Cox multivariate analysis identified that presence PD-synovitis at baseline was associated with risk of radiographic progression at 4 years (HR 3,68 95% CI 1,03 – 13,15, $p = 0,045$).

Conclusion: Thus, PD-synovitis has a prognostic value for increasing destructive radiographic changes.

References: no

Disclosure of Interests: None declared

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AB1076

COLOR DOPPLER HIGH- FREQUENCY ULTRASOUND OF DIGITAL ARTERIES IN PATIENTS WITH SYSTEMIC SCLEROSIS

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Background: Systemic sclerosis (SSc) can lead to vascular complications such as digital ulcers or pitting scars (DU/PS). These changes develop in most patients with SSc and exacerbate their condition. However, there are no methods for dynamic assessment of the vascular involvement. The dynamics of capillaroscopic changes is very slow.

Objectives: The aim of the study was to compare blood flow parameters of digital arteries in SSc patients and healthy individuals and to compare with nailfold capillaroscopy and clinical signs of ischemia (DU/PS).

Methods: 32 SSc patients, mean age 49,5 [42,0; 59,0] yrs and 26 'healthy', mean age 43,5 [33,0; 57,0], were included. Groups of patients differed by gender and age. The exclusion criterion was the presence of obliterating vascular disease of the upper extremities. An Esaote MyLab Twice US system with 22 MHz linear probe was used. A total of SSc patients and controls underwent Color Doppler ultrasonography (CDUS) of 376 (256+208) digital arteries to compare blood flow velocity, resistive indices (RIs) and presence of occlusion. Nailfold capillaroscopy, clinical and laboratory data were also evaluated.

Results: In digital arteries, pulsatility index (PI), peak systolic velocity (PSV) and end-diastolic velocity (EDV) were significantly lower and RI higher in SSc patients compared with controls (PSV: 13,28 [9,88; 16,7] vs 17,45 [12,65; 22,5] cm/s, $p=0,008$; EDV: 2,68 [1,78; 4,05] vs 6,37 [4,75; 8,5] cm/s, $p=0,000$; RI: 0,78 [0,69; 0,81] vs 0,68 [0,59; 0,74], $p=0,005$; PI: 1,73 [1,32; 2,19] vs 1,22 [0,99; 1,55], $p=0,002$).

We did not find any correlation between two methods. Also, we did not reveal any correlation between DU/PS, clinical, laboratory data and CDUS, but we found relationship between DU/PS and avascular areas or capillaroscopic findings ($r=0,37$, $p=0,045$ and $r=0,40$, $p=0,03$ correspondingly).

Conclusion: Blood flow is significantly decreased in digital arteries in SSc, but clinical features of vasculopathy depend on microcirculatory disorders. It is important to continue research to find methods for dynamic evaluation of microcirculatory changes.

References: no

Disclosure of Interests: None declared

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AB1077

VALIDATION OF A SIMPLIFIED SPANISH TOOL FOR SEMI-AUTOMATIC QUANTIFICATION OF SACROILIAC INFLAMMATION BY MAGNETIC RESONANCE IN SPONDYLOARTHRITIS (S- SCAISS).

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Background: With the objective to improve quantification of sacroiliitis maintaining a practical perspective, our group developed SCAISS, a semi-automated method to measure bone marrow edema (BME) in MR images from sacroiliac (SI) joints, combining semi-axial and semi-coronal slices [1]. The 2009 ASAS definition of active sacroiliitis was based on standard semi-coronal slices only, perpendicular semi-axial slices being considered but optional [2]. We hypothesized a simplified SCAISS (s- SCAISS) method using only semi-coronal slices.

Objectives: To analyze the validity and reliability and feasibility of a simplified Spanish tool for semi-automatic quantification of sacroiliac inflammation by magnetic resonance in spondyloarthritis (s- SCAISS) using a semi-coronal scan instead of combining semi-axial and semi-coronal slices.

Methods: The s- SCAISS was designed as an image-processing software. We performed the following analysis: (1) three readers evaluated SI images of 23

patients with axial SpA and various levels of BME severity with the s-SCAISS and SCAISS, and two non-automated methods, SPARCC and Berlin; (2) 20 readers evaluated 12 patients images, also with the three methods. Convergent validity, reliability and feasibility were estimated.

Results: The interobserver reliability (ICC and 95% CI) in the three observers' study was: s-SCAISS = 0.69 (0.490–0.845); SCAISS= 0.770 (0.580–0.889); Berlin = 0.725 (0.537–0.860); and SPARCC = 0.824 (0.671–0.916). In the 20 observers' study, ICC was: s- SCAISS = 0.66 (0.478–0.863); SCAISS = 0.801 (0.653–0.927); Berlin = 0.702 (0.518–0.882); and SPARCC = 0.790 (0.623–0.923). Spearman correlation coefficient between s- SCAISS _BERLIN was $r=0.712$ and s- SCAISS _SPARCC was $r=0.779$ and s- SCAISS _SCAISS was $r=0.90$. Similar results showed SCAISS BERLIN and SCAISS _SPARCC ($r=0.729$ and 0.840), respectively.

Conclusion: The simplified SCAISS (s-SCAISS) using only semi-coronal slice permits a valid, reliable, and fast calculation of overall BME lesion at the SI joint.

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AB1078

USE OF MYOSITIS SPECIFIC AUTOANTIBODIES TEST ACROSS A LARGE NHS HOSPITAL TRUST

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Background: The immunology laboratory at Barts Health supports a large clinical myopathy service, providing blood tests for myositis-specific autoantibodies (MSA) by a commercial line immunoblot panel for Jo1, PL7, PL12, SRP, Mi2, Ku, PM-Scl and Scl-70.

As Idiopathic Inflammatory Myositis (IIM) disease subtype definitions have evolved from the 1975 Bohan & Peter criteria, the discovery of new antibodies has proven useful in the hands of neuromuscular clinicians whose patients have a high pre-test probability of disease. Ready availability of the test has led to increased demand from:

1. Respiratory physicians with patients with severe Interstitial Lung Disease (ILD) which can be a symptom of some IIMs.
2. The connective tissue disease (CTD) screening section of the laboratory in which many patients are screened for antinuclear antibodies (ANA), which occasionally produces a pattern that may be associated with an MSA.

Objectives:

1. Determine the frequency of MSA requests from different departments.
2. To investigate the possibility of rejecting requests for MSAs at the laboratory in the absence of an elevated creatine kinase (CK), a hallmark of muscle damage associated with myositis (1).

Methods: MSA were measured by a commercial line blot (Bluediver) which included Jo-1, PL-7, PL-12, Mi-2, Ku, SRP-54 and PM-Scl-100. Demographics and results for all MSA requested between September 2017 and November 2019 were pulled from laboratory records, together with CK results (if performed). CK was interpreted as low, normal or elevated according to reference ranges of 25-200 U/L (female) or 40-320 U/L (male).

Results: 597 tests were performed between 2017 and 2019. In total 59/597 (10%) were positive for the audited antibodies (Table 1). General Practitioner (GP) requests accounted for 41/597 (6.9%) tests, internal 464/597 (78%) and external 82/597 (14%). External requests were the most frequently positive at 10/82 (12%), internal requests 46/464 (10%), and GP requests only 3/41 (7%) of the time. Of all internal requesting sources, Respiratory accounted for the largest number at 108/597 (18%), followed by neurology with 85/597 (14%) (Figure 1). GPs constituted the 4th largest source of requests.

Table 1.

	Positive on polymyositis screen	% positivity
All tests	597	
Total	59	9.9%
Jo-1	4	0.7%
PL-7	2	0.3%
PL-12	5	0.8%
SRP-54	10	1.7%
Mi-2	4	0.7%
Ku	3	0.5%
PM-Scl 100	25	4.2%
Scl-70	7	1.2%

Figure 1.

MSAs had an associated CK result in 75% of internal and 12% of GP requests. A cohort of 17 patients had positive MSAs (3 x SRP, 1 x PL-7, 1 x Jo-1, 2 x Mi-2, 1 x Ku, 8 x PM-Scl100 and 1 x Scl-70) with normal CK.

Of the 41 GP requests, MSA had been requested by the lab on the basis of ANA pattern for 33 (80%) of them, 3 of which were positive (2 x Scl-70, 1 x SRP-54).

Conclusion: Demand for MSA from the Respiratory department (screening for ILD) currently exceeds demand from Neurology and from Rheumatology. In the GP cohort, 33 requests (80% of GPs, 5% of all requests) were generated by the laboratory.

A cohort of patients with normal CK results had a positive MSA, implying CK alone cannot be used to limit test access. Interestingly, 10 positive results had no CK requested implying they were not being investigated for myositis.

Further work is needed to determine the specificity and sensitivity of these antibodies for patients with clinically defined myositis, and the appropriateness of allowing the test to be applied in the absence of any clinical evidence of IIM.

The findings of this audit need to be further extended to look at other myositis including other anti-synthetases, HMGCAR, MDA5, TIF-1γ, NPX-2.

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AB1079

CORRELATION OF OPTICAL SPECTRAL TRANSMISSION IMAGING WITH ULTRASOUND AND DISEASE ACTIVITY IN RHEUMATOID ARTHRITIS PATIENTS

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Background: Optical spectral transmission imaging (OST) is a new imaging method that measures inflammation in the hands of rheumatoid arthritis (RA) patients. OST might be used to assess disease activity instead of disease activity score 28 (DAS28) or ultrasonography (US), with the advantage of OST that it is fast and not operator dependent. Detection of joint inflammation with OST and with US as reference, has provided varying outcomes with ROC AUCs ranging from 0.69-0.88 [1-3]. Further evaluation of the currently available OST device (HandScan) is needed in other RA cohorts.

Objectives: To assess the correlation of OST measurement with US and disease activity, and to compare OST measurements of RA patients with healthy controls.

Methods: OST was done in 24 consecutive RA patients with active disease and 37 age and sex matched healthy controls using the HandScan device from Hemics, the Netherlands. The HandScan calculates OST values for each bilateral wrist, MCP and PIP joint, ranging from 0 to 3. OST total score is then composed of the sum of the 22 OST joint scores and therefore ranges from 0 to 66. US was performed in the same joints as OST and semi-quantitatively scored on a scale of 0 to 3 for grey-scale (GS) synovitis and power Doppler (PD) signal individually. A separate total score for GS synovitis and PD was calculated by summation of the individual joint US scores. Joint scores (at joint level) and total scores (at patient level) were used in separate analyses. Additionally, we measured swollen joint count 28 (SJC28), tender joint count 28 (TJC28), DAS28, erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP). For all statistical analyses, the non-parametric variant was used.

Results: Patient level

Median OST total score of RA patients was 16.88 (IQR 12.68-19.72). This was significantly higher than healthy controls (OST total score 12.06, IQR 10.32-14.93; $p=0.0002$).

OST total score of RA patients (patient level) did not significantly correlate with both US total scores (GS synovitis 0.37, $p=0.08$; PD 0.21, $p=0.33$), nor with disease activity parameters (DAS28 0.22, $p=0.31$; SJC28 0.32, $p=0.12$; TJC28 0.28, $p=0.19$; ESR -0.02, $p=0.93$; CRP 0.05, $p=0.81$).

Joint level

At joint level, there was a significant correlation for almost all joints with GS synovitis on US (table 2). For PD too few joints scored above 0 to allow for statistical comparisons, however for all joints median OST values were higher in PD positive joints than PD negative joints (differences in median OST values ranging from 0.2-0.5).

Table 1. Correlation of individual joint OST values and GS synovitis

	GS synovitis	
	Spearman r	p-value
Wrist	0.36	0.02
MCP1	0.27	0.06
MCP2	0.44	0.002
MCP3	0.40	0.005
MCP4	0.27	0.07
MCP5	0.39	0.006
IP1	0.35	0.01
PIP2	0.30	0.04
PIP3	0.13	0.37
PIP4	0.29	0.04
PIP5	0.37	0.01

Conclusion: OST total score was higher for RA than healthy controls. At patient level, OST total score did not correlate with other disease activity measures. At joint level, GS synovitis scores correlated with OST joint values for almost all joints. In addition, higher OST values were found in PD positive joints but frequency of PD positivity was too low to allow statistical comparisons. The results of this small cohort of new RA patients do not yet demonstrate additional value as compared to US and clinical examination to detection of joint inflammation at cross-sectional assessment, although fast and non-operator dependent OST assessment may also be weighed in further evaluation for clinical use.

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