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.

REFERENCES:

[1] Watson P, et al. *Rheumatology* (Oxford). 2015;54(4):623-32.

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:

John Hanly - john.hanly@nshealth.ca
 Caroline Gordon - p.c.gordon@bham.ac.uk
 Sang-Cheol Bae - scbae@hanyang.ac.kr
 Juanita Romero-Diaz - juanita.romerodiaz@gmail.com
 Jorge Sanchez-Guerrero - jorge.sanchez-guerrero@uhn.ca
 Sasha Bernatsky - sasha.bernatsky@mcgill.ca
 Ann Clarke - aeclarke@ucalgary.ca
 Daniel Wallace - dwallace@ucla.edu/danielwallac@gmail.com
 David Isenberg - d.isenberg@ucl.ac.uk
 Anisur Rahman - anisur.rahman@ucl.ac.uk
 Joan Merrill - JTMmail@aol.com
 Paul Fortin - paul.fortin@crchudequebec.ulaval.ca
 Dafna Gladman - dafna.gladman@utoronto.ca
 Murray Urowitz - m.urowitz@utoronto.ca
 Ian Bruce - ian.bruce@manchester.ac.uk
 Michelle Petri - mpetri@jhmi.edu
 Ellen Ginzler - ellen.ginzler@downstate.edu
 MA Dooley - Mary_Dooley@med.unc.edu
 Rosalind Ramsey-Godman - rgramsey@northwestern.edu
 Susan Manzi - susan.manzi@ahn.org; Susanmanzi@gmail.com
 Andreas Jonsen - andreas.jonsen@med.lu.se
 Graciela Alarcon - galarcon@uab.edu
 Ronald van Vollenhoven - r.vanvollenhoven@amsterdamumc.nl
 Cynthia Aranow - CAranow@Northwell.edu
 Meggan Mackay - mmackay@northwell.edu
 Guillermo Ruiz-Irastorza - r.irastorza@outlook.es
 Sam Lim - sslim@emory.edu
 Murat Inanc - drinanc@istanbul.edu.tr; minanc2008@gmail.com
 Kenneth Kalunian - kkalunian@ucsd.edu
 Soren Jacobsen - sj@dadnet.dk

Christine Peschken - christine.peschken@umanitoba.ca

Diane Kamen - kamend@muscu.edu

Anca Askanase - ada20@columbia.edu

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., Jiyeon 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

A. Zabotti¹, L. Giovannini¹, S. Z. Callegger¹, V. Manfrè¹, M. Lorenzon², E. Pegolo³, C. A. Scott³, A. Tel⁴, M. Robiony⁴, C. Zuiani², S. De Vita¹.
¹Rheumatology Clinic, Department of Medicine, University of Udine, c/o Azienda Sanitaria Universitaria Friuli Centrale, Udine, Italy; ²Institute of Radiology, Dipartimento di Diagnostica per Immagini, Udine, Italy; ³Institute of Anatomic Pathology, Department of Medical and Biological Sciences, Udine, Italy; ⁴Maxillofacial Surgery, Department of Specialistic Surgery, Udine, Italy

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.

REFERENCES:

- [1] Zabotti A, Zandonella Callegger S, Lorenzon M, Pegolo E, Scott CA, Tel A, et al. Ultrasound-guided core needle biopsy compared with open biopsy: a new diagnostic approach to salivary gland enlargement in Sjögren's syndrome? *Rheumatology* (Oxford) 2020.
- [2] Shiboski CH, Shiboski SC, Seror R, Criswell LA, Labetoulle M, Lietman TM, Rasmussen A, Scofield H, Vitali C, Bowman SJ, Mariette X; International Sjögren's Syndrome Criteria Working Group. 2016 American College of Rheumatology/European League Against Rheumatism Classification Criteria for Primary Sjögren's Syndrome: A Consensus and Data-Driven Methodology Involving Three International Patient Cohorts. *Arthritis Rheumatol*. 2017 Jan;69(1):35-45. doi: 10.1002/art.39859. Epub 2016 Oct 26. PMID: 27785888; PMCID: PMC5650478.

Table 1. Description of complications

Complications of US-guided CNB	
Patients presenting complications, n/N (%)	11/20 (55%)
Description of transient complications	
Swelling at biopsy site, n	2
Bleeding, n	1
Hematoma, n	1
Local Pain, n	7
Local infection, n	0
Sialocele or fistula, n	0
Anaesthesia/paraesthesia, n	0
Transient facial palsy (< 1 hour), n	1
No persistent complications reported	

All the above specified complications were transient (< 12 weeks). No persistent complications were reported in the follow up.

POST-BIOPSY COMPLICATIONS QUESTIONNAIRE

1. Did you have any swelling at biopsy site? If yes, how long? Physician control	YES NO YES NO
2. Did you have any hematoma at biopsy site? If yes, how long? Physician control	YES NO YES NO
3. Did you have any bleeding at biopsy site? If yes, how long? Physician control	YES NO YES NO
4. Did you have pain at biopsy site? If yes, choose a number from 0 to 10 to describe pain intensity If yes, how long?	YES NO
5. Did you have any local infection? Physician control	YES NO YES NO
6. Did you have any anesthesia / paresthesia in the biopsy area? If yes, how long? Physician control	YES NO YES NO
7. Did you have any sialocele or fistula in the biopsy area? Physician control	YES NO YES NO

Figure 1. Post-biopsy complication Questionnaire

Disclosure of Interests: Alen Zabotti Speakers bureau: UCB, Novartis, Janssen, Paid instructor for: Amgen, Consultant of: Janssen, Ivan Giovannini: None declared, Sara Zandonella Callegger: None declared, Valeria Manfrè: None declared, Michele Lorenzon Consultant of: not relevant for this study, Enrico Pegolo: None declared, Cathryn Ann Scott: None declared, Alessandro Tel: None declared, Massimo Robiony Consultant of: not relevant for this study, Grant/research support from: not relevant for this study, Chiara Zuiani Consultant of: not relevant for this study, Grant/research support from: not relevant for this study, Salvatore De Vita Consultant of: GSK, Roche, Grant/research support from: not relevant for this study

DOI: 10.1136/annrheumdis-2021-eular.1804

POS0736

IDENTIFICATION OF MOLECULAR PHENOTYPES AND IMMUNE CELL INFILTRATION IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS ACCORDING TO LONGITUDINAL GENE EXPRESSION

S. Song^{1,2,3}, S.X. Zhang^{1,2,3}, J. Qiao^{1,2,3}, R. Zhao^{1,2,3}, J. Shi^{1,2,3}, Y. Hu^{1,2,3}, J. Chen¹, G.Y. Liu¹, P.F. He⁴, X. Li^{1,2,3}. ¹The Second Hospital of Shanxi Medical University, Department of Rheumatology, Taiyuan, China; ²Shanxi Li Xiaofeng Medical Groups, Department of Rheumatology, Taiyuan, China; ³Ministry of Education, Key Laboratory of Cellular Physiology at Shanxi Medical University, Taiyuan, China; ⁴Shanxi Medical University, Institute of Medical Data Sciences, Taiyuan, China

Background: Systemic lupus erythematosus (SLE) is a chronic autoimmune disease with highly heterogeneous clinical presentation characterized by disease unpredictable flares and multi-systemic involvement^{1,2}. This clinical heterogeneity calls for design a molecular stratification to improve clinical trial design and formulate personalization treatment therapies.

Objectives: This research was conducted to develop a reliable method to stratify SLE patients combined gene expression information and disease status.

Methods: The mRNA expression profile of GSE138458 (contained 307 patients and 23 controls) and GSE49454 (contained 111 patients and 16 controls) were downloaded from the publicly GEO databases. After background adjustment, batch correction, and other pre-processing, obtaining a big gene matrix to identify the differentially expressed genes (DEGs) in SLE compared with healthy controls, which were screened by P value < 0.01. SLE subtypes were identified by non-negative matrix factorization (NMF) based on DEGs. Acquired signature genes in different SLE subtypes were conducted to process pathway enrichment analysis in Metascape. SLEDAI score and immune cell infiltration was also performed between subtypes by software package R (version 4.0.3).

Results: Total 1202 DEGs were imputed to NMF unsupervised machine learning method. Patients with SLE were stratified into two subsets based on 184 signature genes derived from obtained DEGs (Fig.1A, 1B). GO and KEGG enrichment analysis showed that signature genes were mainly involved in negative regulation of innate immune response, toll-like receptor signaling pathway, regulation of immune effector process and so on (Fig.1C). Patients in Sub1 group had severe disease activity measures compared with those in Sub2 (Fig.1D). SLEDAI scores from GSE49454 dataset were also higher in Sub1 compare with Sub2 (Fig.1E). Further, immune cell infiltration results revealed an insufficient of regulatory T cell, CD8 T cells and naive CD4 T cells in Sub1 and neutrophils cells in Sub2 (P<0.05) (Fig.1F).

Conclusion: Our findings indicate that patients with SLE could be stratified into 2 subtypes which had different lymphocyte status and closely related to disease activity. This phenotyping may help us understand the etiology of the disease, inform patient in the design of clinical trials and guide treatment decision.

REFERENCES:

- [1] Dornier T, Furie R. Novel paradigms in systemic lupus erythematosus. *Lancet* 2019;393(10188):2344-58. doi: 10.1016/S0140-6736(19)30546-X [published Online First: 2019/06/11].
- [2] Fanouriakis A, Tziolos N, Bertsias G, et al. Update on the diagnosis and management of systemic lupus erythematosus. *Annals of the rheumatic diseases* 2021;80(1):14-25. doi: 10.1136/annrheumdis-2020-218272 [published Online First: 2020/10/15].

Fig.1: (A) NMF consensus clustering of 418 SLE patients based on 1202 differentially expressed genes. Columns and rows represent patients and signature genes, respectively. (B) Heatmap of two clusters defined by signature genes. Colors indicate relative gene expression value, with red for high expression and blue for low expression. (C) GO and KEGG pathway enrichment analysis of signature genes indicate possibly differential pathways. (D) Disease activity distribution in the two subtypes. (E) Boxplot show the difference of SLEDAI scores among two subtypes in GSE49454. (F) Violin plot show the fraction of 22 immune cell subpopulations in two subtypes based on CIBERSORT algorithm.

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.1812

POS0737

LOW PRECONCEPTIONAL COMPLEMENT LEVEL IS RELATED WITH ADVERSE OBSTETRIC OUTCOME IN A MULTICENTRIC COHORT OF PREGNANCY IN PATIENTS WITH APS AND APL POSITIVITY

D. Lini¹, C. Nalli¹, L. Andreoli¹, F. Crisafulli¹, M. Fredi¹, M. G. Lazzaroni¹, V. Bitsadze², A. Calligaro³, V. Canti⁴, R. Caporali⁵, F. Carubbi⁶, C. Chighizola⁷, P. Conigliaro⁸, F. Conti⁹, C. De Carolis¹⁰, T. Del Ross¹¹, M. Favaro¹¹, M. Gerosa¹², A. Iuliano¹³, J. Khizroeva², A. Makatsariya², P. L. Meroni¹², M. Mosca¹⁴, P. Melissa¹⁵, R. Perricone⁸, P. Rovere-Querini¹⁶, G. D. Sebastiani¹³, C. Tani¹², M. Tonello¹¹, S. Truglia⁹, D. Zucchi¹², F. Franceschini¹, A. Tincani¹. ¹University and ASST Spedali Civili di Brescia, Rheumatology Unit, Brescia, Italy; ²I.M. Sechenov First Moscow State Medical University of the Ministry of Health of the Russian Federation (Sechenov University), Department of Obstetrics and Gynecology, Moscow, Russian Federation; ³University Hospital of Padua, Padua, Rheumatology Unit, Department of Medicine, Padua, Italy;