis and 6, 12 and 18 months of follow-up and baseline hydroxychloroquine use.

Abstract 622 Table 1 Baseline Demographic Characteristics

Characteristic	N=779
Female gender, n (%)	674 (86.5)
Age at diagnosis, mean (SD), years	13.3 (2.9)
Age at enrollment, mean (SD), years	14.3 (2.9)
Race, n (%)	
White	192 (24.7)
Black	235 (30.2)
Hispanic	180 (23.1)
American Indian/Alaskan native	10 (1.3)
Asian	117 (15.0)
Middle Eastern/North African	11 (1.4)
Native Hawaiian/Pacific Islander	5 (0.6)
Other	13 (1.7)
Prefer not to answer/Missing	16 (2.1)
Insurance, n (%)	
Private	348 (44.7)
Public insurance	331 (42.5)
Uninsured	22 (2.8)
Other	75 (9.6)
Income, n (%)	
<25,000	103 (13.2)
25,000-49,999	123 (15.8)
50,000-74,999	75 (9.6)
75,000-99,999	64 (8.2)
100,00-150,000	70 (9.0)
≥ 150,000	72 (9.2)
Prefer not to answer/Unknown	159 (20.4)



Abstract 622 Figure 1 Achievement of LLDAS at each visit

Abstract 622 Table 2 *Disease characteristics*

Characteristics	N=779
Time from symptom onset to diagnosis (months)[1]	
Median (IQR)	2 (0, 6)
Time from diagnosis to enrollment (months)	
Median (IQR)	5 (1, 14)
Time from enrollment to end of follow up (months)	
Median (IQR)	22 (11, 33)
Number of visits	
Median (IQR)	5 (3, 6)
ACR Classification Criteria Score	
Median (IQR)	5 (4, 6)
SLICC Classification Criteria Score[2]	
Median (IQR)	8 (6, 10)
Patient Global Score[3]	
Median (IQR)	2 (0, 4)
Physician Global Score[4]	
Median (IQR)	2 (0.5, 4)
SLEDAI[5]	
Median (IQR)	4 (2, 10)
CHAQ[6]	
Median (IQR)	0 (0-0.38)

ACR: American College of Rheumatology SLICC: Systemic Lupus International Collaborating Clinics
[1]N=778, [2]N=715, [3]N=727 [4]N=655, [5]N=700, [6]N=677

Conclusion The CARRA Registry has enrolled a large, racially and ethnically diverse cohort of cSLE patients that are early in their disease course, exhibit moderate disease activity and have minimal damage scores. The use of hydroxychloroquine in this cohort is high; hydroxychloroquine use at enrollment was a strong predictor of LLDAS attainment. This cohort provides a unique opportunity to study longitudinally the impact of disease activity and immunosuppressive medications in a young SLE cohort.

623 RISK FACTORS FOR HERPES ZOSTER AMONG PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

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Background/Purpose Patients with systemic lupus erythematosus (SLE) have a higher prevalence and incidence of herpes zoster (HZ) compared with the general population. Our study was to determine the current burden of HZ and describe risk factors for its development among patients with SLE.

Methods Data was obtained from an ongoing IRB-approved longitudinal registry of patients with SLE and non-SLE controls at the Medical University of South Carolina, including demographics, medical and medication history, and SLE-related damage (SLICC Damage Index). Patient-reported history of HZ was confirmed by electronic medical record review and keyword searches. Descriptive analyses, Pearson's chi-squared testing, two-sample t-tests, and multivariable logistic regression were performed as appropriate.

Results The study population included 726 registry participants with SLE, of whom 656 (90.36%) were female, 541 (74.52%) were Black, and 21 (2.89%) were Hispanic. In our study population, 143 (19.70%) SLE patients reported a history of HZ. The mean age of SLE onset was similar between patients with and without a history of HZ, 31.71 (+/- 14.23) and 31.17 (+/- 13.94) years of age respectively (table 1). Chi-square analysis revealed patients with a history of zoster were more likely to have any disease damage from SLE (SLICC-DI > 0) compared with patients who did not have a history of zoster