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

prognostic factors (18%). Most use US to confirm clinical enthesitis when a spondyloarthropathy (SpA) is suspected and half consider that a positive enthesal Doppler signal supports more aggressive management. 76% perform real-time guided injections for the following disorders/sites: Baker's cyst, subacromial-subdeltoid bursa, tibionavicular joint, anterior coxofemoral joint, retrocalcaneal bursa and extensor wrist tenosynovitis.

Abstract AB1190 – Table 1

	% (Likert 4 +5)
To detect articular or periarticular inflammation when there is a clinical doubt	94
To detect enthesopathy, tendinosis or tendon ruptures when there is a clinical doubt	79
To detect crystal deposits when microcrystalline arthropathy is suspected	48
To detect bone erosions when radiology is obscure	39
To assess skin fibrosis	35
To assess palpable nodules or masses	34
To detect temporal artery vasculitis when it is clinically suspected	20
To detect salivary gland involvement in patients with xerostomy	17
To detect arteriosclerosis in chronic inflammatory patients	13
To assess interstitial lung disease	2

Conclusions: Rheumatologist- ultrasonographers in Spain use ultrasonography in a wide spectrum of diseases and clinical contexts mainly to facilitate diagnosis and improve treatment of rheumatic patients.

Disclosure of Interest: None declared

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AB1191 VITAMIN D AND CD34+ CELLS AS BIOMARKERS OF SUBCLINICAL ATHEROSCLEROSIS AND MYOCARDIAL DYSFUNCTION IN INFLAMMATORY JOINT DISEASES

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Background: increased cardiovascular (CV) risk in inflammatory joint diseases (IJD) such as rheumatoid (RA) or psoriatic arthritis (PsA) is linked to an impaired vascular homeostasis. Chronic inflammation and immune dysregulation prompt endothelial damage and impair reparative mechanisms. Among them, circulating CD34 +bone marrow-derived progenitors are known to participate in endothelial turnover and improve myocardial neovascularization and ventricular remodelling, likely delaying CV disease development. Among factors related to CD34 +cells mobilisation, a role for vitamin D has emerged in other scenarios. Whether impaired CD34 +cells or vitamin D levels underlie endothelial and myocardial dysfunction in IJD patients remains unknown.

Objectives: to evaluate the associations between CD34 +cells and vitamin D levels with markers of subclinical atherosclerosis and myocardial functionality in IJD patients.

Methods: CD34 +cells counts were assessed by flow cytometry in peripheral blood samples from 41 RA (2010 EULAR/ACR criteria) and 35 PsA (CASPAR criteria) patients recruited at onset and 58 matched healthy controls (HC). Vitamin D levels were quantified in serum by HPLC. PWV and cIMT were evaluated as markers of subclinical atherosclerosis, whereas myocardial dysfunction was assessed by speckle-tracking echocardiography (STE).

Results: vitamin D was decreased in RA (23.68±6.42) and PsA (23.53±4.84) compared to HC (31.75±5.05 ng/ml, both p<0.001). Vitamin D was negatively associated with cIMT in HC (r=-0.308, p=0.026) and in PsA patients with low disease activity (DAS28 <2.9, n=11) (r=-0.636, p=0.035), but not in their high disease activity or RA counterparts. CD34 +cells were decreased in RA compared to HC (1.58±0.58 vs 2.35±1.14 cells/ul, p=0.002). CD34 +cells frequency was associated with total- and LDL-cholesterol levels in HC (r=-0.295, p=0.031 and r=-0.354, p=0.011, respectively) but not in IJD. CD34 +cells negatively paralleled DAS28 in PsA (r=-0.338, p=0.047) and RA (r=-0.303, p=0.057). Multivariate regression analyses revealed that vitamin D levels (B=0.019, p=0.009) and DAS28 (B=-0.152, p=0.050) were independently associated with CD34 +counts in PsA, whereas vitamin D (B=0.010, p=0.028) and duration of the symptoms (B=0.016, p=0.010) did in RA. CD34 +cells counts were correlated with GCS (r=-0.291, p=0.068) and GLS (r=-0.301, p=0.057) in RA.

Conclusions: vitamin D was negatively associated with cIMT and risk factors in HC and PsA patients with low disease activity, but not in those with active disease or RA. Vitamin D was an independent predictor of CD34 +cell depletion in IJD.

CD34 +cells, negatively associated with risk factors in HC, were altered in RA in relation to disease activity and the duration of symptoms. CD34 +cells were associated with myocardial dysfunction in RA.

Disclosure of Interest: None declared

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AB1192 DIAGNOSTIC YIELD OF MUSCLE BIOPSIES PERFORMED OVER A 10 YEAR PERIOD

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Background: Patients with suspected inflammatory myopathy (IM) are often referred to Rheumatology, where the diagnostic process may include a biopsy of skeletal muscle. A new service was set up in 2007 at Sunderland Royal Hospital, whereby a trained consultant performs open muscle biopsies of vastus lateralis muscle under local anaesthetic within the Rheumatology outpatient department. Samples are sent to a histology laboratory at another hospital site for analysis, which can include electron microscopy. Referrals most commonly come from other consultant Rheumatologists within the team.

Objectives: To evaluate the diagnostic yield amongst muscle biopsies performed over a 10 year period. To review the correlation between final clinical diagnosis and investigation results. To identify any complications caused by the biopsy procedure.

Methods: Retrospective analysis of medical notes of all patients who were referred for muscle biopsy within the Rheumatology department during 2007 – 2017.

Results: The mean patient age was 51 years; 28 patients were female. All procedures were performed or directly supervised by one trained rheumatology consultant. 45 patients were referred for muscle biopsy. 41 patients had elevated creatinine kinase. 2 were unable to tolerate the procedure. 3 samples were either too small for analysis or did not contain skeletal muscle. A total of 40 muscle samples were reviewed.

16 muscle biopsy samples showed histological features of IM (3 polymyositis, 3 dermatomyositis, 6 inclusion body myositis and 4 undifferentiated CTD). 15 samples showed other diagnoses including genetic, neurological and storage disorders. In 9 samples no definite diagnosis could be made on biopsy, despite this 3 patients were diagnosed with IM based on clinical features and other investigations.

Of the 19 patients with a final diagnosis of inflammatory myopathy (clinical and histological), 15 had positive ANA, 3 had negative ANA (1 of which had positive Ro antibodies).

EMG/NCS performed prior to muscle biopsy had a high positive predictive value: all 7 with an IM pattern on EMG had a histological diagnosis of IM. 2 patients with normal EMG had eventual diagnosis of IM.

Complication rates were low. 3 patients had subsequent numbness around the biopsy site and 1 required a compression dressing for increased bleeding during the procedure.

Conclusions: Muscle biopsy was successful in achieving a diagnosis in 64% of all patients referred. Out of biopsies taken, 40% of biopsies performed showed IM. 37.5% showed other diagnoses. The total diagnostic yield is therefore calculated as 77.5%. It appears to be a useful diagnostic investigation in patients with suspected myopathies and helps with correct diagnosis and appropriate treatment. Muscle biopsy is relatively safe and can be performed in the outpatient setting. Despite delays in the transfer of 3 specimens, histological analysis was still possible, suggesting that having an off-site histopathology laboratory does not adversely affect outcomes. Further review could focus on the increasing use of MRI scanning in the diagnostic evaluation of these patients, which may in some cases prevent the need for open biopsy.

Disclosure of Interest: None declared

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AB1193 AN IMMUNE REFERENCE ATLAS FROM BIRTH TO ADULTHOOD IDENTIFIES KEY DEVELOPMENTAL MILESTONES

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Background: A developmental atlas of the immune system is key to understanding its normal maturation process and identifying the disease-associated cell subsets. The absence of a holistic developmental immune normogram is a critical unmet need.