CS-13 REMISSION AND LOW DISEASE ACTIVITY STATE PREVENT HOSPITALIZATIONS AND EMERGENCY ROOM VISITS IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS

[1]Cristina Reátegui-Sokolova*, [1]Rocio V Gamboa-Cardenas, [1]Mariela Medina-Chinchón, [1]Francisco Zevallos, [1,2]Claudia Elera-Fitzcarrald, [1]Victor Pimentel-Quiroz, [1]Jorge M Cucho-Venegas, [1,3]Zoila Rodriguez-Bellido, [1,3]Cesar A Pastor-Asurza, [1,3]Risto Perich-Campos, [4]Graciela S Alarcón, [1,2]Manuel F Ugarte-Gil. *[1]Rheumatology Department. Hospital Guillermo Almenara Irigoyen. EsSalud; [2]Universidad Cientifica del Sur; [3]Universidad Nacional Mayor de San Marcos; [4]School of Medicine, University of Alabama at Birmingham*

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Background Although the survival rate of patients with Systemic Lupus Erythematosus (SLE) has improved over the years, patients are frequently hospitalized or evaluated in the Emergency Room; these events account for most of the direct cost of these patients' care. The objective of this study is to determine whether remission and low disease activity state (LDAS) are protective of hospitalization and Emergency Room visits in our SLE patients.

Methods All hospitalizations and Emergency Room visits of Peruvian SLE patients members of the Almenara Lupus Cohort were identified during the two-years following their baseline visit. We used the baseline data (at admission to the cohort) in order to determine which factors were associated with hospitalizations and Emergency Room visits in these SLE patients. Remission was defined as a SLEDAI-2K=0, prednisone ≤5 mg/d and immunosuppressants on maintenance dose, LDAS was defined as not on remission an a SLEDAI-2K≤4, prednisone ≤7.5 mg/d and immunosuppressants on maintenance dose; antimalarials were allowed in both groups. Univariable and multivariable Poisson regression models were used to determine the impact of being on remission or LDAS on the risk of hospitalization and Emergency Room visits, adjusting for gender, age at diagnosis, socioeconomic status, disease duration, damage, comorbidities, time of exposure to prednisone and antimalarial use.

Results Of the 314 cohort patients, 92.7% (n=291) were female, the median age of the patients was 40.7 (32.9–51.1) years, with a disease duration of 5.5 (2.6–10.3) years. Fifty-nine of the patients included were hospitalized, a total of 165 times (range 2.8 per patient). In the multivariable analysis we found that remission [RR 0.036 (0.005–0.259), p=0.001] and LDAS [RR 0.289 (0.182–0.457),<p=0.001] at baseline decrease the risk of hospitalization in SLE patients. Similarly, remission [RR: 0.019 (95% CI 0.107 to 0.815), p=0.019] and LDAS [RR=0.383 (95% CI 0.222 to 0.661), p=0.001] decrease the risk of Emergency Room visits. One hundred-thirty-five of the 165 hospitalizations presented a defined cause, being disease activity the most common cause of hospitalization with 73 admissions (54.1%); within them renal disease was the leading cause, with 37 admissions (50.7%).

Conclusions Remission and LDAS decrease the risk of hospitalizations and Emergency Room visits in SLE patients. Disease activity was the most frequent cause of hospitalization and within them renal disease. These findings have economic implications for the health care system.

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CS-14 PROLONGED ANTIMALARIAL TREATMENT IS ASSOCIATED WITH INCREASED RISK FOR ELEVATED MYOCARDIAL BIOMARKERS IN SYSTEMIC LUPUS ERYTHEMATOSUS

[1]Konstantinos Tselios, [1]Dafna D Gladman*, [2]Paula Harvey, [2]Shadi Akhtari, [1]Jiandong Su, [1]Murray B Urowitz. *[1]Centre for Prognosis Studies in Rheumatic Diseases, Toronto Lupus Clinic, University Health Network, Toronto, Ontario, Canada; [2]Department of Cardiology, Women's College Hospital, University of Toronto, Toronto, Ontario, Canada*

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Background Antimalarial (AM)-induced cardiomyopathy (AMIC) has been rarely reported in systemic lupus erythematosus (SLE). However, given the large number of patients

Abstract CS-14 Table 1 Comparison between BNP/cTnI abnormal and BNP/cTnI normal patients

VARIABLE (At assessment)	BNP/cTnI abnormal (no history of heart disease or PAH) (n=16)	BNP/cTnI normal (n=152)	*P*
Age (y)	54.7±15.1	47.83±12.15	**0.037**
SLE duration (y)	22.54±10.44	15.45±10.05	**0.008**
SLEDAI-2K	1.88±2.47	2.79±3.64	0.329
AMS for 2 years prior	2.52±2.96	3.02±3.18	0.549
eGFR<30 ml/min	0 (0%)	3 (2%)	0.571
Hypertension	10 (62.5%)	54 (35.5%)	**0.035**
Diuretics treatment	5 (31.3%)	8 (5.3%)	**<0.001**
Systolic BP at test (mmHg)	118.4±21.7	113.5±16.9	0.28
Diastolic BP at test (mmHg)	71.9±10.1	69.5±11.8	0.444
Abnormal CPK ⍰	7 (43.8%)	24 (15.8%)	**0.008**
Cumulative years on AM	13.66±9.14	7.88±8.02	**0.008**
AM duration>5.6 years	14 (87.5%)	69 (45.4%)	**0.001**
Corticosteroids	8 (50%)	70 (46.1%)	0.763
Mean prednisone (mg/day)	9.4±4.2	7.53±5.1	0.326
Immunosuppressives	10 (62.5%)	87 (57.2%)	0.685

AMS adjusted mean SLEDAI-2K; eGFR: estimated glomerular filtration rate, PAH: pulmonary arterial hypertension, BP: blood pressure, CPK: creatine phosphokinase, AM: antimalarials, CQ: chloroquine, HCQ: hydroxychloroquine, ⍰ Three abnormal measurements during the last two years

treated, it seems possible that AMIC is under-recognized and may run undiagnosed as an ill-defined heart failure syndrome. Specific cardiac biomarkers may identify patients at risk. We sought to investigate the prevalence and associated factors for such biomarkers in SLE.

Methods One hundred sixty-eight consecutive patients (153 females) attending the a large lupus clinic, without past history of cardiac disease (heart failure, coronary artery disease, valvulopathy etc.) and/or pulmonary hypertension, were enrolled. None had chest pain or electrocardiographic (ECG) abnormalities suggestive of acute coronary syndrome. High-sensitivity cardiac troponin I (cTnI) and B-natriuretic peptide (BNP) were measured simultaneously in serum and plasma samples, respectively. Patients were categorized according to normal or abnormal BNP and/or cTnI. For the assessment of the impact of AM duration on abnormal cardiac biomarkers, patients were divided in two groups according to the median duration of use, which was calculated at 5.6 years in the current cohort. Statistical analysis was performed with SAS 9.0 software; $p<0.05$ was considered significant.

Results Sixteen patients (9.5%) had elevated BNP and/or cTnI. Compared to subjects with normal biomarkers, they were older, had longer disease and AM use duration and more frequently persistent creatine phosphokinase (CPK) elevation (table 1). Multivariable regression analysis showed prolonged AM treatment (>5.6 years) and persistent CPK elevation to be important predictors for elevated cardiac biomarkers [HR=5.43, 95% CI=1.14 to 25.9, p=0.034 and HR=4.62, 95% CI=1.22 to 17.51, p=0.024, respectively]. Two patients were diagnosed with AMIC on endomyocardial biopsy; both had CPK and BNP/cTnI elevation.

Conclusions Approximately 9% of SLE patients had elevated myocardial biomarkers, in the absence of prior cardiac disease or pulmonary arterial hypertension. Prolonged AM therapy and persistent CPK elevation conferred an increased risk for abnormal BNP and cTnI, which might predict AMIC.

CS-15 ENDOTHELIAL PROGENITOR CELLS AS A PROMISING BIOMARKER OF SYSTEMIC LUPUS ERYTHEMATOSUS ACTIVITY

[1,2]Gonzalo Silveira*, [2,3]Sabrina Ranero, [1]Adriana Carlomagno, [4]Martín Rebella, [2,3a]Sofía Grille, [1a]Álvaro Danza. [1]*Clínica Médica '2'. Hospital Pasteur, Facultad de Medicina, Universidad de la República, Montevideo, Uruguay*; [2]*Departamento Básico de Medicina, Hospital de Clínicas, Facultad de Medicina, Universidad de la República, Montevideo, Uruguay*; [3]*Cátedra de Hematología. Hospital de Clínicas, Facultad de Medicina, Universidad de la República, Montevideo, Uruguay*; [4]*Clínica Médica 'C'. Hospital de Clínicas, Facultad de Medicina, Universidad de la República, Montevideo, Uruguay*; [a]*Both authors contributed equally*

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Background Endothelial progenitor cells (EPC) and circulating endothelial cells (CEC) are cell populations mobilized from the bone marrow in response to endothelial damage. Its relationship with vascular risk damage and subclinical vascular damage in systemic lupus erythematosus (SLE) is being actively studied, but their role as an activity biomarker was not evaluated.

Aim to study EPC and CEC levels in SLE patients and compare them to healthy controls, as well as study their relationship with clinical and analytical markers of disease activity.

Methods A prospective, analytical, case-control study was conducted; in a center for systemic autoimmune diseases in Montevideo, Uruguay. EPCs and CEC levels were quantified by multiparametric flow cytometry. EPCs were defined as $CD45^{low/-}$, $CD34^{+}$, $CD133^{+}$, $CD31^{+}$, $CD146^{+}$, $CD3^{-}$ and CEC as $CD45^{low/-}$, $CD34^{+}$, $CD133^{-}$, $CD31^{+}$, $CD146^{+}$, $CD3^{-}$.

Disease activity was assessed using 'Systemic Lupus Erythematosus Disease Activity Index' (SLEDAI) and 'Physician's Global Assessment' (PGA), erythrocyte sedimentation rate (ESR), C reactive protein (CRP), complement (C3 and C4), double-stranded DNA (dsDNA) antibody levels and proteinuria.

Results 28 controls and 22 SLE patients age and sex matched were enrolled. Patients median ages was 29.5±11.5 years and controls were 36±11.25 years, (p=0.28). Sex ratio (female/male) was 22/2 and 24/4 in patients and controls (p=0.68).

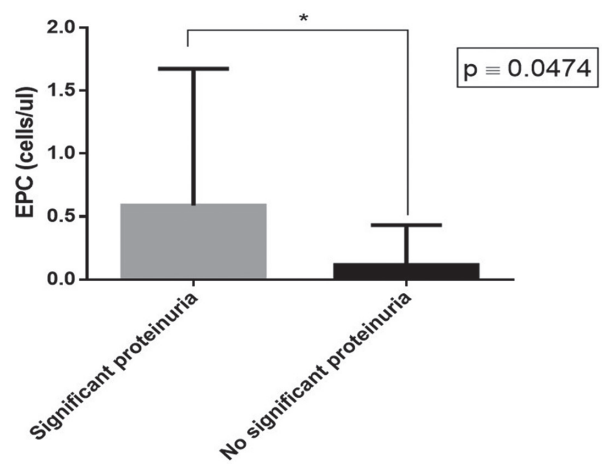
SLE patients showed significantly lower levels of EPC (median 0.2202±0.4377 cells/µl vs 1.051±1.3849 cells/µl), p<0.0001, and lower levels of CEC (median 0.2321 ±0.49677 cells/µl vs 0.7043±0.5706 cells/µl), p=0.0004 than controls.

EPC levels correlated with proteinuria/creatininuria ratio (r=0.5386, p=0.0097) and with dsDNA level (r=0.5118, p=0.0211) in SLE patients.

EPC level was higher in patients with significant proteinuria (median 0.58710±1.5086 cells/µl vs 0.11502±0.42442 cells/µl), p=0.0474 (figure 1); and in patients with increased dsDNA level (median 0.5871±1.2562 cells/µl vs 0.1150±0.3504 cells/µl), p=0.0249.

No correlation was found with the levels of C3, C4, SLEDAI, as well as prednisone dose at the time of enumeration.

Conclusions EPS and CEC levels correlate with disease activity in SLE, particularly with renal involvement. Currently, we are enrolling more patients in order to confirm these results, but we postulate that, in the future, EPC may be used as a biomarker of disease activity.



Abstract CS-15 Figure 1 EPC and significant proteinuria