six main PROs: body pain, patient global and fatigue score on a 0-10 visual analogue scale, as well as a functional impact score, self-report joint count and symptom checklist which have a range of 0-10, 0-48 and 0-60 respectively. Composite indices consisting of either two or three of patient pain score 6, self-report joint count 16 and symptom checklist 16 or three of four of the same measures plus a fatigue score 6 have been described previously to provide clues to comorbid FM in other rheumatic diseases [3,4]. Individual PROs and these composite indices were compared between patients with and without FM by student's unpaired t-test and Area Under the Curve (AUC) analysis. The physician's diagnosis of FM was analysed against the FM criteria using Cohen's kappa. Physicians were blinded to the results of the 2016 FM criteria.

Results: 88 patients with SLE were studied, of whom 23 (26%) satisfied FM criteria. Those with FM reported higher scores in all PROs. A patient global of 6 could correctly classify 90% of patients and provided the highest AUC of 0.95, followed by the symptom checklist and body pain. An index of three measures (pain score, self-report joint count and symptom checklist) gave an AUC of 0.90. An index of four measures (additional fatigue criterion) gave an AUC of 0.93. Both indices correctly classified 89% of patients with a cut-off of 2 and 3 respectively. The physician's diagnoses had moderate agreement with the FM criteria (kappa = 0.43).

	AUC	Sensitivity	Specificity	Correctly classified
3 PROs (≥ 2)	0.90	78%	92%	89%
4 PROs (≥ 3)	0.93	74%	94%	89%
Patient global (≥ 6)	0.95	91%	89%	90%

Conclusion: Comorbid FM is prevalent in SLE yet often missed by physicians. In busy clinical settings, composite indices provide useful clues to coexisting FM in SLE, although a simple MDHAQ patient global is quick and potentially just as valuable in this patient group. These findings require further validation in a larger cohort.

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THU0266 ULTRASONOGRAPHY IN THE DIAGNOSIS OF LOWER LIMB ENTHESEOPATHY IN A COHORT OF SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS: RELATION TO THE DISEASE ACTIVITY

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Background: Systemic lupus erythematosus (SLE) is a chronic inflammatory autoimmune disease characterized by variable clinical manifestations due to different organ involvement¹. Musculoskeletal involvement is extremely common in patients with SLE. Musculoskeletal ultrasound (MSUS) is an important tool for evaluation of patients with inflammatory arthritis and early detection of subclinical inflammation at the joint, tendon and enthesal level².

Objectives: To investigate the presence of enthesal abnormalities in SLE patients and correlating it with parameters of disease activity.

Methods: In this cross-sectional study we evaluated 50 patients with SLE who fulfilled the 2012 ACR/SLICC criteria³. Patients underwent clinical,

laboratory and ultrasonographic examination of both lower limbs at the sites of entheses. Disease activity was assessed by using the SLE disease activity index (SLEDAI)⁴. The scanned entheses were those included in the Glasgow Ultrasound Enthesitis Scoring System (GUESS)⁵. The anatomical sites were scanned bilaterally, both in longitudinal and transverse planes, in grey-scale (GS) and power Doppler (PD) mode. Ultrasonography was performed using (esaote) MyLab™Six ultrasound machine, equipped with a 6-18 MHz linear probe.

Results: In our cohort of 50 SLE patients we found 29 patients had clearly evident MSUS features of enthesopathy (58%) and 16 patients with minimal and isolated enthesal abnormalities (32%). Five patients had normal MSUS findings with no evidence of enthesal affection (10%). The mean of total GUESS score of all patients was 3.54 ± 2.6 . MSUS examination of the quadriceps tendon insertion at the patella revealed mean thickness of 5.89 ± 0.7 mm, the patellar tendon attachment at the patella (proximal) was 4.26 ± 0.84 mm and the mean thickness of the patellar tendon at the tibial insertion (distal) was 4.08 ± 0.7 mm. The Achilles tendon insertion at the superior pole of calcaneus and the plantar fascia insertion at inferior pole of calcaneus were 4.2 ± 0.7 and 3.7 ± 0.7 mm respectively. Age, body mass index (BMI), SLEDAI score, and ESR; had a highly significant positive correlation with GUESS score. The increase in BMI, SLEDAI score and creatinine; had an independent effect on increasing GUESS score.

Conclusion: Lower limb enthesopathy is common in SLE patients and considered one of the important causes of knee and ankle joints pain. Enthesal involvement in SLE patients is affected by variable parameters, mainly disease activity. Enthesal abnormalities can be early detected by ultrasonography even in clinically asymptomatic SLE patients without evidence of clinical symptoms and/or signs of enthesal affection.

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THU0267 THE SLE DISEASE ACTIVITY SCORE (SLE-DAS) ENABLES ACCURATE DEFINITIONS OF SLE REMISSION AND LDA AS ACHIEVABLE TARGETS IN DISEASE MANAGEMENT

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Background: The treat-to-target strategy in Systemic Lupus Erythematosus (SLE) aims to achieve remission. However, to define a target based on the SLE Disease Activity Index (SLEDAI) is questionable, due to its limitations (especially its dichotomous nature). The SLE Disease Activity Score (SLE-DAS) is a recently validated continuous disease activity score which has a higher accuracy in measuring SLE activity and a higher sensitivity-to-change compared to SLEDAI.¹

Objectives: To assess the ability of SLE-DAS to define SLE remission and other disease activity states.

Methods: Cross-sectional study of SLE patients fulfilling the ACR'97 and/or SLICC'12 classification criteria and followed at the Padua Lupus Clinic from March to June 2018. At each outpatient visit, the attending clinician scored SLE disease activity (in the last 30 days) using Physician Global

Assessment (PGA) (0-3 points, 10 cm scale), SLEDAI-2K and SLE-DAS. A senior rheumatologist expert in SLE, blinded to the disease activity scores, classified each patient in 1 of 4 categories: (i) remission, (ii) low disease activity (LDA), (iii) mild disease activity and (iv) moderate/severe disease activity. The best cut-off values of SLE-DAS to define these categories were estimated using Receiver Operating Characteristic (ROC) curve analysis. Accuracy, precision, sensitivity and specificity values for these cut-off values were then calculated. The agreement between the SLE-DAS and physician's classification was measured using Kappa coefficient. Statistical significance was set at 0.05.

Results: We included 221 patients (84.2% female, mean age of 45.4 $\pm$ 13.5 years, mean disease duration of 15.4 $\pm$ 9.5 years). In this preliminary study, the proposed cut-off values of SLE-DAS to define each disease activity category were: remission SLE-DAS $\leq$ 2.08, LDA 2.08 < SLE-DAS $\leq$ 3.77, mild disease activity 3.77 < SLE-DAS $\leq$ 7.64, and moderate/severe disease activity SLE-DAS > 7.64 for (Table 1). The overall accuracy of these SLE-DAS cut-off values to identify each disease activity state was 96.4%. The agreement between SLE-DAS and physician's classification was very high ($k=0.925$, $p<0.001$). Distribution of SLE-DAS and SLEDAI-2K scores in each disease activity state is presented in Figure 1.

According to the SLE-DAS cut-offs, 68.8% of the patients were in remission, 2.3% in LDA, 10.9% in mild disease activity and 18.1% in moderate/severe disease activity.

Abstract THU0267 – Table 1. Performance of SLE-DAS to assess each disease activity state.

Disease activity state	Sensitivity (%)	Specificity (%)	Precision (%)
Remission (SLE-DAS $\leq$ 2.08)	99.3	97.1	98.7
Low Disease Activity (2.08 < SLE-DAS $\leq$ 3.77)	66.7	99.5	80
Mild Disease Activity (3.77 < SLE-DAS $\leq$ 7.64)	88.0	99.0	91.7
Moderate/Severe Disease Activity (SLE-DAS > 7.64)	94.9	98.4	92.5

Conclusion: The SLE-DAS has a high precision in identifying remission, LDA, and other disease activity states in SLE. These results suggest that the SLE-DAS is an accurate tool in defining achievable targets in SLE management.

Figure 1. SLE-DAS and SLEDAI-2K boxplots for each disease activity state according to the physician's classification. The superiority of SLE-DAS to separate the disease activity levels is indicated by the clear separation of its boxplots, in contrast to the overlap of the SLEDAI-2K boxplots.

Abstract THU0267 – Figure 1

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THU0266

CLINICAL AND LABORATORY FEATURES OF PRIMARY SJÖGREN'S SYNDROME ASSOCIATED WITH ANTICENTROMERE ANTIBODIES

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Background: The prevalence of ACA among patients with pSS varies from 2% to 27%. Among experts, there is a lot of controversy about whether primary Sjögren's syndrome with ACA is a separate disease subtype or overlap-syndrome with systemic sclerosis.

Objectives: To evaluate clinical and laboratory features of anticentromere antibody-positive (ACA) primary Sjögren's syndrome (pSS); to evaluate the spectrum of autoantibodies in patients of this group; to evaluate conformity of the patients to the pSS and systemic sclerosis (SSc) classification criteria; to evaluate prevalence of salivary MALT-lymphoma in this group of patients; to evaluate prevalence of primary biliary cirrhosis (PBC)/biliary lesions in this group of patients.

Methods: From 2012 to 2018, we examined 83 patients with pSS and ACA. Inclusion criteria were conformity to the 2001 Russian Sjögren's syndrome criteria and high ACA titer. We used ACR 2012 and ACR/EULAR 2016 criteria to evaluate conformity to the pSS, and ACR 2013 criteria to evaluate conformity to the SSc. Diagnosis of salivary MALT lymphoma was established on the basis of histological, immunohistochemical and PCR studies of biopsy specimens of parotid salivary glands. Diagnosis of PBC/biliary lesions was made on the basis of histological and immunohistochemical studies of liver biopsy specimens.

Results: We found a low detection rate of anti-Ro antibodies (32.5%), anti-La antibodies (7.2%), RF (21.7%), increased ESR (14%), leukopenia (7%), hypergammaglobulinemia (17.6%), increased IgG (9.5%), increased IgA (18.7%) hypocomplementemia (16.1%) in the group of patients with pSS and ACA. Despite the low frequency of detection of the RF, some patients of this group had MALT-lymphoma: 14 patients had salivary MALT-lymphoma (16.8%), one patient had tonsil MALT-lymphoma with nodal involvement (1.2%). In addition, patients of this group are characterized by a high frequency of detection of AMA antibodies 17/52 (32.7%), increased IgM (29.7%) and increased risk of biliary lesions (14.4%). According to our data increased risk of developing biliary lesions (28.5%), primary biliary cirrhosis (28.5%), autoimmune hepatitis (AIH) (28.5%), overlap-syndrome between PBC and AIH (14.5%) was observed in patients with functional signs of liver damage (ALT/AST, GGT, ALP > 2N), AMA-positivity, high levels of IgM. Only two patients, who were diagnosed with liver disease according to studies of biopsy specimens, lacked AMA-antibodies. Damage to the nervous system, kidneys, antiphospholipid syndrome, rheumatoid arthritis, hypergammaglobulinemic purpura and cryoglobulinemic vasculitis were much less common and were single. Also patients with pSS and ACA often have Raynaud's phenomenon (54.9%) with capillaroscopic changes of the scleroderma type (68%) and an increased risk of developing limited form of systemic scleroderma (24%).

Conclusion: pSS associated with ACA is a subtype of the disease, significantly different from the "classic" in a number of clinical and laboratory signs and characterized by an increased risk of SSc and PBC/biliary lesions which in some cases leads to the underdiagnosis of pSS. ACA should be considered as pathogenetically related to pSS antibodies and all ACA-positive patients should be examined for pSS and PBC/biliary lesions regardless of whether they have SSc or not. Patients with a significant enlargement of salivary glands should be biopsied to confirm the presence of MALT-lymphoma before initiating hormonal, antilymphoproliferative and anti-B-cell therapy.

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THU0269

SERUM IL-6 AND CIRCULATING IMMUNE COMPLEXES AS BIOMARKERS OF DISEASE ACTIVITY IN MULTI-ETHNIC ASIAN SYSTEMIC LUPUS ERYTHEMATOSUS

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Background: IL-6 plays an important role in B cell hyperactivity and immunopathology of systemic lupus erythematosus (SLE), and may have a direct role in mediating tissue damage [1]. Elevated levels of serum