REFERENCES:

- [1] Stern RS, Nijsten T, Feldman SR, Margolis DJ, Rolstad T. Psoriasis is common, carries a substantial burden even when not extensive, and is associated with widespread treatment dissatisfaction. *J Invest Dermatol Symp Proc*. 2004 Mar;9(2):136–9.
- [2] High prevalence of psoriatic arthritis in patients with severe psoriasis with suboptimal performance of screening questionnaires. *Ann Rheum Dis* 2013;72:736–740.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.5243

FRI0576

PULMONARY ULTRASOUND IN THE ASSESSMENT OF INTERSTITIAL LUNG DISEASE IN RHEUMATOID ARTHRITIS

M. Moreno¹, K. Almaguer¹, J. Gutierrez¹, A. Bernal-Gonzalez¹, C. Bertolazzi¹, E. Cruz-Arenas¹, C. Pineda¹, S. Ruta², M. Gutierrez¹. ¹Division of Musculoskeletal and Rheumatic Diseases, Instituto Nacional de Rehabilitación, Mexico city, Mexico; ²Rheumatology department, Hospital Italiano, Buenos Aires, Argentina

Background: Interstitial lung disease (ILD) is an extra-articular complication in rheumatoid arthritis (RA) that may lead to severe impairment of respiratory function. High-resolution computer tomography (HRCT) is the most common imaging technique used in the assessment of ILD. However, the costs and the ionising radiation may limit its use in routine practice. Recently, US is generating interesting data that may support its use and validity in the assessment of ILD in rheumatic diseases^{1,2}.

Objectives: To investigate the correlation between lung US and HRCT findings in the assessment of ILD in patients with RA.

Methods: Patients with diagnosis of RA according to ACR 2010 classification criteria with respiratory symptoms and previous diagnosis of ILD by HRCT were included. Clinical examination, pulmonary function test (PFT) and lung US were performed in all patients. Lung US was performed by a rheumatologist expert in US who was blinded to clinical and HRCT data. Serologic tests (anti-CCP, ESR, RF, ANA) were taken. Lung US was performed in 14 intercostal spaces (IS) and quantified according the following semiquantitative scoring: grade 0=normal (≤ 5 B-lines); grade 1=mild (≥ 6 to ≤ 15 B-lines); grade 2=moderate (≥ 16 to ≤ 30 B-lines); and grade 3=marked (≥ 30 B-lines). The Warrick score (extension) was used to interpret the HRCT findings.

Results: A total of 32 patients with RA (25 women and 7 men) were included. Mean age was 59.37 ($\pm$ SD 13.66) years, and the mean disease duration was 58.75 ($\pm$ SD 52.52) months. Sixteen patients were smokers and 75% were positive to anti-CCP. Moreover, the mean of DAS-28 was 3.71 ($\pm$ SD 1.01). A total 448 IS were assessed by US. Lung US was positive for ILD in 28 patients (87.5%). From those, 7 patients (21.8%) with severe ILD, 12 patients (37.5%) with moderate, 9 patients (28.1%) with mild. Four patients (12.5%) showed normal lung US assessment. A significant linear correlation was found between the US score and the HRCT score ($p < 0.000$; correlation coefficient=0.75). A negative correlation was found between US B-line assessments and DLCO ($p \leq 0.000$). No association was founded with DAS28, anti-CCP, PFT. Sensitivity and specificity of ultrasound for ILD was 87.5% and 98% respectively.

Conclusions: Our study demonstrates that lung US may be a potential tool for the assessment of ILD also in patients with RA. It can be adopted in future as a screening tool to use at moment of the first diagnosis of RA.

REFERENCES:

- [1] Tardella M. Ultrasound in the Assessment of Pulmonary Fibrosis in Connective Tissue Disorders: Correlation with High-Resolution Computed Tomography. *J Rheumatol* 2012;39:1641–7.
- [2] Margaritopoulos G. Comorbidities in interstitial lung diseases. *Eur Respir Rev* 2017;26:1–15.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.7120

FRI0577

MRI-BONE MARROW OEDEMA COMBINED WITH LOW-DOSE CT SCANNING PERFORM OPTIMALLY IN THE DIAGNOSIS OF AXIAL SPONDYLOARTHRITIS

L. Ye¹, M.A. Brown^{2,3}, D. Chen¹. ¹Rheumatology; ²Centre for Precision Medicine, First Affiliated Hospital, Wenzhou Medical University, Wenzhou, China; ³Institute of Health and Biomedical Innovation, Queensland University of Technology, Princess Alexandra Hospital, Brisbane, Australia

Background: The evidence of sacroiliitis on radiography and MRI have been regarded as crucial for diagnosis of ankylosing spondylitis (AS) and axial spondyloarthritis (axSpA). Low-dose CT (ldCT) has advantages on sacroiliitis has not been taken into consideration until now.

Objectives: To compare the performance of plain radiography, ldCT, and MRI for facilitating the diagnosis of sacroiliitis in radiographic negative axial spondyloarthritis (nr-axSpA) or AS from suspected axSpA.

Methods: Patients presenting with chronic back pain (>3 months duration) were recruited and assessed by axSpA-experienced rheumatologists. Patients not meeting the ASAS clinical criteria for axSpA were recruited as controls, and divided into non-inflammatory and inflammatory groups on the basis of presence of inflammatory back pain and/or CRP/ESR elevation. The ASAS clinical axSpA or modified New York AS criteria were used to define nr-axSpA or AS cases respectively. Clinical variables, pelvic radiography, sacroiliac joint (SIJ) ldCT (voltage 120 kV, electricity 70mAs) and SIJ MRI (SPAIR, T1-weighted, T2-weighted sequences) were obtained in one week period. All images were read by two expert musculoskeletal radiologists independently and differences in initial reads resolved by consensus. Plain radiographic and ldCT SIJ images were graded 0–4 according to the modified New York criteria. MRI-BMO was defined by the presence of periarthral or subchondral BMO lesions. Fat deposition, sclerosis, erosions or bony ankylosis were regarded as signs MRI-structural lesions. Subjects were considered MRI positive if they had either BMO or structural lesions.

Results: 130 patients were included in the study and had SIJ radiography and ldCT, of whom 71 additionally had SIJ MRI. 28 (39.3% female, 36% B27 prevalence) non-inflammatory controls, 24 (33.3% female, 50% B27 prevalence) inflammatory controls, 34 (26.5% female, 86.3% B27 prevalence) nr-axSpA and 44 (36.4% female, 95.3% B27 prevalence) AS cases were recruited in total. Positive imaging results according to clinical diagnoses are given in the table. These findings show that ldCT had much higher sensitivity than radiography for nr-axSpA and similar specificity. Whilst no non-inflammatory control was positive for ldCT and only one for radiography, three inflammatory controls were positive for ldCT but negative for radiography, with two being negative by MRI, and all being HLA-B27 negative, suggesting that they may be false positives. MRI-BMO had the highest sensitivity for nr-axSpA, but had lower specificity, with 31% of non-inflammatory controls being positive for this modality, and lower sensitivity for AS. MRI-structural had intermediate performance with slightly lower sensitivity to ldCT for both AS and nr-axSpA, but lower specificity than ldCT, and lower sensitivity for nr-axSpA than MRI-BMO.

Abstract FRI0577 – Table 1

Diagnosis	Plain Radiography	ldCT	MRI-BMO	MRI-structural
AS	44/44 (100%)	44/44 (100%)	19/21 (90%)	20/21 (95%)
nr-axSpA	0/34 (0%)	15/34 (44.1%)	19/24 (79%)	10/24 (42%)
Non-inflammatory control	1/28 (3.6%)	0/28 (0%)	5/16 (31%)	6/16 (38%)
Inflammatory control	0/24 (0%)	3/24 (12.5%)	3/10 (30%)	1/10 (10%)

Conclusions: ldCT and MRI-BMO examination are more sensitive than either plain radiography or MRI-structural assessment, but MRI overall is less specific than plain radiography or ldCT. The relative position of these imaging modalities in screening patients for axSpA needs to be reconsidered in the light of these findings, also taking into account the costs involved.

REFERENCE:

- [1] Van der Linden S, et al. *Arthritis Rheum* 1984;27:361–8.
- [2] Rudwaleit M, et al. *Ann Rheum Dis* 2009;68:1520–7.

Acknowledgements: We thank radiologists for data collection and images reading.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.6071