OP0123

EVALUATION OF RETINAL MICROVASCULATURE BY OPTICAL COHERENCE TOMOGRAPHIC ANGIOGRAPHY IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS MIRRORS SYSTEMIC INVOLVEMENT

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Background: Optical coherence tomographic angiography (OCTA) is a novel imaging modality that visualises retinal microvasculature in a noninvasive manner. It may have value in managing retinopathy, correlate with visual outcome and mirror systemic involvement in autoimmune diseases.

Objectives: Aim of this study was to evaluate retinal microvasculature in systemic lupus erythematosus (SLE) patients and correlate abnormal vascular maps with disease activity, damage accrual, treatment and visual outcome.

Methods: In a prospective cross-sectional study, OCTA was used to examine density maps, by means of a 6 mm scan, based on superficial retinal layer and deeper retinal layer images in patients and healthy controls (HC) (figure 1A-B) from November 2015 to December 2017. Vessel density, based on a map with vessels of 1-pixel width was measured.

Results: 52 eyes from 26 SLE patients and 40 healthy eyes from 20 HC were imaged (table 1). The eyes from SLE patients had a lower superficial whole en face density, superficial fovea density and superficial parafoveal density ($p=0.02$ for all comparisons) compared with healthy eyes (figure 1C-E). A negative correlation was demonstrated in SLE patients between age and superficial whole en face density ($p=0.0005$, $r=-0.5$), superficial foveal density ($p=0.006$, $r=-0.4$), superficial parafoveal density ($p=0.004$, $r=-0.4$), deep whole en face density ($p=0.003$, $r=-0.4$) and deep parafoveal density ($p=0.001$, $r=-0.4$). SLEDAI correlated inversely with superficial en face density ($p=0.002$, $r=-0.4$), superficial parafoveal density ($p=0.0003$, $r=-0.5$ and $p=0.002$, $r=-0.5$), deep whole en face density ($p=0.01$, $r=-0.4$) and deep parafoveal density ($p=0.002$, $r=-0.4$). A negative correlation was found between SLICC and superficial whole en face density ($p=0.0001$, $r=-0.5$), superficial parafoveal density ($p<0.0001$, $r=-0.6$), deep whole en face density ($p<0.0001$, $r=-0.6$) and deep parafoveal density ($p<0.0001$, $r=-0.7$). Patients with nephritis displayed reduced parafoveal vessel density and parafoveal thickness compared to those of patients without nephritis ($p=0.02$ and $p=0.008$, figure 1F-G). A positive correlation was found between hydroxychloroquine (HCQ) cumulative dose and both superficial and deep parafoveal density ($p=0.009$, $r=0.4$ and $p=0.04$, $r=0.3$). Best-corrected visual acuity in SLE positively correlated with superficial whole en face density, superficial parafoveal density, deep whole en

face density, and deep parafoveal density ($p<0.0001$, $r=0.7$ for all correlations). A negative correlation was found with fovea thickness ($p=0.01$, $r=-0.5$).

Abstract OP0123 – Table 1

	HC (n=20)	SLE (n=26)
Age (years)	46±8.9	49.6±13.6
Female n (%)	16 (80)	23 (88.5)
Disease duration (months)	-	181.5±93
SLEDAI	-	4.3±4.2
SLICC	-	1.9±1.5
HCQ cumulative dose (g)	-	738.8±486.8
Kidney involvement (n/%)	-	10/40
NPSLE (n/%)	-	8/32
aPL positive (n/%)	-	10/40

Conclusions: SLE patients, in particular those with kidney involvement, displayed a reduced retinal microvascular density compared with normal subjects. Vessel density provides a quantitative metric of capillary network that correlated with age, best-corrected visual acuity and clinical features as SLE disease activity and damage accrual. Hydroxychloroquine might have a protective role preserving the microvascular structures.

Disclosure of Interest: None declared

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OP0124

IN SLE PATIENTS IN SUSTAINED LOW DISEASE ACTIVITY, NOVEL INTERFERON ASSAYS PREDICT FLARES AND GLUCOCORTICOID REQUIREMENTS

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Background: Objectives of therapy in SLE are to maintain low disease activity and minimise glucocorticoid exposure. Disease activity is unpredictable with periods of low disease activity followed by flares. Once disease is controlled, there is an unmet need for predictors of sustained remission or flares to decide when glucocorticoids can be safely tapered. Type 1 interferon (IFN-I) activity is associated with disease activity in SLE. We recently validated two novel assays for IFN-I. First, a 2-score gene expression system that is continuous and accounts for modularity of the IFN transcriptome. Second, the flow cytometric biomarker tetherin that allows measurement of IFN status in individual cell subsets, with memory B cell tetherin (tetherin) correlating best with disease activity.

Objectives: To determine whether IFN assays can predict flare and glucocorticoid requirements in patients with lupus

Methods: Retrospective notes review was done in 165 consecutive patients with SLE who submitted IFN biomarker samples between 2011–2015. The reviewer was blinded to biomarker status.

For the interferon scores, RNA was extracted from PBMCs and a custom Taqman array was used to measure expression of 30 interferon stimulated genes normalised to *PP1A* and then calculate IFN Score A (12 genes predominantly responsive to IFN- α) and IFN Score B (14 genes also responsive to other IFN subtypes and inflammatory mediators). For tetherin, PBMCs were analysed fresh with conventional surface staining. MFI of CD317 (tetherin) was measured on CD19+CD27+CD38 lymphocytes.

We performed two analyses: ¹ In patients in sustained low disease activity (defined as no BILAG A or B in the six months prior to IFN biomarker sampling), prediction of new disease activity in the following six months (defined as new BILAG A or B). ² The association between IFN biomarkers and change in mean monthly glucocorticoid dose following biomarker sampling (defined as same or increased vs decreased or no glucocorticoid prescription). Since tetherin is measured on B-cells we excluded patients who were B cell depleted after rituximab. IFN biomarkers were compared between groups using Mann-Whitney U Tests.

Results: Of 165 patients, 92 were in sustained low disease activity prior to biomarker sampling. Of these, new BILAG A/B activity occurred within 6 months of sampling in 16 (17%). New BILAG A/B activity was associated with higher levels of IFN Score A ($p=0.027$, $n=83$), IFN Score B ($p=0.097$, $n=83$) and tetherin ($p=0.026$, $n=92$).

Of 143 patients with complete data, glucocorticoid doses were increased or maintained after sampling in 45 and decreased or not prescribed in 98. Increased/maintained glucocorticoids were associated with higher IFN Score A ($p=0.003$, $n=113$), IFN Score B ($p=0.013$, $n=113$) and tetherin ($p=0.043$, $n=84$).

After adjustment for age, gender, pre and post-sampling glucocorticoid dose, substantive associations with flare remained for IFN Score A (OR=1.44/unit, 95% CI: 0.998 to 2.082, $p=0.051$) and tetherin (OR=3.135/1000 units, 95% CI: 1.179 to 8.335, $p=0.022$).

Conclusions: SLE patients in low disease activity with high IFN Score A, Score B and tetherin levels have an increased risk of disease activity and/or glucocorticoid exposure in the months that follow biomarker testing. There is a potential role for use of these IFN assays as predictive biomarkers in SLE in the future.

Disclosure of Interest: None declared

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The 'A-B-C' of PsA (Assessment, Biologicals, Co-morbidities)

OP0125

DAPSA AND ULTRASOUND SHOW DIFFERENT PERSPECTIVES OF PSORIATIC ARTHRITIS ACTIVITY: RESULTS FROM A LONGITUDINAL OBSERVATIONAL STUDY OF PATIENTS STARTING TREATMENT WITH BIOLOGIC DMARDS

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Background: Clinical disease activity in patients with psoriatic arthritis (PsA) may be assessed by DAPSA- a sum score of tender (of 68) and swollen (of 66) joints, CRP (mg/dl), patient's global assessment of disease activity (PGA) and patient's pain (0–10 VAS for both). Ultrasound (US) with grey scale (GS) and power Doppler (PD) is used to detect inflammation in joints as well as extra-articular structures. Discrepancies have previously been described between DAPSA and US.¹

Objectives: To explore the associations between DAPSA and US assessments of disease activity during follow-up of patients with PsA starting bDMARD treatment.

Methods: Patients with PsA were included when initiating bDMARDs, and examined at 0, 3, 6, 9 and 12 months including 66 swollen/68 tender joint counts (SJC/TJC), examiner's global assessment VAS (EGA), patient reported outcome measures (PROMs; PGA, patient's pain, RAID, MHAQ), laboratory measures (CRP, ESR, calprotectin) and US (46 joints, 8 flexor tendons, 14 entheses and 4 bursae with calculated GS and PD sum scores). DAPSA was calculated. PD sum score zero was defined as US remission. Generalised Estimating Equations (GEE) was used for longitudinal analysis.

Abstract OP0125 – Table 1 Median (IQR) of clinical, laboratory and US assessments during bDMARD treatment

	Baseline (n=47)	3 months (n=42)	6 months (n=36)	9 months (n=33)	12 months (n=31)
DAPSA	19.8 (13.9–30.9)	13.1 (4.9–20.9)	10.5 (2.6–18.7)	10.2 (3.5–20.5)	9.0 (2.4–20.6)
TJC (of 68)	7 (2–15)	2 (0–11)	1 (0–9)	2 (0–9)	2 (0–11)
SJC (of 66)	1 (0–3)	0 (0–1)	0 (0–1)	0 (0–0)	0 (0–0)
PGA (VAS 0–10)	5.2 (3.3–6.9)	2.8 (1.0–5.1)	2.0 (0.9–4.3)	3.3 (0.5–5.4)	2.7 (0.5–4.9)
PAIN (VAS 0–10)	5.4 (3.0–6.8)	3.1 (1.0–4.1)	2.8 (0.9–5.8)	2.6 (1.1–5.4)	2.2 (0.7–5.4)
MHAQ	0.50 (0.25–0.88)	0.25 (0.00–0.50)	0.13 (0.00–0.44)	0.25 (0.00–0.44)	0.13 (0.00–0.50)
RAID (0–10)	5.1 (4.0–6.0)	2.9 (0.9–5.1)	2.3 (1.3–4.7)	3.0 (0.9–5.2)	2.6 (1.1–4.9)
CRP mg/L	3 (1–7)	1 (1–3)	2 (1–4)	2 (1–3)	2 (1–3)
ESR mm/h	11 (6–17)	6 (3–12)	7 (3–11)	9 (3–13)	7 (4–14)
Calprotectin µg/L	826 (487–1202)	511 (307–741)	431 (305–669)	459 (267–1005)	432 (294–768)
EGA (VAS 0–10)	2.4 (2.0–2.8)	1.5 (1.0–2.2)	1.2 (0.8–1.6)	1.2 (0.8–1.6)	1.0 (0.5–1.2)
Sum score GS	4 (2–9)	2 (0–5)	2 (0–3)	3 (0–6)	4 (1–8)
Sum score PD	1 (0–4)	0 (0–2)	0 (0–2)	0 (0–2)	0 (0–2)

Abstract OP0125 – Figure 1. Baseline correlations with DAPSA

Results: 47 patients (mean (SD) age 48.4 (12.8) years, disease duration 12.7 (10.9) years, 60% women) were included (68% biologic-naïve). The figure depicts high correlation between DAPSA and subjective assessments at baseline, while PD sum score was more strongly associated with SJC ($r=0.49$, $p<0.001$), EGA ($r=0.29$, $p=0.05$) and DAS28 ($r=0.35$, $p=0.015$), but not with DAPSA ($r=0.21$, $p=0.16$) or PROMs. There was significant improvement at 3 months in all variables ($p=0.046$ – <0.001) (table 1). Longitudinally, TJC and patient's pain had strongest association with DAPSA (standardised β 0.86 vs 0.52, both $p<0.001$). DAPSA remission was obtained in 27%–33% of the patients and PD remission in 60%–70%, but their association was weak and not statistically significant (OR 1.4, 95% CI: 0.69 to 2.95, $p=0.33$).

Conclusions: In our observational PsA cohort DAPSA was mostly influenced by TJC and patient's pain and had no significant association with a comprehensive US examination. This finding indicates possible limitations of using DAPSA in T2T strategy in PsA.

REFERENCE:

[1] Michelsen B, et al. *Ann Rheum Dis* 2016;75:2108–13.

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OP0126

EVALUATING LOW DISEASE ACTIVITY DEFINITIONS IN PSORIATIC ARTHRITIS USING ULTRASOUND

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Background: Cut offs for low disease activity (LDA) using psoriatic arthritis (PsA) specific composite scores have recently been proposed.^{1–3} Whether these definitions adequately reflect the absence of inflammation is unknown.

Objectives: To evaluate these definitions against a low level of activity according to ultrasound examination.

Methods: We performed a prospective study on 83 PsA patients undergoing clinical and ultrasound examinations at two study visits scheduled 6 months apart. LDA was assessed using the Disease Activity index for Psoriatic Arthritis (DAPSA≤14), the Psoriatic Arthritis Disease Activity Score (PASDAS ≤3.2), the Composite Psoriatic Disease Activity Index (CPDAI≤4), the Disease Activity Score 28 CRP (DAS28-CRP≤2.8) and the Minimal Disease Activity criteria (MDA).

Ultrasound (US) evaluation was performed at 68 joints (evaluating synovia, peritendinous tissue, tendons and bony changes) and 14 entheses.

Minimal ultrasound disease activity (MUDA) was defined as a Power Doppler (PD) score ≤1, respectively at joints, peritendinous tissue, tendons and entheses.

Results: LDA was present in 33.7%–65.0% of patients at baseline and in 44.3%–80.6% at follow-up examination, depending on the criteria used. MUDA was observed in 16.9% at baseline and in 30% at follow-up.

At baseline only the DAPSA-LDA definition was useful to identify MUDA patients (78.6% of patients identified correctly), whereas at follow up >80% of MUDA