non-invasive, fast, low cost and choice by the patient technique, like mayor salivary gland ultrasonography (MSGUS), has to be investigated.

Objectives: To evaluate the utility of MSGUS as a diagnostic tool for primary SS and to study the concordance with MSBG.

Methods: 36 patients were consecutively recruited with clinical and/or analytical suspicion of SS, from outpatient Rheumatology consultations from 2015–2017. All patients received a MSGB and a MSGUS. Two echographers performed two images readings with an interval of at least one week. They worked blinded for clinical and histological results. Demographics, clinical, serological, ESSPRI and ESDAI were recorded. The histological results were classified according to *Chisholm* and *Mason* score and the US results according to the system by *Cornec et al.* The final SS diagnosis was made using the 2002 classification criteria. Subsequently the data was analysed using the statistical software STATA/MP. Adjusted concordance intra and interobserver (kappa coefficient) was calculated for the diagnoses performed by US (normal/pathological). The validity of US and biopsy to diagnose SS according to the 2002 criteria was evaluated by calculating the percent agreement between the tests, along with the specificity, sensitivity, PPV, NPV and area below the curve (AUC). Further, the percent association of the diagnoses between serology and US were determined, and the statistical significance of it was evaluated with chi-square test.

Results: 94% were female, with an average age of 58 years. 69% were non-smokers. 89% showed pathological Schirmer test, 78% extraglandular features, 19% hypocomplementemia and 44% hypergammaglobulinemia. As for the serological data, 81% had positive ANAS, 44% antiRo52, 39% antiRo60% and 28% antiLa. 39% of the patients were RF positive. 69% fulfilled the 2002 classification criteria with an average ESSPRI of 5.3 and ESSDAI of 1.5. Using these criteria as a gold-standard, the total percentage agreement was 83.3% for US and 80.6% for biopsy (S 92, Sp 64.3%). A good concordance was found between both observers (kappa=0.8) along with intraobserver (kappa=0.64 and 0.78 for first and second observer respectively). The percentage of patients with positive antibodies (48% antiRo52, 41% antiRo60, 30% antiLa) had pathological US. Significant statistical differences were not found in patients with normal US ($p>0.44$ in all associations explored).

Conclusions: MSGUS is a non-invasive imaging method useful for the diagnosis of primary SS in common clinical practice with a diagnostic value similar to the MSGB. MSGUS has good correlation intra and interobserver. There was no statistical significant association found between the positive autoimmune antibodies and US.

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FRI0574

RADIOFREQUENCY ECHOGRAPHIC MULTI SPECTROMETRY (REMS) FOR THE NON-IONISING DIAGNOSIS OF OSTEOPOROSIS AT FEMORAL NECK: RESULTS OF A MULTICENTER CLINICAL STUDY COMPARING REMS AND DXA

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Background: Radiofrequency Echographic Multi Spectrometry (REMS) is an innovative densitometric technique able to automatically provide BMD values, which it has been shown to highly correlate with BMD obtained by DXA.¹

Objectives: To evaluate the accuracy of REMS measurements in postmenopausal women's femoral neck health assessment versus DXA results in a multicenter clinical study.

Methods: In seven Italian referral centres for osteoporosis management, 1659 postmenopausal women (51–70 years old) were enrolled. Both DXA and REMS examinations were performed on each patient at femoral neck, in the strictest adherence to the corresponding guidelines. After excluding the scans affecting by errors, the REMS diagnostic accuracy was evaluated by assessing sensibility and specificity in the discrimination between "osteoporotic" and "healthy" patients; the degree of correlation between DXA-BMD and REMS-BMD was quantified through Pearson's correlation coefficient (r) evaluation. In addition, the agreement between DXA-BMD and REMS-BMD was measured calculating the root mean square error (RMSE).

Results: A strong correlation ($r=0.94$, $p<0.001$) was detected between BMD obtained by DXA and REMS – estimated BMD at femoral neck, with a low residual error (RMSE=0.034 g/cm³). In addition to this, REMS resulted to have a high capability to discriminate osteoporotic from healthy patients (sensitivity=94.4%, specificity=95.6%).

Conclusions: Thanks to its high capability to identify osteoporotic patients, and the strong correlation with DXA parameters, REMS has been shown to be an accurate non-ionising approach to detect osteoporosis at femoral neck.

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FRI0575

EVALUATION OF SCREENING QUESTIONNAIRES FOR PSORIASIC ARTHRITIS IN A SAMPLE OF PATIENTS WITH PSORIASIS IN A THIRD LEVEL HOSPITAL

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Background: Psoriatic arthritis (PsA) is an erosive joint inflammatory disease associated with psoriasis. Between 5% and 35% of patients with psoriasis may develop PsA. Screening questionnaires have been developed for dermatologists in order to make them suspect which patients should be referred to the rheumatologist for evaluation.

Objectives: To know the percentage of patients with PsA detected by the questionnaires in a group of psoriasis patients coming from an outpatient dermatology clinics.

Methods: The study was carried out in the rheumatology unit in collaboration with dermatology. Patients with cutaneous psoriasis who had not previously been diagnosed of any type of arthritis, from a dermatology clinic, were recruited consecutively. Patients were invited to participate in the study and referred to the rheumatology research unit where they signed the informed consent. Then, the questionnaires were administered.

Results: From November 2014 to December 2015, 53 patients were recruited: 30 women and 23 men. The mean age was 44 (± 13) years. The average duration of psoriasis was 11 (± 9) years. 61% had affected nails and skin. 11% of patients received no treatment for psoriasis and 13% received treatment with MTX or PUVA. The mean PASI was 3 (± 4). The quality of life, measured by DLQI, was 1 (± 2). 50% of patients had all the screening questionnaires positive. EARP was the questionnaire that tested positive in a higher percentage of patients, 70%. 68% of the patients had some painful joint and only 8% had some inflammation. Only 9 patients met CASPAR classification criteria and were diagnosed as PsA, of which 56% were in topical treatment by dermatology. These 9 patients had higher PASI than those undiagnosed and were the only ones who had swollen joints. The screening questionnaire that detected all these 9 patients was the EARP, but it was positive in 65% of patients who did not meet CASPAR criteria.

	S	E	VPP	VPN
ToPAS	0,55	0,61	0,22	0,87
PASE	0,33	0,81	0,27	0,85
PEST	0,44	0,70	0,23	0,86
EARP	1	0,36	0,24	1

Conclusions: The percentage of patients with PsA who was identified by EARP questionnaire was 100%, but with a high proportion of FP. PASE detected 33%, TOPAS 55% and PEST 44%. Therefore, questionnaires available are useless in daily clinical practice, due to lack of specificity or sensitivity. The development of a small questionnaire for dermatologist based on CASPAR criteria could be more effective

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FRI0576

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

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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.

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FRI0577

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

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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 peritarticular 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.

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