

was 11.6 ± 12.8 and baseline PsAMRIS synovitis score was 3.7 ± 3.3 . Baseline ultrasound synovial hypertrophy and Doppler activity were 6.2 ± 4.5 and 3.5 ± 4.0 , respectively. Specific MRI and ultrasound scores were significantly correlated with DAS28 and DAPSA at baseline. Clinical disease activity parameters significantly improved at follow up (DAS28: 2.94 ± 0.95 , $p < 0.001$; DAPSA: 8.8 ± 5.8 , $p < 0.001$). PsAMRIS synovitis score (2.5 ± 2.4) as well as composite PsAMRIS score (8.8 ± 10.0) decreased longitudinally with secukinumab treatment ($p = 0.034$ and $p = 0.039$, respectively). There was no progression in erosion or proliferation scores between baseline and follow-up. Synovial hypertrophy and Doppler activity in ultrasound also significantly improved with secukinumab treatment (2.3 ± 3.5 ; $p = 0.009$ and 1.8 ± 2.7 ; $p = 0.003$, respectively). A significant percentage of patients reaching minimal disease activity showed residual signs of synovitis in the MRI and US (66% and 50%, respectively).

Conclusions: Secukinumab significantly improves MRI and ultrasound signs of joint inflammation in patients with PsA.

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Disclosure of Interest: None declared

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FRI0626 ANALYSIS OF CORRELATION AND CAUSES FOR DISCREPANCY BETWEEN QUANTITATIVE AND SEMI-QUANTITATIVE DOPPLER SCORES IN SYNOVITIS IN RHEUMATOID ARTHRITIS

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Background: Doppler US is used for the evaluation of synovitis in RA. The amount of Doppler signals are measured in the synovial tissue according to either semi-quantitative (SQS) or quantitative scoring (QS) methods. None of the SQS has been chosen by consensus so far, and this creates some heterogeneity in US in clinical practice and research. Conversely, a major strength of the QS is to allow objective measurement of Doppler pixels using a continuous numeric scale.

Objectives: This study aimed to evaluate the association between SQS^{1,2} and QS³ in RA patients with active disease. Additionally, to elucidate the reasons for potential discrepancies between SQS and QS assessments, in order to better understand the intrinsic limitations of these methods.

Methods: Adult patients with RA and inadequate clinical response to anti-rheumatic therapy were examined with US. Dorsal US of the wrists, MCP and MTP 2–5 were performed. US images with sign of synovitis were collected and the QS was measured. Five assessors blinded to the QS evaluated the images independently, according to either SQS method. Association between QS and SQS was studied using correlations and multilevel models taking into account the clustering of ratings at the rater, patient and joint levels.

Based on the cut-offs, the discrepant cases were extracted, and each participant was asked to re-grade his/her own discrepant cases, blinded to the initial SQS grading and original QS, and to provide an explanation for the discrepancy. Then, discrepant images and explanations provided were reviewed in consensus and classified into a limited number of categories

Results: Analysis of the 1190 ratings revealed a strong correlation ($\rho = 0.89$, $p < 0.0001$) and significant associations ($p < 0.0001$) between QS and SQS. Correlations between QS and SQS according to Szkudlarek et al. ($\rho = 0.87$, $p < 0.0001$) or Hammer et al. ($\rho = 0.91$, $p < 0.0001$) were similar. A total of 239 (20.1%) images were given a SQS grade that did not match that expected based on initial QS, using predefined cutoffs. Main explanations for discrepancies were different perceived ROI (40.7%) and Doppler pixel count near cutoffs between SQS grades (32.3%).

Conclusions: We showed that both SQS methods correlated well with QS to assess synovitis, but SQS methods are intrinsically limited when the Doppler pixel count is close to the cutoffs between the SQS grades. Analysis discrepancies between these methods may help further revision of criteria used to assess disease activity with MSUS in RA.

References:

- [1] Szkudlarek M et al. Arthritis Rheum 2003.
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Abstract FRI0626 – Table 1

Cut-offs between grades*

	Sensitivity and specificity in the different statistical models							
	Raw data		Model 1		Model 2		Model 3	
	Sensitivity	Specificity	Sensitivity	Specificity	Sensitivity	Specificity	Sensitivity	Specificity
Grade 0–1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Grade 1–2	0.94	0.72	0.99	0.85	0.99	0.82	0.96	0.77
Grade 2–3	0.90	0.84	0.99	0.92	0.99	0.91	0.98	0.92

*Cut-off between grade 0 (G0) and G1: 0%; between G1 and G2: 10%; between G2 and G3: 50%.

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FRI0627 ULTRASOUND HAND EXAMINATION IS MORE SENSITIVE IN DIAGNOSING HAND OSTEOARTHRITIS THAN CONVENTIONAL RADIOGRAPHY: COMPARISON BETWEEN DIFFERENT ULTRASONOGRAPHIC SCORES

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Background: Hand osteoarthritis (OA) diagnosis is based on a combination of clinical, imaging features and assessment of risk factors, together with clinical associations and outcomes (1). In a real-life context, clinicians face difficulty in differentiating between OA and other hand arthropathies, particularly when the clinical examination is equivocal (e.g. no obvious bony enlargement with the characteristic distribution for hand OA).

Objectives: This is the first study to investigate the usefulness of a standardised ultrasound (US) examination protocol for hand joints in diagnosing hand osteoarthritis (OA) and the correlations between several US scores and clinical, inflammatory and radiographic parameters, aiming to explore which type of investigations are the most useful for diagnosing hand OA.

Methods: We conducted a cross-sectional study including 62 patients, ultimately diagnosed with hand OA based on the ACR diagnosis criteria (2). We compared the 34 joint score of the hand, with smaller, pre-defined joint scores including two scores of 22 and 12 joint each, and another 10 and 6 joint scores for OA. We correlated the US findings with radiographic scores (2108 joints).

Results: Radiographic osteophyte scores correlated very well with the predefined US scores detailed above ($R = 0.381$ to 0.645 , $P < 0.05$), despite having a low sensitivity for detection of osteophytes (58.6%), and an even lower sensitivity for detection of erosions (38.4%) when compared with the 34 joint US score. There was a good correlation between different US scores ($R = 0.53$ to 0.97 , $P < 0.05$), apart from the 6 joint score excluding the proximal interphalangeal joints ($R = -0.181$ to 0.207 , $P > 0.05$).

Conclusions: US examination of the hands can facilitate the diagnosis of hand OA in patients who do not fulfil the ACR criteria, by identifying the presence of osteophytes with the particular distribution and number required for diagnosis in a proportion of patients that was three times higher than that of patients diagnosed based on clinical examination and hand radiography alone.

References:

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FRI0628 ULTRASOUND SHOWS SIGNS OF INFLAMMATION IN MOST PATIENTS WITH RHEUMATOID ARTHRITIS IN LONGSTANDING CLINICAL REMISSION, IRRESPECTIVE OF CONVENTIONAL SYNTHETIC OR BIOLOGIC DMARD THERAPY

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Background: None of the currently accepted remission criteria in rheumatoid arthritis (RA) incorporate inflammation on imaging. Signs of inflammation on ultrasound (US) and magnetic resonance imaging are frequently seen in RA patients in clinical remission (1–3). It is not known whether patients in longstanding clinical and radiographic remission obtained through a DAS28 driven treat to target (T2T) strategy by conventional synthetic disease modifying anti-rheumatic drugs (csDMARD) or by biologic (bDMARD) therapy differ with respect to US detected synovitis.