of cerebral blood flow in the semioval centre to conventional MRI techniques described in the EULAR NPSLE recommendations improves the diagnosis of primary NPSLE.

## S4a – Longterm outcome

### S4A:4 BETA2-MICROGLOBULIN (B2MG) PLASMA LEVELS ASSOCIATE WITH MARKERS OF ATHEROSCLEROSIS IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS (SLE)

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**Purpose** SLE is associated with premature and accelerated atherosclerosis. Atherosclerotic processes are associated with impaired renal function and may be driven by inflammatory pathways, including interferon type 1 responses; both conditions with relevance to SLE. Plasma levels of B2MG are correlated to interferon-alpha activity in SLE as well as dependent of renal function. In this study plasma B2MG was correlated to markers of atherosclerosis in patients with SLE.

**Methods** Patients with SLE (n=147) were included in the cross-sectional study. Traditional cardiovascular risk factors were accounted for. Markers of atherosclerosis included 1) coronary artery calcium (CAC) assessed by computed tomography without contrast and identified in accordance with the Agatston scoring method and 2) carotid plaque (CP) assed by ultrasound and identified as either 1) a local thickening of the intima-media thickness of >50% compared with the surrounding vessel wall, 2) an IMT of more than 1.5 mm thick or 3) a local thickening of the arterial wall of more than 0.5 mm; bilateral examination. P-B2MG was measured by a routine immunoturbidimetric assay. The Cockgroft-Gault formula was used to calculate the estimated glomerular filtration rate (eGFR) (mL/min/1.73 $m^2$ body surface area) which was stratified into quartiles.

**Results** CAC, CP or any of them (CAC/CP) were found in 57, 29 and 62 patients, respectively; eGFR <90 was found in 74 patients. P-B2MG having a median of 216 nmol/L (range: 101–2810). Among the patients with the highest quartile of P-B2MG the frequency of CAC/CP was around 65% irrespective of eGFR. However, in a full logistic regression model taking into account traditional and disease related cardiovascular risk factors, patients with normal eGFR and a high quartile P-B2MG where found to have the highest odds ratio for having CAC/CP, see table 1.

**Abstract S4A:4 Table 1**

| | SLE patients with eGFR <90 (n = 74) | | SLE patients with eGFR ≥90 (n = 73) | |
|---|---|---|---|---|
| Variable | OR (95% CI) | P-value | OR (95% CI) | P-value |
| P-B2MG | | | | |
| - quartile 1 | 0.96 (0.10–9.07) | 0.97 | 1 | - |
| - quartile 2 | 0.72 (0.14–3.73) | 0.70 | 2.12 (0.41–11) | 0.37 |
| - quartile 3 | 3.32 (0.63–17) | 0.16 | 1.04 (0.16–6.59) | 0.99 |
| - quartile 4 | 3.89 (0.80–19) | 0.09 | 15.45 (1.97–121.45) | 0.01 |

**Conclusion** We found a high prevalence of atherosclerotic markers in patients with SLE with the highest among those within the top quartile of P-B2MG in combination with normal renal function. These results suggest that atherosclerosis in SLE may be associated with interferon-alpha activity irrespective of renal function.

### S4A:5 HIGH GENETIC RISK SCORE IS ASSOCIATED WITH ORGAN DAMAGE IN SYSTEMIC LUPUS ERYTHEMATOSUS

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**Background** Systemic lupus erythematosus (SLE) is a chronic, autoimmune disease with a complex genetic aetiology. The overall effect of hereditary risk on organ damage has so far not been studied. We therefore assessed the relationship between genetic risk and development of organ damage in SLE.

**Methods** Patients with SLE (Sweden, n=1001) were genotyped using a 200K Immunochip single nucleotide polymorphism (SNP) Array (Illumina). The Immunochip was HLA imputed using HLA*IMP:02. A non-HLA (58 SNPs) and a HLA (5 SNPs) genetic risk score (GRS) was assigned to each patient based on SNPs which in previous studies have shown association ($p<5\times10–8$) with SLE in European populations (Chen *et al*. 2017). For each SNP, the natural logarithm of the odds ratio (OR) for SLE susceptibility was multiplied by the number of risk alleles in each individual. The sum of all products for each patient was defined as the GRS. Clinical data, including the Systemic Lupus International Collaborating Clinics Damage Index (SLICC-DI), was retrieved from medical records. The relationship between GRS and SLICC-DI was analysed using an ordinal regression model.

**Results** A higher non-HLA GRS was associated with increased organ damage (OR 1.10 (1.00–1.21), $p=4.2\times10–2$), nephritis (OR 1.26 (1.13–1.41), $p=2.8\times10–5$), anti-dsDNA (OR 1.33 (1.17–1.52), $p=1.0\times10–5$) and a younger age at diagnosis (OR 1.33 (1.14–1.54), $p=1.7\times10–4$).

When analysing the relationship between individual SNPs (n=63) and SLICC-DI, we observed positive associations between SLICC-DI and rs6568431 (ATG5, OR 1.28 (1.08–1.51), $p=3.6\times10–3$) and rs11889341 (STAT4, OR 1.27

(1.07–1.50), p=5.0×10–3). Rs1269852 (TNXB-ATF6B, OR 0.80 (0.66–0.98), p=2.7×10–2) and rs1132200 (TMEM39A, OR 0.72 (0.56–0.91), p=6.7×10–3) were negatively associated with SLICC-DI. Using a Kendall Tau correlation model, a positive correlation between the TNXB-ATF6B risk allele and the HLA DRB1*03:01 haplotype was observed (τ=0.91, p<1.0×10–15).

**Conclusion** In patients with SLE, a high genetic risk score is linked to increased organ damage and a younger age of disease onset. Further, the ATG5 and STAT4 risk alleles were associated with increased organ damage whereas the TNXB-ATF6B and TMEM39A risk alleles were associated with less organ damage. Consequently, genetic profiling of patients with SLE may provide a tool for predicting severity of the disease.

## S4A:6 A SIMPLE METHOD TO EVIDENCE SUBCLINICAL ATHEROSCLEROSIS IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

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**Background** Subclinical atherosclerosis is a major cause of morbidity and mortality in patients with systemic lupus erythematosus.[1,2]

**Objective** The goal of this study is to assess the subclinical atherosclerosis in patients suffering the above mentioned disease, by measuring the ankle-brachial index.

**Method** We have studied 97 female patients diagnosed with systemic lupus erythematosus, and a control group of other 64 female patients, not having the disease. For both groups we recorded the demographics, the medical history. We also performed several laboratory tests and the ankle-brachial index measurement.

**Results** The mean value of ankle-brachial index on patients with systemic lupus erythematosus was statistically lower compared to control group (0,91±0,29 vs 1,14±0,17, p=0,0001). The univariate analysis of specific risk factors, showed that only the length of disease (r=-0,201, p=0,049), and the age of disease diagnosis (r=-0,354, p=0,0001) is statistically correlated with the ankle-brachial index. The multivariate analysis revealed that, among the specific risk factors, only the disease duration (B=-0,647, p=0,001), the age at diagnosis (B=0,326, p=0,002) and the presence of anticardiolipin andibodies (B=-0,338, p=0,003) are statistically correlated with ankle-brachial index.

**Conclusions** In our study, the determined value of ankle-brachial index on patients with systemic lupus erythematosus, was statistically lower than on the control group, thus revealing the presence of subclinical atherosclerosis.

### REFERENCES

1. Stojan G, Petri M. Atherosclerosis in systemic lupus erythematosus. *J Cardiovascular Pharmacol* 2013:**62**(3):255–262.
2. Tazi Mezalek Z, Harmouche H, Ammouri W, *et al*. l Atherosclerosis in systemic lupus erythematosus. *Presse Med* 2014:**43**(10):1034–1047.

## S4A:7 INCREASED RISK OF CARDIOVASCULAR DISEASE IN PATIENTS WITH SLE WHO HAVE ASYMPTOMATIC PLAQUE ON VASCULAR ULTRASOUND – A FIVE-YEAR FOLLOW-UP STUDY

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Cardiovascular disease (CVD) causes a quarter of deaths in patients with SLE and imaging studies show that patients with SLE have a higher prevalence of asymptomatic atherosclerotic plaques than age and sex-matched controls. It is not yet clear how strongly presence of these plaques influences the risk of developing CVD subsequently in patients with SLE.

Between 2011–2013, we carried out vascular ultrasound studies of 100 SLE patients, who had no known history of previous CVD. 95% were women and the mean age was 45.2 years. Thirty-six patients had plaque which included 14 with only carotid plaque, 7 with only femoral plaque and 15 with both. This follow-up study describes subsequent onset of CVD in these 100 patients.

The medical records of all 100 scanned patients were reviewed. CVD event were defined as coronary artery disease, peripheral vascular disease and cerebrovascular disease. Where CVD was diagnosed, it was corroborated by relevant blood tests and imaging. We carried out statistical analysis of associations between baseline variables at the time of the scan and risk of developing CVD subsequently.

From the 100 patients scanned, 7 patients were subsequently found to have CVD. Demographic information of these patients is shown in table 1. All the events occurred within a 4 year period from the initial scans. CVD occurred in 6/36 patients with plaque compared to 1/64 without plaque (p=0.002). The average number of plaque sites was 2.4 (CVD patients) compared to 0.7 (p=0.02) in those without CVD. CVD was also significantly associated with age at scan (p=0.02) and mean intima-media thickness (p=0.01). There were no significant associations with gender (p=0.5), ethnicity

**Abstract S4A:7 Table 1**

| Patient | Gender | Age at event | Ethnicity | Event | Smoker | CVS risk factors |
|---|---|---|---|---|---|---|
| 1 | F | 51 | Caucasian | Angina | Previous | |
| 2 | F | 61 | Caucasian | NSTEMI | Never | Hypertension |
| 3 | F | 60 | Caucasian | CABG | Never | Hypercholesterolemia, Hypertension |
| 4 | F | 54 | Asian | CABG | Never | PVD |
| 5 | F | 66 | Caucasian | IHD | Never | Hypertension |
| 6 | F | 53 | Caucasian | NSTEMI | Previous | |
| *7 | F | 42 | Asian | Stroke | Never | Hypercholesterolemia, Hypertension |

*Non-plaque patient