References:

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THU0271

PERFORMANCE OF THE EULAR/ACR 2019 CLASSIFICATION CRITERIA FOR SYSTEMIC LUPUS ERYTHEMATOSUS IN EARLY DISEASE, ACROSS SEXES AND ETHNICITIES

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Background: EULAR/ACR 2019 SLE Classification Criteria were validated in an international cohort.

Objectives: To evaluate performance characteristics of SLE classification systems in sex, race/ethnicity, and disease duration subsets.

Methods: Sensitivity and specificity of the EULAR/ACR 2019, SLICC 2012 and ACR 1982/1997 criteria were evaluated in the validation cohort.

Results: The cohort consisted of female (n=1098), male (n=172), Asian (n=118), Black (n=68), Hispanic (n=124) and White (n=941) patients; and patients with an SLE duration of 1-3 years (n=196), 3-5 years (n=157), and ≥5 years (n=879). Among patients with 1-3 years disease duration, the EULAR/ACR criteria had better sensitivity than the ACR criteria (97% (95%CI 92-99%) vs 81% (95%CI 72-88%). The new criteria performed well in men (sensitivity 93%, specificity 96%) and women (sensitivity 97%, specificity 94%). The new criteria had better sensitivity than the ACR criteria in White (95% vs 83%), Hispanic (100% vs 86%) and Asian patients (97% vs 77%).

Conclusion: The EULAR/ACR 2019 criteria perform well in patients with early disease, and across sexes and ethnicities.

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THU0272

BASEMENT MEMBRANE SEROLOGICAL MARKERS OF COLLAGEN TYPE IV AND LAMININ REMODELING ARE DIFFERENTIALLY EXPRESSED IN SLE

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Background: Collagen type IV and laminin are the main constituents of basement membranes (BMs). Epitopes on these molecules are targeted in various autoimmune diseases, systemic lupus erythematosus (SLE) in particular. Accelerated large vessel disease is a well-recognized cause of premature cardiovascular morbidity and mortality in SLE. Novel tools for quantification of soluble MMP-derived fragments of collagen type IV (C4M) and laminin (LG1M) have emerged as promising biomarkers for BM remodeling in atherosclerosis.

Objectives: To study serum levels of collagen type IV and laminin metabolites in patients with SLE and in healthy controls. And to search for associations with disease activity, organ damage and cardiovascular comorbidity.

Methods: One hundred and six SLE patients without and 20 with previous CVD events were included (1). One hundred and twenty male and female blood donors aged 20-65 years served as healthy reference. Disease activity (SLEDAI) and damage (SLICC) scores were calculated. Coronary artery calcification (CAC) was studied by CT scan and expressed as Agatston score. Carotid intima-media thickness (IMT) was measured by ultrasound (LOGIQ E9, GE Healthcare). In either subgroup atherosclerosis was defined as Agatston > 99U and/or IMT>1mm and/or presence of plaque. C4M and LG1M were measured by competitive ELISAs (2).

Results: Patient characteristics are presented in Table 1. Overall, C4M and LG1M were significantly increased in the entire SLE cohort vs. healthy controls (35.7 ± 17.5 vs. 22.3 ± 9.4 ng/mL, p<0.0001 and 20.9 ± 21.1 vs. 9.7 ± 8.0 ng/mL, p<0.0001, respectively) (Fig 1). Highly significant positive correlations were detected between C4M and LG1M in the entire SLE cohort and in the healthy control group (Fig 2). In terms of CVD and atherosclerosis LG1M was significantly higher in SLE patients with manifest CVD vs. those without (34.47 ± 41.22 vs. 18.34 ± 13.55, p=0.0015) and in those with atherosclerosis by imaging (25.53 ± 28.12 vs 17.53 ± 13.35, p=0.036). There were no associations between C4M and CVD or atherosclerosis. There was a weak association between LG1M and SLICC (r=0.22, p=0.01), but not with SLEDAI. Details on associations with other CVD risk factors and specific organ involvement will be presented.

Table 1 Characteristics for SLE patients with and without CVD

Patients characteristics	All (126)	SLE + CVD (20)	SLE without CVD (106)	p
Females, no. (%)	113 (89)	18 (90)	95 (89)	0.95
Age, yrs., mean ± SD	50.6± 14.4	54.8 ± 15.3	46.8± 14.1	0.15
Disease duration, yrs., mean ± SD	13.9 ± 9.3	19.0± 11.3	13.0± 11.3	0.007
SLEDAI, median, range	4 (0-14)	4 (0-10)	4 (0-14)	0.717
SLICC, median, range	1 (0-11)	3 (1-11)	1 (0-10)	0.0001
Atherosclerosis, no. (%)	53 (42)	14 (70)	39 (37)	0.0006
LG1M (ng/ml), mean ± SD	20.9± 21.2	34.5± 41.2	18.3 ± 13.6	0.0015
C4M (ng/ml), mean ± SD	35.7 ± 17.5	38.1± 20.6	35.3± 16.9	0.518

Conclusion: Serological levels of collagen type IV and laminin biomarkers were elevated and interrelated in an unstratified SLE population. Moreover, LG1M but not C4M was significantly elevated in SLE patients with previous CVD events and in those with atherosclerosis by imaging. These findings indicate that LG1M may serve as a serological marker for SLE-related large vessel disease. However, additional extravascular sites of increased basement membrane remodeling may contribute to the abnormal biomarker pattern.

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Kay SD and Genovese F contributed equally to this work.

Figure 1. Levels of C4M and LG1M in serum of patients with SLE and healthy controls; graphs are presented as box and whiskers plot (in the style of Tukey). Statistical significance: ****p<0.0001.

Figure 2. Correlation plots (Spearman r) of C4M and LG1M in SLE patients and healthy controls.

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THU0273 DISEASE ACTIVITY IS IMPORTANT RISK FACTORS FOR MATERNAL AND FETAL OUTCOMES DURING PREGNANCY IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

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Background: Systemic lupus erythematosus (SLE) primarily affects women of childbearing age and disease activity frequently increase during pregnancy. Patient with SLE still have markedly higher risk for obstetric complications, despite discussing reproductive planning with physicians and choosing a suitable time for pregnancy.

Objectives: This study aimed to examine the frequency and risk factors of complications occurring during pregnancy for women with SLE and compare with the general obstetric population.

Methods: The medical records of patients with SLE and age-matched controls at Ajou University Hospital between January 1999 and June 2019 were collected and retrospectively analyzed. Clinical features and pregnancy complications for all pregnancy-related admissions for women with and without SLE were compared. Multivariate logistic regression analysis was performed to obtain the predictor of maternal and fetal adverse outcomes.

Results: During this period, we analyzed 163 pregnancies in patients with SLE and 596 pregnancies in general population. Of these, except for body mass index (BMI), no other significant differences regarding demographic characteristics were noted between the groups. Lupus patients delivered significantly earlier (37 weeks + 0 days vs. 37 weeks + 6 days, p<0.001) and experienced more stillbirth (odds ratio (OR) 12.8), pre-eclampsia (OR 4.2), preterm labor (OR 2.6), emergency cesarean section (OR 2.5) and intrauterine growth retardation (odds ratio: 2.4) than age-matched controls. Using logistic regression, thrombocytopenia, low complement levels, high proteinuria, anti-ds DNA antibody positivity and high SLE Disease Activity Index (SLEDAI) were associated with maternal and fetal complications, whereas high cumulative steroid dose after SLE onset, high median steroid dose during pregnancy and history of cyclophosphamide treatment were only correlated with maternal complications. The area under the curve for SLEDAI score of adverse pregnancy outcome was 0.726 (95% CI 0.65-0.81) and cumulative steroid dose after SLE onset and median steroid dose during pregnancy for maternal outcome were 0.658 (95% confidence interval (CI) 0.55-0.76) and 0.750 (95% CI 0.65-0.85). The optimal cut-off value for SLEDAI was 4 and cumulative and median steroid dose were 2750mg and 6mg, respectively.

Conclusion: Pregnant women with SLE have a higher risk of adverse pregnancy outcomes. Pregnancies should be delayed until disease activity is well controls (SLEDAI<4) for longer than 6 months.

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