

years (range 19-62), median ESR 9mm/h (range 1-45), CRP 3.5 mg/l (0.6-39.2), anti-TNF therapy in 45.5%, 14 IBD patients with SpA [71.4% male, age 45 years (21-56), ESR 10mm/h (3-25), CRP 3.0mg/l (0.1-41.0), anti-TNF therapy in 71.4%], 26 IBS patients [26.9% male ($p < 0.05$ compared to IBD patients without or with SpA), age 41 (18-65)] and 18 HC [27.8% male ($p < 0.05$ compared to IBD patients without or with SpA), age 43 (21-58)].

Higher MASEI scores were found in patients with IBD without SpA [median 21.0 (range 8.0-53.0)] and IBD associated SpA [33.0 (8-50)] than in IBS patients [10.5 (0-42.0)- $p < 0.001$ for both comparison] and HC [12.0 (2.0-38.0)- $p < 0.01$ for both comparisons]. Similar results were observed for the GUSS scores. Enthesophyte subscores were highest in IBD patients with SpA [median 11.5 (range 0-26.0)] as compared to IBD without SpA [7 (2-28)], IBS [5 (0-25)] and HC groups [6.5 (0-21), $p < 0.05$ for all comparisons]. Positive PD was more commonly observed in patients with IBD without SpA [$n=22$ (66.7%)] and IBD with SpA [$n=9$ (64.3%)] compared to IBS patients [$n=5$ (19.2%)] and HC [$n=4$ (22.2%), $p < 0.05$ for all comparisons]. Erosion were more common in patient with IBD without SpA [18 (54.5%)], IBD with SpA [11 (78.6%)] and IBS patients [10 (38.5%)] compared to HC [2 (11.1%), $p < 0.05$ for all comparisons]. No association was found between US results and clinical variables. The intra-reader agreement was good [ICC 0.89 (0.52 to 0.98)].

Conclusions: Ultrasound verified enthesitis is more common in patients with IBD with or without SpA as compared to patients with IBS or HC.

Disclosure of Interest: None declared

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SAT0629 DIAGNOSTIC PERFORMANCE OF HIGH RESOLUTION TRANS-THORACIC LUNG ULTRASONOGRAPHY IN PULMONARY INVOLVEMENT OF CONNECTIVE LUNG DISEASE IN TREATMENT WITH CYCLOPHOSPHAMIDE

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Background: Interstitial involvement is a common manifestation in patient with connective tissue disorders.

Objectives: The aim of our study is to investigate the utility of modified TTUS scoring system compared to HRCT findings of in patients with connective tissue disease with pulmonary involvement in treatment with cyclophosphamide

Methods: 21 patients with a diagnosis of connective lung involvement in treatment with cyclophosphamide were examined with high resolution transthoracic ultrasonography for detecting of ultrasonography comet tail sign as a ultrasonographic marker of lung involvement in interstitial in connective disease at time 0 and after 6 and 12 months after initiation of treatment with cyclophosphamide and the results of them were compared with high resolution computed tomography as gold standard method for diagnosis of lung involvement in this patients

Results: In comparison with HRCT as gold standard method, the sensitivity, specificity, positive and negative predictive value of TTUS was 75%, 89%, 95% and 52% respectively.

Conclusions: Modified TTUS can be useful imaging modality in the evaluation of even early stages of pulmonary involvement in connective lung disease

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SAT0630 SENSITIVITY AND SPECIFICITY ^{99m}Tc-PERTECHNETATE HAND PERFUSION SCINTIGRAPHY IN PATIENTS WITH RAYNAUD'S PHENOMENON

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Objectives: The aim of this study was to assess sensitivity and specificity of ^{99m}Tc-pertechnetate hand perfusion scintigraphy in patients with Raynaud's phenomenon (RP).

Methods: The study population consisted of 10 healthy individuals (mean age 57 years), 18 patients with primary RP (mean age 48 years) and 25 patients with secondary RP within systemic sclerosis (SSc) (mean age 54 years). Gamma-camera dynamic first-pass study during the first 60 sec and a static scintigraphy after 5 min were recorded following a bolus injection of ^{99m}Tc-pertechnetate via a cubital vein. Regions of interest were drawn on the summed images around the fingers and the palmar region. The fingers-to-palm ratios were then calculated from the total counts inside these regions of interest separately for each hand.

Results: The mean fingers-to-palm ratio for dynamic study (blood flow) was 0.58±0.19 for the healthy group, 0.45±0.18 for the primary RP and 0.43±0.21 for the SSc patients. The mean fingers-to-palm ratio for static study (blood pool) was 0.44±0.06 for the healthy group, 0.42±0.06 for the primary RP and 0.36±0.07 for the SSc patients. Analysis of variance showed these differences to be significant ($p=0.039$ from blood flow and $p=0.004$ from blood pool). The receiver operating characteristic curve showed sensitivity of 80% and a specificity of 60% when using cutoff values of 0.40 for blood flow and sensitivity of 72% and a specificity of 73% when using cutoff values of 0.40 for blood pool.

Conclusions: Our method is able to differentiate between patients with normal and those with abnormal microcirculation of the hands. Dynamic study separates the healthy subjects from patients with RP, while static study separating primary from secondary RP.

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SAT0631 SIMILAR ENTHESOPATHY SCORES BY US IN PSORIATIC ARTHRITIS AND OSTEOARTHRITIS

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Background: Enthesitis is a frequent feature of psoriatic arthritis (PsA). Osteoarthritis (OA) shares many features with PsA including DIP, PIP, neck and spinal involvement, lower limb large joint arthropathy and enthesopathies including trochanteric bursitis and lateral epicondylitis.

Objectives: In this study we tested the hypothesis that a similar ultrasound (US) determined enthesopathy load existed in PsA and OA.

Methods: Twenty-four patients with PsA, 25 with OA and 28 healthy controls (HC) were recruited. The clinical assessments were performed by the same clinician unaware of the US assessments. Patients with PsA were chosen consecutively if they did not have any psoriatic lesions at the lower limbs to provide blindness for the ultrasonographer and with no suspicion of OA clinically. OA patients and healthy controls did not have any history of psoriasis and HC did not have any knee pain. The major entheses of the lower limbs (Quadriceps, patellar tendon origin and insertion, Achilles and plantar fascia, bilaterally) were scanned by US for abnormalities related to inflammation (hypoechoogenicity, thickening, Doppler, bursal effusion) and chronicity (calcifications, enthesophytes and erosions) semiquantitatively on a scale between 0-3. The overall US scores were calculated by adding each finding. The US was performed blinded to diagnosis.

Results: All three groups were matched for body mass index (BMI) (mean (SD) values in HC, OA and PsA respectively: 28.7 (5.4), 30.3 (3.9), 29.3 (5.4)). Patients with PsA (53.5 (6.1)) and OA (52.8 (1.1)) were older than HC (41.3 (9.8)). PsA patients had higher US scores than HC ($p < 0.001$ for inflammation, chronicity and overall scores) (table 1). OA patients also had higher US scores than HC (p value for inflammation: 0.003; chronicity: 0.017; overall: 0.001). The difference between PsA and OA did not reach significance. ANCOVA was performed to control for age, gender and BMI, which showed that only PsA group had higher US scores than HC (p value for inflammation: 0.03; chronicity: 0.05; overall: 0.017) which could not be shown in OA vs PsA and HC.

The BMI was significantly correlated to US scores of enthesopathies in OA ($R=0.451$; $p=0.03$) but not in PsA or HC. On the other hand, age was correlated to US scores only in PsA ($R=0.609$; $p=0.002$), but not in OA or HC.

Table 1. US scores of patients with psoriatic arthritis, osteoarthritis and healthy controls

	Healthy controls	Osteoarthritis	Psoriatic arthritis
US scores for inflammation	5.7 (5.1)	10.2 (6.3)	12.2 (7.9)
US scores for chronicity	5.6 (4)	9.2 (6.4)	11.2 (7.1)
Overall US scores	11.4 (7.7)	19.4 (11.6)	23.4 (13.9)

Numbers are given as mean (standard deviations).

Conclusions: This study shows that enthesopathies are also frequent in OA,

similar to PsA. BMI was more important in OA and age in PsA. These findings are important for the assessment of the relevance of sonographic determined enthesopathy in a patient with psoriasis and OA.

Disclosure of Interest: None declared

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SAT0632 QUANTIFICATION OF HAND AND WRIST SYNOVITIS USING DIGITAL ACTIVITY FLUORESCENCE OPTICAL IMAGING

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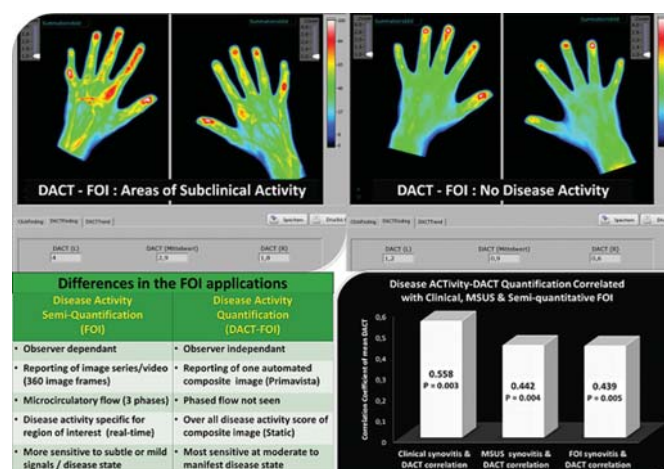
Background: The objective detection and quantification of inflammatory disease activity is critical for achieving optimal therapy results. Fluorescence optical imaging (FOI) is a novel modality designed for imaging the hands and wrists, and the automated quantification of the ensuing scans using DACT (Disease ACTivity)-FOI is a novel algorithm for analyzing these images.

Objectives: To determine the utility of DACT-FOI in the assessment of hand and wrist inflammation.

Methods: Bilateral finger and wrist joints (n=1360) of 40 patients with inflammatory arthritis were studied. Synovitis was defined as tender and swollen joints on clinical examination, presence of synovial thickening/effusion and intra-articular Doppler signals on ultrasound (MSUS), and abnormal focal optical signal intensities on FOI, respectively. The DACT score used an automatically generated algorithm of the composite images (of 240 frames per second) to achieve a quantified score for each patient. Using dedicated image parameters and size correction, the enhanced pixels were extracted automatically from the image background, and the high signal intensities calculated. The DACT-FOI formula was based on fluorescence intensity curve thresholds that were used to discriminate intensity variations, and then divided by the 95th centile of intensities in normal individuals as the reference value. DACT-FOI ≤ 1 was referred to as normal digital activity signals. Subclinical synovitis was defined as being clinically non-inflamed but inflamed on MSUS.

Results: Out of the 1360 joints evaluated, 215 (16%) were inflamed clinically, 329 (24%) by MSUS, and 347 (26%) by FOI. For overall hand and wrist disease activity (n=40), the number (mean $\pm$ SD) of active joints detected by clinical, MSUS and semi-quantitative FOI was 5.4 ± 7.0 ; 8.2 ± 7.8 ; and 8.7 ± 7.8 , respectively. The automated digital activity ($\pm$ SD) calculation by DACT-FOI was $3.8 (\pm 2.1)$. Correlations of high statistical significance was denoted as ** when $p < 0.01$. A strong positive correlation ($r = 0.458^{**}$; $p = 0.003$) between clinical synovitis and

DACT-FOI was demonstrated. The mean DACT values also correlated significantly with MSUS ($r = 0.442^{**}$; $p = 0.004$) and semi-quantitative FOI ($r = 0.439^{**}$; $p = 0.005$). There was a highly significant correlation of synovitis detection between clinical examination and MSUS ($r = 0.730^{**}$; $p = 0.000$) and between clinical examination and semi-quantitative FOI ($r = 0.577^{**}$; $p = 0.000$). Agreement between MSUS and FOI in synovitis detection was good, and revealed strong correlations (0.816^{**} ; $p = 0.000$). Out of the non-inflamed joints by clinical examination, 142/145 (12%) were inflamed by MSUS, of which 102/142 (72%) were also inflamed by FOI. Thus, for detecting subclinical synovitis, the sensitivity, specificity, and positive and negative predictive values of FOI were 72% (102/142), 93% (934/1003), 77% and 91%, respectively.



Conclusions: FOI and the automated analysis DACT-FOI were technically feasible with high reproducibility and strong agreement with clinical scoring. Therefore, this objective digitally quantified measurement of inflammatory disease activity in the hands & wrists may be useful both in diagnosis and in monitoring the effects of clinical therapy.

Disclosure of Interest: None declared

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