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.

**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.

**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 |

### 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