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Background: The role of complement in the antiphospholipid (aPL) related pathology has been widely studied in animal models. Antiphospholipid antibodies can induce fetal loss in experimental animals but mice deficient in specific complement components (C4, C3, C5) appear somehow protected. In addition, in pregnant mice injected with aPL, antibody deposition has been found at decidual level causing focal necrosis, apoptosis and neutrophil infiltrates and supporting aPL pathogenetic potential. On the other hand, human studies did find hypocomplementemia associated to pregnancy complications in patients with obstetric antiphospholipid syndrome (APS). These results, however, are not unanimously confirmed and, in addition, some studies only show increased levels of complement activation products (i.e. Bb) and not decreased levels of C3 and/or C4. A recently study focusing on complement level in early pregnancy and before pregnancy showed a significant correlation with pregnancy complications and loss in a large cohort of primary APS.

Objectives: To investigate if the simple detection of low C3 and/or C4 could be considered a risk factor for adverse pregnancy outcome in APS and aPL carriers pregnancies.

Methods: We performed a multicentric study including patients from 10 Italian and 1 Russian Centers. Data on pregnancies in women with primary APS (n=434) and asymptomatic carriers with persistently positive aPL but not fulfilling clinical criteria for APS (n=218) were retrospectively collected. Serum C3 and C4 levels were evaluated by nephelometry; hypocomplementemia was defined by local laboratory reference values. Statistical analysis was performed using GraphPad.

Results: Preconceptional complement levels and gestational outcome were available for 107 (25%) pregnancies in APS out of 434 and for 196 (90%) pregnancies in aPL carriers women out of 218. In pregnancies with low preconceptional C3 and/or C4, a significantly higher prevalence of pregnancy losses was observed (p=0.019). A subgroup analysis focusing on triple aPL positive patients was also performed. Preconceptional low C3 and/or C4 levels were found to be associated with an increased rate of pregnancy loss (p = 0.027) in this subgroup also. Otherwise, adverse pregnancy outcomes in single or double aPL positive women were not related to preconception complement levels (p = 0.44) (Table 1). Of note, all the pregnancy losses in the triple positive group occurred in patients treated with low dose aspirin and low molecular weight heparin from the time of positive pregnancy test.

Conclusion: Our findings confirm that decreased complement levels before pregnancy are associated with increased risk of adverse outcome. This has been seen only in women with triple aPL positivity, indeed single or double positivity does not show this trend. Complement levels are cheap and easy to be measured therefore they could represent a useful aid to identify patients at increased risk of pregnancy loss. test positivity.

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Table 1.

	Triple aPL positivity		p	Single or double aPL positivity		p
	Low C3/C4 (n=49)	Normal C3/C4 (n=17)		Low C3/C4 (n=57)	Normal C3/C4 (n=165)	
Gestational outcome						
Term live birth (>37w)	15 (31%)	6 (35%)	ns	34 (60%)	110 (67%)	ns
Preterm live birth (≤37w)	22 (45%)	11 (65%)	ns	15 (26%)	38 (23%)	ns
Pregnancy losses (abortion and miscarriages)	12 (24%)	0 (0%)	0.027	8 (14%)	17 (10%)	ns

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.1824

POS0738 BLUNTED CEREBRAL OXYGENATION DURING EXERCISE IN NON-NEUROPSYCHIATRIC SYSTEMIC LUPUS ERYTHEMATOSUS

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Background: Systemic lupus erythematosus (SLE) is a chronic autoimmune disease affecting multiple organs, including the central nervous system. Sub-clinical brain lesions have been reported in SLE patients, even without overt neuropsychiatric manifestations (non-NPSLE). Studies using PET/MRI, examining structural or functional brain abnormalities in SLE, have been previously performed, either at rest or during a mental task (1–3). Exercise can be used to identify early alterations in brain oxygenation that might not detectable during resting conditions (4).

Objectives: Our study aimed to examine possible differences in cerebral oxygenation during a handgrip exercise test between SLE patients without neuropsychiatric manifestations and age-matched controls.

Methods: Fifty-two participants (26 non-NPSLE and 26 controls), following evaluation of handgrip strength, underwent a protocol involving a seated rest (baseline), a 3-min handgrip exercise (at 30% of maximal strength), and a 3-min recovery. Continuous-near-infrared-spectroscopy (NIRS) was used to monitor changes in cerebral-oxygenated hemoglobin (O2Hb), de-oxygenated (HHb) and total-hemoglobin (tHb). Beat-by-beat blood pressure (Finapres) was continuously monitored.

Results: There were no differences between the two groups in age, body mass index, blood pressure, and smoking status. Median SLE duration was 7.5 (3.0 – 16.0) years. During exercise, cerebral -O2Hb increased in both groups; however, non-NPSLE exhibited a significantly lower increase in O2Hb vs. controls (average response: 1.20±0.89 vs. 2.33±1.61µM, respectively, p<0.005) and lower tHb responses (p<0.05), with no differences in HHb.

Conclusion: Our data show, for the first time, that SLE patients even without overt neuropsychiatric manifestations exhibit a blunted increase in cerebral-O2Hb during a submaximal exercise stimulus compared to age-matched controls. Examining brain oxygenation during a simple exercise task may assist in identifying patients with early alterations in cerebral function.

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Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.1867