[4.0–16.0]; SLICC damage index score 1.0 (0–2.0) and 28 healthy donors. Serum samples were analysed for SLE-associated ANA (anti-dsDNA, anti-Sm, anti-chromatin, anti-SS-A/Ro 52 kDa and 60 kDa, anti-SS-B/La, anti-RNP-70, anti-ribosomal P – anti-RibP) using multiplex bead-based immunoassay system BioPlex 2200 (ANA Screen; Bio-Rad Laboratories Inc., USA). The levels of cytokines were determined with Bio-Plex 200 technology (Human Grp I Cytokine 27-plex panel; Bio-Rad Laboratories Inc., USA).

Results: Serum levels of anti-dsDNA, anti-chromatin, anti-Sm and anti-RibP antibodies were positively correlated with SLEDAI-2K scores ($r=0.6$, $r=0.7$, $r=0.4$, $r=0.3$, $p<0.05$). Antibodies to dsDNA, chromatin, Sm and SS-A/Ro was most often detected in patients with dermatologic (59%, 57%, 32%, 43%), renal (64%, 66%, 36%, 38%) and neuropsychiatric (61%, 61%, 28%, 39%) manifestations of SLE. Increased serum concentrations of IFN-inducible chemokines: IP 10 and MCP1 were associated with high anti-dsDNA ($r=0.3$), anti-chromatin ($r=0.5$), anti-Sm ($r=0.5$), anti-SS-B/La ($r=0.3$), anti-RibP ($r=0.4$) ($p<0.05$) and anti-Sm ($r=0.3$), anti-SS-B/La ($r=0.3$), anti-RibP ($r=0.3$) ($p<0.05$) antibodies levels. Hyperproduction of chemokines RANTES and IL-8/MIP-1 α negatively correlated with anti-dsDNA ($r=-0.3$), anti-chromatin ($r=-0.3$) ($p<0.05$) and anti-SS-A/Ro ($r=-0.3$) ($p<0.05$) antibodies levels, respectively. Low levels of pro-inflammatory cytokines IL-1 β , IL-15 were negatively associated with the presence of antibodies to dsDNA and RibP ($r=-0.3$) ($p<0.05$), but a positive correlation was found between the levels of anti-inflammatory cytokines IL-10, IL-1ra and anti-Sm ($r=0.3$), anti-SS-B/La ($r=0.3$), anti-SS-A/Ro ($r=0.3$) ($p<0.05$) antibodies titers. Elevated concentration of GM-CSF was negatively correlated with serum level of antibodies to Sm ($r=-0.3$) ($p<0.05$).

Conclusions: These data suggest that the presence of ANA clusters may identify patients with distinct clinical subtypes and cytokine profiles and can reflecting different pathways of immune dysregulation in SLE.

Disclosure of Interest: None declared

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AB1186

DYNAMIC CONTRAST ENHANCED MR IMAGING IN EARLY STAGE KNEE OSTEOARTHRITIS: A TEST-RETEST REPEATABILITY STUDY IN HEALTHY AND MODERATELY DISEASED SUBJECTS

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Background: Osteoarthritis(OA)in the knee exhibits signs of synovial activation in early phase of disease.¹ DCE-MRI provides quantitative measurement of vascular disruption associated with synovitis^{2,3} and has been shown to be sensitive to early treatment-induced changes in small group sizes in multicentre trials.⁴

Objectives: 1. Determine the reproducibility of DCE-MRI parameters in the knee.

2. Compare DCE-MRI parameters between participants with mild/moderate OA and aged matched controls.

3. Enable effect and sample size calculations for further studies.

Methods: 9 knee OA patients and 4 controls underwent two MRI scans with a month separation. All patients had diagnosis of knee OA as per ACR criteria, with medial compartment predominant disease and Kellgren-Lawrence grade 2/3 on radiographs. 3 pre-contrast injection series were obtained with flip angles 2°, 6° and 14° for T1 calculation. 35 consecutive phases formed the DCE-MRI series (temporal resolution: 14 s). Contrast agent(CA)(Dotarem(0.4 mL/kg))was administered on the 6th phase at the rate 3 mL/s followed by 50 mL saline. All Images were registered together. Here 2 DCE parameters are reported: K^{trans} (min⁻¹), volume transfer constant for CA between blood plasma and extravascular extracellular space; estimated using the extended Tofts model⁵ with population arterial function⁶ and IAUC₆₀(mM.s), initial area under CA concentration curve over 60 s post-arrival. Manual segmentation was performed by radiologist.

Results: Test-retest coefficient of variation(CoV) was lower in controls. K^{trans} had CoVs of 26/16% in OA patients/controls. An effect size of 30% reduction in K^{trans} indicates a treatment effect would be observed in a group of 11 patients with 90% power. DCE parameters were generally higher in OA patients than in controls. 4 out of 9 patients (All with KL score 3) demonstrated parameter values outside the healthy volunteer range at $p<0.01$ level (one sample t-test).

Abstract AB1186 – Table 1

	Age (mean ±SD)	BMI (mean ±SD)	#KL- grade 2/ 3	#MOAKS effusion synovitis grade 0/1/2	#MOAKS Hoffa synovitis grad 0/1
Patient (n=9, 4F)	52±5.2	30±4.15	5/4	5/1/3	7/2
control (n=4, 3F)	55±3.0	30±3.50	NA	3/1/0	3/1

Abstract AB1186 – Figure 1

Conclusions: Higher K^{trans} and IAUC₆₀ in patients indicates the potential of revealing microvascular function differences. The fact that this is not observed in all patients could suggest phenotypical variation. High CoV values in patient relative to healthy may be explained in part by fluctuation in disease status. Manual delineation also contributes to this variation.

DCE-MRI measures of vascular disruption associated with synovitis in knee OA are practical and feasible for imaging trials. These measures offer greater insight and sensitivity into the inflammatory component of OA that is not captured using other radiological methods.

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AB1187

WHAT IMAGING DETECTED PATHOLOGIES ARE ASSOCIATED WITH SHOULDER SYMPTOMS AND THEIR PERSISTENCE? A SYSTEMATIC LITERATURE REVIEW

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Background: Shoulder pain is a very common musculoskeletal complaint and a significant contributor to disability and morbidity. Recovery can be slow and over 50% continue to have pain at 18 months. Shoulder pain has a significant negative impact on quality of life and poses a significant economic burden, with costs estimated to be € 345 million per year in the UK alone. Modern imaging modalities can accurately detect soft-tissue pathologies and are increasingly used, but the relationship of imaging findings to patient symptoms remain unclear.

Objectives: Our aim was to systematically review the literature to determine what imaging features are associated with symptoms and their progression.

Methods: A systematic review using Medline, EMBASE, Cochrane and grey literature was conducted to April 2017. The cross-sectional and longitudinal relationships between imaging-detected abnormalities and symptoms were analysed and associations qualitatively characterised by a best evidence synthesis based on study design, covariate adjustment and the Grade of Recommendations

Assessment, Development and Evaluation (GRADE). Modalities included ultrasound, magnetic resonance imaging (MRI), radiographs, positron emission tomography (PET), bone scintigraphy and computerised tomography (CT).

Results: 6569 abstracts were screened and 56 papers were included. 50 studies did not adjust for covariates. The majority of studies showed conflicting findings. There was no significant association between most imaging features (rotator cuff tears, tendinopathies, subacromial bursal pathologies, osteoarthritis, calcification, acromial pathologies and adhesive capsulitis) and symptoms amongst high quality, cross-sectional studies. There was low-quality evidence suggesting that enhancement of the joint capsule on MRI and increased uptake of the rotator cuff interval, anterior joint capsule or axillary recess on PET was associated with symptoms in adhesive capsulitis. Based on high-quality, unadjusted longitudinal studies, enlarging rotator cuff tears was associated with an increased incidence of pain. 20 out of 56 studies evaluated more than one pathology, but only one study examined the association of symptoms with a combination of pathologies.

Conclusions: There were conflicting results on the association of imaging features with shoulder symptoms and its persistence and the existing evidence was very low in quality. There may be some imaging features associated with adhesive capsulitis symptoms and increasing RC tear may be associated with incident shoulder symptoms. Further high quality studies are required to understand the relationship between imaging and symptoms.

Disclosure of Interest: None declared

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AB1188 NAREDO AND BACKHAUS ULTRASOUND SCORES IN TUNISIAN RHEUMATOID ARTHRITIS PATIENTS

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Background: Ultrasound becomes increasingly important in the diagnosis and management of rheumatoid arthritis (RA).

Objectives: Our purposes are to evaluate Naredo (NS) and Backhaus (BS) ultrasound scores of synovitis, performed in daily practice in RA and to study their correlations with clinical assessment and SHARP radiological score modified by Vander Heijde (SS).

Methods: This is a cross-sectional study, conducted at the Rheumatology Department of Monastir Teaching Hospital, Tunisia, in 69 consecutive patients with RA. For each patient, clinical and biological evaluation (DAS 28 score), radiological assessment (SS) and ultrasound evaluation (by TOSHIBA machine) to determine NS and BS, were performed.

Results: The mean age of our patients was 52.01±10.1 years.²⁷⁻⁷⁸ The women accounted for 89% of patients. The average of disease duration was 121±86 months [1-333]. The mean tender joint count (TJC) was 5.9±5.6 [0-27]. The most frequently hands tender joints were the 5th MCP right, 3rd MCP right and the 1st MCP left and right. The mean swollen joint count (SJC) was 3 [0-22]. The most frequently swollen joints at both hands were the wrists and the 2nd MCP. The overall mean SS score was 105±59 [17-272], the overall mean score for joint erosion was 52±38 [0-166] and narrowing score was 53±26.³⁻¹³⁶ The mean NS was 17±15 [0-64] and BS was 21±10.²⁻⁴⁴ The mean duration of ultrasound assessment for calculating NS and BS was 21±7 min and 17±5 min, respectively. NS was significantly associated with SJC (p<0.000) and DAS 28 (p<0.01) but was not significantly associated with SS nor with its components. The BS was significantly associated with TJC (p<0.000), SJC (p<0.04) and DAS 28 (p<0.02). It was not significantly associated with SS. The number of erosions found by the BS was significantly associated with the erosion score of both hands and overall erosion score found by the SS (p<0.001). Ultrasound shows superiority in detecting erosions than standard radiographs: the number of erosions found by the BS was superior in 91% of cases to the number of erosions found by SS in the same joints.

Conclusions: NS and BS are significantly associated with RA disease activity. Ultrasound detects better osteoarticular erosions than radiological assessment. BS, which needs on average 17 min, can be used in daily practice.

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AB1189 ROLE OF DIFFUSION WEIGHTED IMAGING IN DIABETIC FOOT MAGNETIC RESONANCE IMAGING

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Background: Differentiation of acute diabetic osteoarthropathy from acute osteomyelitis is one of the most challenging issues in the evaluation of diabetes related foot complications. Early differentiation between these conditions is crucial, as early management of acute diabetic osteoarthropathy could prevent permanent deformity and resultant morbidity and initiation of appropriate treatment for osteomyelitis can reduce the risk of amputations. Acute diabetic osteoarthropathy may mimic osteomyelitis clinically and at different imaging modalities. The current imaging modalities used for assessment for diabetic foot have several limitations

Objectives: evaluate the role of diffusion weighted echoplanar MR imaging in differentiation of diabetic osteoarthropathy from osteomyelitis of diabetic foot.

Methods: Prospective study was conducted on 37 consecutive patients with diabetic foot. They underwent diffusion weighted MR imaging of the foot using a single shot echo planar imaging with a b-factor of 0,500 and 1000 sec/mm². The scanning parameters were: TR=10000 ms, TE=108 ms, NEX=8-16, bandwidth=125 kHz, slice thickness=4 mm. Apparent diffusion coefficient (ADC) map was reconstructed. The ADC value was calculated and correlated with surgical findings or biopsy. Statistical analysis was done.

Results: The mean ADC value of diabetic osteoarthropathy was 0.97±0.13 × 10⁻³ mm²/sec and of osteomyelitis was 0.121±0.12 × 10⁻³ mm²/sec. There was statistically difference in mean ADC values between diabetic osteoarthropathy and osteomyelitis (p<0.01). When apparent diffusion coefficient value of 0.77 × 10⁻³ mm²/sec was used as a threshold value for differentiating of diabetic osteoarthropathy from osteomyelitis, the best result was obtained with an accuracy of 90%, sensitivity 92%, specificity 89%, positive predictive value 88% and negative predictive value of 86%.

Conclusions: we concluded that apparent diffusion coefficient value is a new non-invasive imaging parameter that can be used for differentiation of diabetic osteoarthropathy from osteomyelitis. Application Diffusion weighted MR imaging can be added to routine MR imaging of diabetic foot.

Disclosure of Interest: None declared

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AB1190 ULTRASONOGRAPHY IN SPAINSH RHEUMATOLOGY: A CROSS SECTIONAL SURVEY

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Background: Ultrasonography (US) is the rheumatologists' best tool that must be taught and learnt correctly. The ultrasound school of the Spanish Society of Rheumatology has trained many rheumatologists for more than twenty years. Approximately 75% of the rheumatology departments in Spain use US. However, we lack current views of features related with competency, teaching rheumatology residents, US usage and implementation.

Methods: A cross sectional survey was performed using an online standardised questionnaire sent to all members of the SSR in January 2017. The questionnaire was developed by the four authors, corrected for size, style, syntaxes and was piloted on four different aged rheumatologists. Six aspects were studied; general data, US training, rheumatology residents training in US and main uses and applications of US. The questionnaire used either closed or Likert scale answers and took about 20 min to answer. Herein we describe the main results on usage and applications of US.

Results: 113 responses: 60% women, 45±12 years old, 73% working in public university hospital with one or more US machines. US is usually used at the time of clinical consultation or at appointment for US. 43% have a specific agenda for US diagnosis and monitoring inflammatory arthritis patients. The 3 principals for using US are: as a problem solving tool in the clinical context; as a diagnostic tool in inflammatory arthritis and; as a tool to guide injections. The table shows the percentage of the responses always and almost always for 10 clinical contexts. As diagnostic tool in rheumatoid arthritis (RA), 66% use US to confirm arthritis when clinical exam is unclear and 33% in patients with inflammatory arthralgia plus high ESR, CRP, RF or anti-CCP. 36% monitor disease activity using a reduced joint assessment; one target joint plus 2,3 MCP and 2,3, 5 MTP joints and 32% use a validated joint count. 66% use US to assess remission in RA all patients (22%), only in those treated with biologic drugs (28%) and in RA patients with poor