1109

CLINICAL AND LABORATORY MANIFESTATIONS OF SLE PATIENTS WITH ELEVATED CELL-BOUND COMPLEMENT ACTIVATION PRODUCTS

¹Jennifer L Rogers*, ²Rory Bloch, ¹Amanda M Eudy, ²Roberta Vezza Alexander, ³David Pisetsky, ²John Conklin, ¹Lisa G Criscione-Schreiber, ¹Kai Sun, ¹Rebecca E Sadun, ¹Jayanth Doss, ¹Megan EB Clowse. ¹Department of Medicine, Duke University Medical Center, USA; ²Exagen Inc, USA; ³Durham VA Medical Center, Duke University Medical Center, USA

10.1136/lupus-2021-lupus21century.52

Background Cell-bound complement activation products (CB-CAPs) including erythrocyte-bound C4d (EC4d) and B-lymphocyte-bound C4d (BC4d) can be used as diagnostic tools in SLE; however, the clinical phenotype of patients with elevated CB-CAPs has not been well described. In this study, we evaluated the clinical, laboratory, and demographic variables of SLE patients with and without positive CB-CAPs.

Methods This was a cross-sectional study of SLE patients (ACR 1997 or SLICC criteria) from June 2020 to March 2021. Patients completed the polysymptomatic distress scale. ANA and other autoantibodies were measured by ELISA. Anti-dsDNA was determined by immunofluorescence using Crithidia lucilie. CB-CAPs were measured by flow cytometry. The multi-analyte assay panel (MAP) was determined using a 2-tier algorithm. Differences in clinical, laboratory and demographic variables between groups were analyzed by Fisher's exact test and Kruskal-Wallis test.

Results In this cohort of 118 SLE patients (92% female, 60% Black, mean age 44 years), 65% were MAP positive and 42% were BC4d and/or EC4d positive. CB-CAPs positive patients were younger and more often of Black race. There was no difference in sex, ethnicity, or mean length of disease between CB-CAPs positive and negative patients. While nearly all patients met each set of SLE criteria, total ACR/EULAR score was significantly higher in CB-CAPs positive patients, driven by a range of manifestations including hematologic criteria and alopecia. CB-CAPs positive patients were more likely to have positive ANA, Sm, Ro-52, Ro-60 or U1RNP.

Signs of SLE activity differed between patients with positive and negative CB-CAPs. Twice as many patients with positive CB-CAPs were taking prednisone (positive: 48%; negative 23%) and had positive anti-dsDNA antibodies and low complement. There was a trend toward higher mean clinical SLEDAI scores in CB-CAPs positive patients. The frequency of SLEDAI rash was significantly higher in CB-CAPs positive patients. Other clinical SLEDAI manifestations and symptoms of polysymptomatic distress were similar between groups (table 1).

Conclusion Understanding clinical phenotypes within the complexity of SLE is essential to advancing care. CB-CAPs positivity is associated with greater cumulative SLE disease activity as measured by total ACR/EULAR score and tracks with SLE serologies. Although disease activity as measured by the SLEDAI and PGA was not statistically associated with CB-CAPs positivity, the trend toward higher scores and the greater use of steroids suggests greater SLE activity. Further studies are needed to understand both the clinical phenotype and the endotype of CB-CAPs positive patients.

Abstract 1109 Table 1 Clinical, Laboratory and Demographic Variables in CB-CAPs Positive and Negative SLE

	BC4d and/or EC4d Positive	BC4d and EC4d Negative	Overall	p-value
	n = 50	n = 62	n=118	
Demographics				
Mean age (SD)	40.0 (14.1)	47.6 (13.0)	44.2 (14.1)	0.005
Female	47 (94%)	55 (88.7%)	108 (91.5%)	0.508
Black	36 (72%)	32 (51.6%)	71 (60.2%)	0.033
Ethnicity Hispanic	3 (6.0%)	2 (3.2%)	5 (4.2%)	0.655
SLE History and Classification				
Mean length of disease (SD)	13.2 (9.3)	14.7 (11.2)	13.9(10.1)	0.725
1997 ACR Criteria	47 (94%)	57 (91.9%)	110 (93.2%)	0.730
2011 SLICC Criteria	49 (98%)	62 (100%)	117 (99.2%)	0.446
2019 ACR/EULAR Criteria	50 (100%)	59 (95.2%)	115 (97.5%)	0.251
2019 ACR/EULAR Score and Manifestations				
Total Score [Median (IQR)]	26.5 (14.0)	19.00 (8.0)	21.0(12.8)	<0.001
Alopecia	37 (74%)	28 (45.2%)	68 (57.6%)	0.002
Hematologic	36 (72%)	32 (51.6%)	72 (61.0%)	0.033
Medications				
Prednisone	24 (48%)	14 (23%)	38 (71%)	0.005
Hydroxychloroquine	38 (76%)	50 (80%)	94 (80%)	0.645
Physician assessments				
Physician Global assessment (PGA)	Mean (SD)	Mean (SD)	Mean (SD)	
	0.7 (0.7)	0.5 (0.5)	0.6 (0.6)	0.2
Clinical SLEDAI	2.7(3.5)	1.3 (2.1)	1.8 (2.8)	0.052
SLEDAI Components				
SLEDAI Rash	19 (38.8%)	11 (18.3%)	30 (25.4%)	0.019
SLEDAI Renal	7 (14.3%)	4 (6.7%)	11 (9.3%)	0.214
Patient Reported Measures				
Polysymptomatic distress score	7.9 (7.5)	8.4 (7.1)	8.5 (7.6)	0.158
Widespread pain index	3.9 (4.7)	4.2 (4.3)	4.3 (4.7)	0.130
Map and Serologies (Exagen)				
MAP Positive (>0)	43/49 (87.8%)	29/62 (46.8%)	73/112 (65.2%)	<0.001
ANA positive ($\geq$ 60 IU/ml)	48 (96.0%)	43 (69.4%)	94 (79.7%)	<0.001
dsDNA (Crithidia lucilie) positive	25 (50.0%)	12 (19.4%)	38 (32.2%)	0.001
Low C3 or C4	15 (30.0%)	5 (8.1%)	21 (17.8%)	0.005
Sm positive	9 (18.0%)	2 (3.2%)	12 (10.2%)	0.011
RNP (anti-U1RNP) positive	24 (48.0%)	11 (17.7%)	36 (30.5%)	<0.001
Ro52 positive	19 (38.0%)	10 (16.1%)	30 (25.4%)	0.010
Ro60 positive	30 (60.0%)	24 (38.7%)	57 (48.3%)	0.036
La/SSB positive	7 (14.0%)	2 (3.2%)	9 (7.6%)	0.075
RNP (anti-RNP70) positive	15 (30.0%)	9 (14.5%)	25 (21.2%)	0.064
APLA positive	8 (16.0%)	5 (8.1%)	13 (11.0%)	0.241