3) To find out the contributing factors to impaired QoL with the help of a newly developed patient reported questionnaire.

Methods: In this cross-sectional study, all consecutive adult patients with SSc, satisfying 2013 ACR/EULAR classification criteria, attending a tertiary rheumatology clinic in Western India from January 2016 to March 2017 were compared to age and sex-matched controls. A new questionnaire [Indian Systemic Sclerosis QoL questionnaire (Indian SyS-QoL)] was developed to identify the contributing factors to impaired QoL with feedback from 15 SSc patients and 11 rheumatologists. This questionnaire had 10 factors and each was scored by individual patients between 0-3 (0-no impact; 3-severe impact on QoL in previous month). Demographic data, clinical profile and relevant investigations were recorded. Patients filled Medical Outcomes Trust Short Form 36 version 2 (SF-36v2) questionnaire, Indian SyS-QoL questionnaire and Indian Health Assessment Questionnaire –(Indian HAQ).

Results: 94 SSc patients (7 males; 87 females) were compared to 100 age and sex-matched controls. QoL was significantly impaired in patients with SSc compared to healthy controls in all 8 domains of SF-36 ($p<0.001$), the finding similar to other studies (Table 1). There was no statistically significant difference in mean scores in any domain between patients with dcSSc [56 patients (59.6%)] and lcSSc [38 patients (40.4%)]; between patients with disease duration ≤5 yrs [43 patients (45.7%)] and >5 years [51 patients (54.3%)] and in those with ILD [56 patients (59.6%)] and without ILD [38 patients (40.4%)]. Two most important factors responsible for poor QoL based on Indian SyS-QoL questionnaire score (mean±SD) were 'feeling of dependency on family' (1.4±1.3) and 'cost of treatment'(1.3±1.2)(Fig 1).

Table 1:. SF-36 Scores in SSc patients among different studies:

	Present study	Frantz et al	Georges et al	Danieli et al	Cossutta et al
N	94	1902	89	76	95
SF-36v2 domain	mean±SD	mean±SD	mean±SD	median (Range)	mean±SD
Physical function	55.2±25.4	52.7±28.3	50±31	57.5 (35-80)	61.3±25.1
Role physical	53.2±32.0	35.6±40.6	40±42	50 (0-100)	39±40.3
Role emotional	62.5±30.9	54.1±44.0	46±44	66.6 (0-100)	49.1±41.2
Energy/vitality	45.7±22.9	36.1±22.0	39±22	50 (35-60)	50.3±19.7
Mental health	55.7±23.0	61.0±20.5	-	56 (38-68)	55.7±21.2
Social function	60.5±33.9	56.8±26.2	58±28	87.5 (56.2-100)	66.5±23.2
Pain	58.4±31.2	50.8±25.5	47±28	61 (41-76.5)	50.2±25.6
General health	40.3±23.6	35.7±18.4	41±22	35 (23.7-45)	40.0±20.8

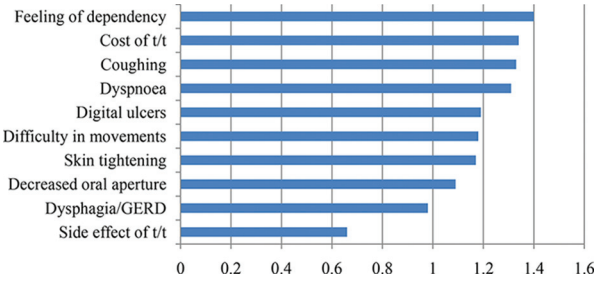

Figure 1:. Factors contributing to impaired QoL in descending order of Indian SyS-QoL mean scores:

Conclusion: This maiden study from India showed that QoL was significantly affected in patients with SSc compared to the general population; but there was no significant difference in QoL in patients with different subsets of SSc; disease duration ≤ 5 yrs and > 5 yrs, and presence or absence of ILD. The new graded scale devised to assess the impact of SSc on QoL using a simple patient-reported questionnaire showed 'Feeling of dependency' and 'cost of treatment' as the 2 most important factors affecting QoL in Indian patients with SSc. This would help direct more resources to support the patients both mentally and financially.

REFERENCES

[1] Hudson M, et al. Arthritis Rheum. 2009;61(8):1112–20.

[2] Steen VD, Medsger TA. Arthritis Rheum. 1997;40(11):1984–91.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.6180

SAT0279

MULTICENTER DOUBLE-BLIND, PROOF-OF-CONCEPT, RANDOMIZED PLACEBO-CONTROLLED TRIAL OF RIOCIGUAT IN SYSTEMIC SCLEROSIS-ASSOCIATED DIGITAL ULCERS (RESCUE)

Dinesh Khanna[1], Cathie Spino[1], Vivek Nagaraja[1], Robin Domsic[2], Robert Lafyatis[2], Viginia Steen[3], Jessica Gordon[4], Tracy Frech[5], Pei-Suen Tsou[1].

[1]University of Michigan, Ann Arbor, United States of America; [2]University of Pittsburgh, Pittsburgh, United States of America; [3]Georgetown University, DC, United States of America; [4]Hospital of Special Surgery, New York City, United States of America; [5]University of Utah, Salt Lake City, United States of America

Background: The soluble guanylate cyclase stimulator riociguat (RIO) is a vasodilator and has antifibrotic effects in animal models and efficacy in patients with pulmonary arterial hypertension associated with connective tissue diseases.

Objectives: We present results from a randomized placebo-controlled trial (NCT02915835), which evaluated the efficacy and safety of RIO in patients with systemic sclerosis-associated digital ulcers (SSc-DU).

Methods: Eligible subjects (with active or painful indeterminate DUs) were randomized in 1:1 ratio to either placebo (PLA, n = 8) or RIO (n = 9) in individualized doses (maximum of 2.5 mg three time daily) during an 8-week titration period, followed by an 8-week stable dosing period. PDE5 inhibitors were not allowed. The primary end point was the change from baseline to week 16 in net ulcer burden (NUB), analyzed using an ANCOVA model, accounting for baseline NUB. Other outcome measures included change from baseline to week 16 in the Raynaud's Condition Score (RCS), RP attack number, symptom severity during RP attack, patient global assessment, and proportion of subjects with treatment-emergent adverse events (AEs). Eleven plasma biomarkers were measured by ELISA and changes were tested using ANCOVA, after testing for normality.

Results: We randomized 17 participants with SSc-DUs between January 2017 and March 2018. Baseline characteristics were comparable between treatment groups, except participants randomized to PLA were older (mean 61 vs. 43 yrs) and had longer disease duration (mean 17.5 vs. 7.1 yrs). At baseline, the mean (SD) NUB was 2.5 (2.0) in the PLA and 2.4 (1.4) in the RIO. No significant difference was observed between RIO and PLA in change from baseline to 16 weeks in NUB [p=0.70; Table]. No significant treatment effect was observed in the secondary outcome measures. All 17 participants reported ≥1 adverse event, with the vast majority being mild or moderate. There were 4 SAEs, 3 in RIO (worsening DU, NSTEMI, and non-Hodgkin's lymphoma) and 1 in PLA (digital ischemia; none of SAE's were related to the study medication). Statistically significant elevation of cGMP was observed at 16 weeks [p=0.05]; no other biomarkers showed statistically significant changes.

Conclusion: In participants with SSc-DU, treatment with RIO did not reduce the number of NUB compared with PLA. The safety profile of RIO was similar to that previously reported. There is evidence of target engagement. The negative results may reflect small number of patients, low number of NUB at baseline, moderate-to-severe vasculopathy with long term disease, and difficulty to recruit patients in the era of widespread use of PDE5 inhibitors.

Acknowledgement: The trial was funded by Bayer, Inc as an investigator-initiated trial to the University of Michigan

Disclosure of Interests: Dinesh Khanna Shareholder of: Eicos Sciences, Inc, Grant/research support from: Bayer, BMS, Pfizer, Horizon, Consultant for: Actelion Acceleron, Arena, Bayer, BI, BMS, CSL Behring, Corbus,

	Placebo (N=8)	Riociguat (N=9)	Treatment Difference (95% CI)	p-value
Net Ulcer Burden, mean*#	-0.98	-1.22	-0.24 (-1.46 to 0.99)	0.70
Patient assessment, mean*#				
Severity of RP (0-10)	-1.41	-3.47	-2.06 (-4.63 to 0.51)	0.11
Severity of DU (0-10)	-4.00	-4.63	-0.63 (-3.68 to 2.41)	0.66
Pain during RP attack (0-100)	-7.01	-0.30	6.71 (-14.01 to 27.43)	0.49
Numbness during RP attack, mean (SD) (0-100)	-15.44	-19.73	-4.28 (-33.44 to 24.87)	0.75
Tingling during RP attack, mean (SD) (0-100)	-7.49	1.18	8.67 (-13.75 to 31.09)	0.41
Raynaud's Condition Score, mean (SD) (0-10)	-0.82	-1.15	-0.33 (-2.60 to 1.94)	0.76
Number of Raynaud's attacks per day, mean	-0.96	-1.24	-0.28 (-1.36 to 0.79)	0.57
Plasma Biomarkers, mean*				
cGMP nM	41.2	198.5	157.3 (3.1 to 311.5)	0.046

*A higher number denotes worse symptoms

Cytori, GSK, Genentech/Roche, Galapagos, Employee of: Elcos Sciences, Inc, Cathie Spino: None declared, Vivek Nagaraja: None declared, Robin Domsic Consultant for: Eicos Sciences Inc/Civi Biopharma and Boehringer-Ingelheim., Robert Lafyatis: None declared, Viginia Steen Consultant for: CSL Behring, Corbus and Bayer, Paid instructor for: Advisory Board: CSL Behring, Roach, Bayer and Reata, Jessica Gordon Grant/research support from: Corbus Pharmaceuticals
Cumberland Pharmaceuticals, Tracy Frech: None declared, Pei-Suen Tsou: None declared
DOI: 10.1136/annrheumdis-2019-eular.2122

SAT0280 ESOPHAGEAL DYSMOTILITY AND PULMONARY DISEASE IN PATIENTS WITH SCLERODERMA: A RETROSPECTIVE STUDY

Navya Kuchipudi[1], Shweta Kishore[2], Chia-Ling Kuo[3], Santhanan Lakshminarayanan[1],Ranadeep Mandhadi[1]. *[1]University of Connecticut, Rheumatology, Farmington, United States of America; [2]University of Mississippi Medical Center, Jackson, United States of America; [3]University of Connecticut, Community Medicine and Health Care, Farmington, United States of America*

Background: Systemic sclerosis (SSc) is a connective tissue disease with pulmonary involvement seen in 75% of patients and esophageal involvement in 90% of the patients. Pulmonary disease has overtaken renal disease as the leading cause of death (1). There is conflicting evidence about the association between esophageal dysmotility and lung involvement (Interstitial Lung Disease (ILD) and Pulmonary Artery Hypertension (PAH)).
Objectives: Our aim was to evaluate the relationship between esophageal dysmotility and lung disease by correlating the results of Echocardiogram and Pulmonary Function Test (PFT) with Esophageal Transit Study (ETT).
Methods: Charts of SSc patients fulfilling 2013 ACR/EULAR classification criteria seen in Rheumatology clinic from 2004 to 2015 were reviewed. Patient demographics, ETT result, FVC and DLCO data from PFT as well as pulmonary pressures from echocardiogram were collected at baseline, years 1, 3, 5 and 10. Patients were divided based on their initial ETT findings into normal and abnormal ETT groups. Using logistic regression models, we compared elevated PASP with ETT status at baseline, and years 3 and 5. Linear mixed effects model was used to adjust for covariates (disease subtype, smoking, obesity, use of immunomodulator) when analyzing PFT outcome with time period and ETT status
Results: 130 patients were identified with either Limited Cutaneous SSc (109) or Diffuse Cutaneous SSc (21) with a mean age of 52.65 years ± 12.59. ETT was normal in 67(52%) and abnormal in 63(48%) patients. Number of patients with abnormal PASP was not statistically different between the two groups (p values 0.104, 0.178, 0.653 at baseline, years 3 and 5 respectively). Likewise, the odds ratio for abnormal PASP was 2.75 in patients with abnormal ETT compared to normal ETT, but the results were not statistically significant (p: 0.428), and the odds ratio did not vary with time (p: 0.731). Sample size was too small to conduct separate longitudinal analysis for adjusted models. The mean DLCo was statistically worse in abnormal ETT patients [p value <0.0001 and 0.0004 for unadjusted and adjusted models] as were the progression rates per year for DLCo at -1.95 (p-value: 0.023) and -2.25 (p-value: 0.019) for unadjusted and adjusted models respectively. The Mean FVC was not statistically different between the two groups, although it's progression rate per year was statistically worse only in the adjusted model (p value: 0.018).
Conclusion: Esophageal dysmotility was associated with increased pulmonary involvement in the form of abnormal DLCo with worsening progression rates per year. Interestingly, neither PASP nor FVC were statistically different even though progression rate for FVC was worse in adjusted models. We postulate that the small sample size for Echo and differences in the factors determining DLCo vs. FVC and PASP explains the disparity in the results. Larger prospective trials are needed to investigate if there is a causal relationship between esophageal dysfunction and pulmonary involvement.

REFERENCE

[1] Mathai, S. C., Hummers, L. K. (2009), Survival in pulmonary hypertension associated with the scleroderma spectrum of diseases: Impact of interstitial lung disease. Arthritis & Rheumatism, 60: 569-577. doi:10.1002/art.24267

Disclosure of Interests: None declared
DOI: 10.1136/annrheumdis-2019-eular.1843

SAT0281 RELATIONSHIP BETWEEN AUTOANTIBODIES AND CYTOKINE PROFILES IN PATIENTS WITH MYOSITIS

Kazuhihiro Kurasawa, Satoko Arai, Yuta Takamura, Tomoyuki Miyao, Ayae Tanaka, Ryutaro Yamazaki, Takayoshi Owada, Reika Maezawa, Masafumi Arima. *Dokkyo Medical University, Rheumatology, Mibu, Tochigi, Japan*

Background: By autoantibodies, myositis is recently classified into subgroups with distinctive clinical features. Cytokines play critical roles in the development of the clinical features. However, it is not fully unknown whether myositis subgroups defined by autoantibodies have unique cytokine profiles.
Objectives: To clarify the relationship between cytokine profiles and autoantibodies in myositis.
Methods: Subjects were myositis patients who admitted Dokkyo Medical University and whose serum before starting therapy were available. Serum cytokine levels (IL-1a, 1b, 2, 4,5, 6, 10,12, 13,15,17, 23,IFN-g, TNF-a, IFN-a, b,IP-10 and MCP-1) in sera from the patients and controls were measured using Q-Plex™ Multiplex Arrays. Demographic and clinical data were obtained by reviewing medical record retrospectively.
Results: Subjects were 45 myositis patients with male/female; 22/23 and 59.4 years of mean age. Amyopathic dermatomyositis (ADM), classical DM and polymyositis (PM) were 21, 11 and12 cases, respectively. Autoantibodies were anti-MDA5+ in 21, anti-ARS+ in18 and anti-TIF1g+ in 5 cases. ILD and malignancy was complicated in 39 and 5 cases, respectively.
Serum cytokine levels were measured. As shown in Fig.1, IP-10 levels were increased in all types of myositis patients, but not in controls. In ant-MDA5 Ab + myositis, IL-6, IL-10, IL-15, TNF-a, IFN-a and MCP-1 levels were increased. In anti-ARS Ab+ cases, IFN-b levels were elevated as well as TNF-a and MCP-1.
Through the correlation analysis between cytokine levels, cytokine groups were identified (Fig.2). In anti-MDA5 Ab+ cases, 2 cytokine groups were identified; one includes IFN-a, IL-15, TNF-a and IL-10, and the other involved IL-6, MCP-1. Both groups connected with IP-10. In In anti-ARS

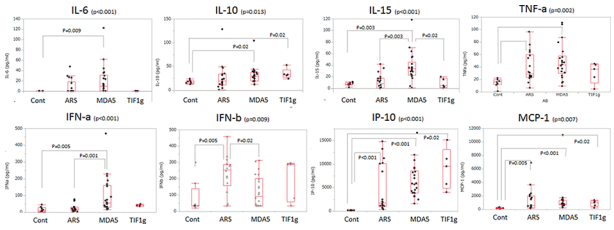

Figure 1. Serum cytokine levels in myositis

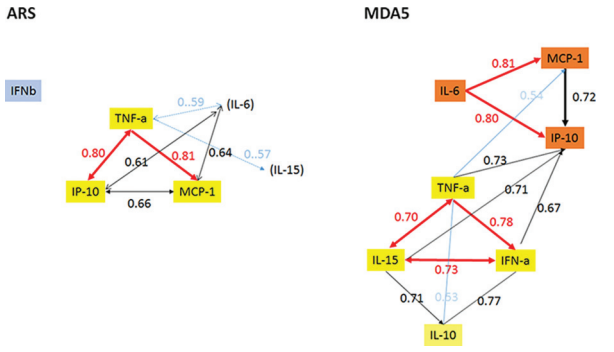

Figure 2. Cytokine networks in a-ARS ab+ and a-MDA5 ab+ myositis