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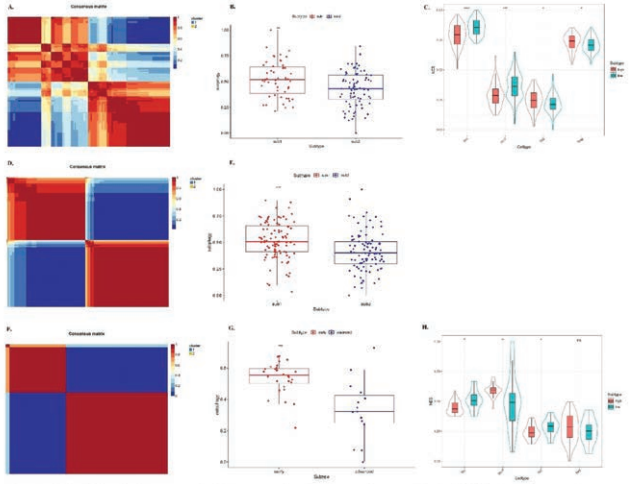

Figure 1: **(A)** Identification of training dataset using NMF consensus clustering in the autophagy set. **(B)** Boxplot visualizing the autophagy score between two subtypes. **(C)** ssGSEA was used to estimate the proportion of 4 immune cell types in 155 pSS patients. Th1; Th2; Th17; Treg cells remained statistically significant. **(D)** identification subclasses using NMF consensus clustering in the autophagy set in GSE5 1092. **(E)** Boxplot visualizing the autophagy score between two subtypes remained statistically significant. **(F)** NMF clustering using 206 ferroptosis-related genes. Salivary gland tissues from pSS patients were divided into cluster 1 and cluster 2. **(G)** The early group showed a higher autophagy score than the advanced group. **(H)** ssGSEA was used to estimate the proportion of 4 immune cell types in 43 pSS patients. Th1; Th2; Th17 cells remained statistically significant. ***P< 0.001; **P< 0.01, *P< 0.05, ns P>0.05

Acknowledgements: This project was supported by National Science Foundation of China (82001740), Open Fund from the Key Laboratory of Cellular Physiology (Shanxi Medical University) (KLCP2019) and Innovation Plan for Postgraduate Education in Shanxi Province (2020BY078).

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.1769

POS0733 REAL-LIFE PHYSICAL ACTIVITY IN SLE PATIENTS: ASSOCIATIONS WITH FATIGUE AND QUALITY OF SLEEP

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Background: Fatigue is among the top complaints of patients with systemic lupus erythematosus (SLE), but only in part associated with SLE disease activity. Physical activity can help to reduce fatigue and should therefore be recommended to SLE patients. Vice versa, fatigue may arguably lead to reduced physical activity.

Objectives: To investigate the extent of physical activity and the perception of fatigue and sleep quality in patients with SLE.

Methods: Starting in February 2019, SLE patients were invited to participate in a cross-sectional survey study of fatigue and physical exercise during their routine outpatient clinic visits. Participants filled out a ten-page paper questionnaire focused on physical activity. To evaluate fatigue, we primarily used a 10 cm visual analogue scale (0-100 mm, with 100 meaning most fatigued), but also the FACIT fatigue score (range 0-52). Sleep quality was estimated using grades from 1 (excellent) to 6 (extremely poor).

Results: 93 SLE patients took part in the study. All patients fulfilled the European League Against Rheumatism/ American College of Rheumatology (EULAR/ ACR) 2019 classification criteria for SLE. 91% of the patients were female. Their mean (SD) age was 45.5 (14.3) years and their mean disease duration 12.1 (9.4) years. The mean BMI was 25.2 (5.6). Of all patients, 7.5% had a diagnosis of (secondary) fibromyalgia. The mean fatigue VAS was 32 (27) mm and the mean FACIT fatigue score 35.7 (10.3). As expected, fatigue by VAS and FACIT was correlated (Spearman r=-0.61, p<0.0001). The mean SLEDAI was 1 (1) with a range of 0 to 6. Median glucocorticoid doses were 2 mg prednisolone equivalent, with a range from 0 to 10 mg.

Out of 66 patients in payed jobs, 64 (97%) reported details on their working space. One person (2%) worked in a predominanty standing position, 37 (58%) worked in essentially sedentary jobs and 26 (40%) were in positions where they were mildly physically active in part. The mean fatigue VAS was 31 (24) mm for patients with partly active jobs and 27 (30) mm for those in sedentary jobs. Sleep was graded 2.9 (0.9) by those with active and 3.1 (1.3) by those with sedentary jobs.

Half of the patients (51%) reported more than one physical recreational activity. 44 (47%) were walking and for five persons (5%) this was the only form of activity. Cycling was reported by 19 patients (20%), 18 of whom also practiced other activities. For transport, 52 (56%) in part chose active modes, such as walking and cycling. Patients who reported any of the above activities showed a mean fatigue VAS of 28 (25) mm, compared to 36 (28) mm in the patient group without a reported activity. Sleep quality was very similar: 3.1 (1.2) and 3.2 (1.1) for more active and more passive patients, respectively.

65 (70%) patients regularly practiced sports. Of these, 39 (60%) practiced one kind of sport, 15 (23%) two, 7 (11%) three, and 2 (3%) each four and five kinds of sports. Fatigue VAS of patients practicing sports was 27 (25) mm versus 43 (28) in those who did not (p=0.0075). Sleep quality was 2.9 (1.1) in the sports cohort and 3.5 (1.1) in the no-sports cohort (p=0.0244).

Conclusion: A majority of SLE patients in remission or low to moderate disease activity regularly practiced sports, and those doing so reported lesser fatigue and better sleep quality. The absolute values on the fatigue VAS were in a moderate range that made fatigue as the main cause of not performing sports rather unlikely for most patients.

Disclosure of Interests: Helena Wohland: None declared, Nicolai Leuchten Speakers bureau: AbbVie, Janssen, Novartis, Roche, UCB, Consultant of: AbbVie, Janssen, Novartis, Roche, Martin Aringer Speakers bureau: AbbVie, Astra Zeneca, BMS, Boehringer Ingelheim, Chugai, Gilead, GSK, HEXAL, Lilly, MSD, Novartis, Pfizer, Roche, Sanofi, UCB, Consultant of: AbbVie, Astra Zeneca, BMS, Boehringer Ingelheim, GSK, Lilly, MSD, Roche, Sanofi, UCB

DOI: 10.1136/annrheumdis-2021-eular.1775

POS0734 EXTRAPOLATION OF LONG-TERM OUTCOMES IN SYSTEMIC LUPUS ERYTHEMATOSUS: REPLICATING A HOPKINS LUPUS COHORT ANALYSIS WITH THE SYSTEMIC LUPUS INTERNATIONAL COLLABORATING CLINICS (SLICC) INCEPTION COHORT

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Background: A disease model of systemic lupus erythematosus (SLE) that predicts short-term outcomes (disease activity and prednisone use) and links them to long-term outcomes (accrual of organ damage and mortality) was previously developed in a single center SLE cohort (Johns Hopkins [JH]) to support health economic analyses (Watson 2015), which has not been comprehensively replicated in other cohorts or contexts.

Objectives: As part of an effort to develop and refine this existing disease model, the aim of this study was to replicate the previously estimated network of risk equations for short- and long-term outcomes in the SLICC Inception Cohort, an international cohort of patients (33 centers,11 countries).

Methods: The SLICC Inception Cohort enrolled patients fulfilling ACR Classification Criteria for SLE within 15 months of diagnosis from 1999-2011 with annual follow-up through April 2020. The network of risk equations included two linear random effects models to predict (1) change in annual average Systemic Lupus Disease Activity Index (SLEDAI) score based on patient characteristics and the presence of renal, hematological, and immunological involvement in the prior year and (2) average annual prednisone dose based on SLEDAI score in the same year. These equations were then linked to parametric survival models that predicted time to the occurrence of organ damage (system-specific based on the ACR/SLICC Damage Index) and mortality. We compared model performance between the SLICC Cohort and the original analysis from the JH Cohort.

Results: In comparison to the JH cohort (N=1354), the SLICC cohort (N=1697) had a smaller fraction of patients of African descent (39% vs 17%) and shorter

disease duration at entry (4.8 vs 0.5 years). In the first equation predicting change in annual SLEDAI score, predictors were generally aligned with the same direction and significance, with the exception of renal involvement in the prior period, which had a positive association with change in SLEDAI in the SLICC cohort but was negatively associated in the JH cohort (Table 1). The second equation predicting prednisone dose was also consistent with the original analysis showing a significant positive association between higher disease activity and prednisone use. In all of the parametric survival analyses (individual organ damage and mortality models), coefficients were generally in the same direction and magnitude, though some were no longer significant in the SLICC cohort.

Conclusion: The relationships identified in the original analysis were broadly replicated in the SLICC Inception Cohort. Observed differences may reflect differences in the patient populations, structure of the two cohorts (prevalent vs inception), and frequency of visits (quarterly visits in the JH cohort vs annual visits with the SLICC cohort may more closely capture a decrease in SLEDAI associated with treatment specifically related to renal involvement). Additional analyses relaxing the requirement to completely align with the original structure are underway to further assess the predictive accuracy of these models.

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Table 1.

	JH Cohort (N=1354)		SLICC Cohort (N=1697)	
Female, %	92.9		88.8	
African descent, %	38.8		16.7	
Disease duration at entry, mean (SD), years	4.8 (6.3)		0.5 (0.3)	
SLEDAI at first visit, mean (SD)	3.7 (4.1)		5.4 (5.4)	
Change in average annual SLEDAI	**Coefficient**		**Coefficient**	
Constant	1.491	*	5.762	*
Annual average SLEDAI in prior period	–0.460	*	–0.755	*
Male gender	–0.080		–0.207	
Log transformation of age	–0.241	*	–1.134	*
Renal involvement in prior period	–0.301	*	0.627	*
African descent	0.383	*	0.126	
Increased DNA binding in prior period	0.276	*	0.939	*
Low complement in prior period	0.484	*	0.775	*
Hematological involvement in prior period	0.104		–0.025	
Anemia in prior period	0.152	**	0.144	
Associated annual average prednisone dose (mg/day)				
Constant	3.475	*	2.738	*
SLEDAI in same period	0.777	*	0.648	*

*p<0.001; **p<0.05

Acknowledgements: We acknowledge the support on this abstract of the following investigators of the Systemic Lupus International Collaborating Clinics:
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Disclosure of Interests: Ann E Clarke Consultant of: BMS, AstraZeneca, GSK, and Exagen Diagnostics., Yvan St-Pierre: None declared, Victoria Paly: None declared, Ian N. Bruce Speakers bureau: GSK, UCB, Consultant of: BMS, Eli Lilly, GSK, Astra Zeneca, Merck Serono; UCB, ILTOO, Aurinia, Grant/research support from: Genzyme/Sanofi, GSK, Roche, UCB, Chiara Malmberg: None declared, Andrew Briggs Speakers bureau: Alexion, AstraZeneca, Bayer, BMS, Daiichi Sankyo, Eisai, Gilead, GSK, Kite, Merck, Novartis, Rhythm, Roche, Sanofi, Takeda, Consultant of: Alexion, AstraZeneca, Bayer, BMS, Daiichi Sankyo, Eisai, Gilead, GSK, Kite, Merck, Novartis, Rhythm, Roche, Sanofi, Takeda, Yuanhui Zhang Shareholder of: Bristol Myers Squibb., Employee of: Bristol Myers Squibb., Jiyoon Choi Shareholder of: JNJ., Employee of: BMS, Alan Brennan Consultant of: Alan Brennan is a paid consultant on advisory boards regarding cost-effectiveness modelling., Grant/research support from: Alan Brennan received research grants.

DOI: 10.1136/annrheumdis-2021-eular.1790

POS0735 ULTRASOUND-GUIDED CORE NEEDLE BIOPSY FOR SALIVARY GLAND ENLARGEMENT IN SJÖGREN'S SYNDROME: PROCEDURE SAFETY AND PATIENT TOLERANCE

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Background: Persistent enlargement of major salivary glands (SGs) is one of the main risk factors for B-cell lymphoma in primary Sjögren's syndrome (pSS). The Ultrasound-guided Core Needle Biopsy (US-guided CNB) could be a novel technique for the management of SGs enlargement in pSS (1).

Objectives: To evaluate the procedure safety and the patient tolerance of US-guided CNB in pSS patients with major SGs enlargement.

Methods: Consecutive patients, with either definite or clinically suspected pSS, and with clinical indication for SGs biopsy due to persistent glandular enlargement were screened for US-guided CNB from September 2019 to December 2020. All patients were evaluated clinically between 1 and 2 weeks and 12 weeks following US-guided CNB. All patients were asked to complete a questionnaire to report post-procedural complications (Figure 1, *English version*) and intra- and post-procedural pain Visual Analogue Scale (VAS). The complications were classified as transient (<12 weeks) or persistent (≥12 weeks).

Results: US-guided CNB was performed in 21 glands (12 parotid and 9 submandibular glands) in 20 pSS patients. 16/20 (80%) patients fulfilled the ACR-EULAR classification criteria for pSS (2). The mean age at the time of biopsy was 62.1 (±11.7) years. US-guided CNB was well tolerated, no long-term complications were reported in the follow-up period (mean 9.5 ±5.7 months). Only transient complications were noticed in 11 patients (55%). In particular, two cases of local swelling at the biopsy site lasting no more than 6 days, one case of local bleeding and subsequently hematoma of the submandibular area, one case of transient facial paresis (lasting less than one hour), seven cases of post-procedural mild local pain, that resolved within 10 days without the need of analgesics (Table 1). The procedure was well tolerated, with a very low reported intra-operative pain (mean VAS 1.74 ±2.49) and a mean post-operative pain VAS of 1.39 (±2.33). The biopsy sampling was diagnostic in 19/20 patients (95%).

Conclusion: US-guided CNB represents a novel approach for the management of pSS patients with SGs enlargement. This procedure shows a remarkable patient safety and tolerance, allowing an adequate glandular sampling and definite diagnosis in almost all the studied patients.

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