SAT0201

ASSOCIATION OF CARDIAC TROPONIN T MEASURED WITH A HIGHLY SENSITIVE ASSAY WITH CARDIOVASCULAR EVENTS IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS (TROPOPLUS STUDY)

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Background: Mortality is still 2 to 5 times superior in SLE patients as compared to general population and is mainly due to cardiovascular event (CVE). Although cardiovascular traditional risk factors contribute to early-onset atherosclerosis in SLE, the phenomenon is not fully explained by a higher frequency of smoking habits, hypertension, or dyslipidemia and the Framingham risk equation usually underestimates the 10-year cardiovascular risk in this population. Thus, identification of biological markers able to better stratify cardiovascular risks in SLE patients is needed.

Objectives: Our study aimed to determine whether serum cardiac troponin T measured with a highly sensitive assay (HS-cTnT) was associated with CVE in systemic lupus erythematosus (SLE) patients.

Methods: All SLE patients included between 2007 and 2010 in the randomized, double-blind, placebo-controlled, multicenter PLUS trial were retrospectively screened. Patients with no past history of CVE and a follow-up period of > 20 months were analyzed. HS-cTnT concentration was measured using the electrochemiluminescence method on serum collected at PLUS inclusion. The primary outcome was the incident CVE. Factors associated with the primary outcome were identified and multivariate analysis was performed.

Results: Overall, 442 SLE patients (of the 573 included in the PLUS study) were analyzed for the primary outcome with a median follow up of 110 (IQR: 99-120) months. Among them 29 (6.6%) experienced at least one CVE that occurred at a median of 67 (IQR: 31-91) months after inclusion. Six out of 29 patients had more than one CVE. In the multivariate analysis, dyslipidemia, duration of SLE disease and HS-cTnT were associated with the occurrence of CVE. Kaplan-Meier analysis showed that a concentration of HS-cTnT > 4.27 ng/L at inclusion increased by 2.7 (HR 2.7 [1.3-5.6], p=0.0083) the risk of CVE in SLE.

Conclusion: HS-cTnT measured in serum is the first identified biomarker independently associated with incident CVE in SLE patients

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SAT0202

C4 LEVELS AS PREDICTOR OF DISEASE FLARES AND ADVERSE PREGNANCY OUTCOMES IN SYSTEMIC LUPUS ERYTHEMATOSUS PREGNANCIES

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Background: SLE pregnancies have an increased risk of Adverse Pregnancy Outcomes (APO). In clinical practice, low C3 and C4 levels are associated with active disease and, during pregnancy, complement activation products are shown to be associated with APO.

Objectives: To analyse potential association between C3 and C4 variations and disease flares and APO during SLE pregnancies.

Methods: Demographic, clinical and laboratory data on SLE pregnancies prospectively followed by a multidisciplinary team in a pregnancy clinic from 1987 to 2015 were retrospectively analysed at preconception and at each trimester. Hypocomplementemia was defined according to the normality range calculated in healthy pregnancies by Reggia et al¹. APO were defined as: early miscarriage (<10th week), intrauterine fetal death (>10th week), perinatal death (<30th day of life), pre-eclampsia (PE), severe preterm birth (<34th week).

Results: 134 pregnancies in 98 SLE patients were analysed. APO occurred in 22 (16%) pregnancies: 9 early miscarriages, 4 intrauterine fetal deaths, 3 severe preterm births, 6 PE (hesitated in 1 intrauterine fetal death, 1 perinatal death; 2 preterm birth between 34th and 37th weeks and 2 term births). 13 flares

(2 renal, 4 articular, 6 cutaneous and 1 neurological) were recorded in 11 (8%) pregnancies.

The mean C3 and C4 levels at each trimester are shown in table 1.

Table 1. C3 and C4 mean levels (mg/dL) at pre-conceptual visit (T0), 1st trimester (T1), 2nd trimester (T2) and 3rd trimester (T3).

	C3 T0	C3 T1	C3 T2	C3 T3	p T0-T1	p T1-T2	p T2-T3
Pregnancies with flares	73.2	82.2	83.8	97.5	0.04	0.02	0.06
Pregnancies without flares	85.3	91.8	104.4	114.7	<0.001	<0.001	<0.001
Pregnancies with APO*	84.7	91.5	98.5	106.3	0.03	0.03	0.89
Pregnancies without APO*	84.5	90.9	102.8	112.8	<0.001	<0.001	<0.001
	C4 T0	C4 T1	C4 T2	C4 T3	p T0-T1	p T1-T2	p T2-T3
Pregnancies with flares	8.6	11.8	10.9	11.4	0.01	0.43	0.27
Pregnancies without flares	13.2	14.7	16.3	16.6	<0.001	<0.001	0.98
Pregnancies with APO**	13.1	16.1	15.9	14.7	0.01	0.3	0.13
Pregnancies without APO**	12.9	14.2	15.8	16.1	<0.001	<0.001	0.42

Comparison of C3 and C4 mean levels between pregnancies with APO vs without APO:

* T0, T1, T2, T3: ns; ** T0, T1, T2, T3: ns

Both in pregnancies with flares and with APO, there was no increase of C3 between the 2nd and the 3rd trimester and of C4 between the 1st and the 2nd trimester.

At preconception, mean levels of C4 were lower in pregnancies with flares compared to those without flares (images 1 and 2); during the 2nd and the 3rd trimesters the mean levels of both C3 and C4 were lower in pregnancies with flares.

In pregnancies with APO, the variation of C4 levels between the 2nd and the 3rd trimester was lower than in pregnancies without APO (-3.18 vs 0.27; p=0.01).

A higher frequency of low C4 was observed at pre-conceptual visit, 1st trimester and 3rd trimester (6/7 vs 25/103 p=0.002; 8/9 vs 56/106 p=0.04; 9/11 vs 33/96 p=0.003) in pregnancies with flare as compared with pregnancies without flares.

Figure 1. Image 1: comparison of C3 mean levels between pregnancies with flares vs without flares

Figure 2. Image 2: comparison of C4 mean levels between pregnancies with flares vs without flares

Conclusion: In our cohort of prospectively followed SLE pregnancies, low C4 levels at preconception seems to predict flares during pregnancy. Low increase of C4 levels between the 2nd and the 3rd trimester could predict an APO.

References:

[1] Reggia R. et al. Rheumatology 2012;51:2186-90

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