Methods: We collected data from consecutive patients diagnosed with SSc according to EULAR/ACR criteria and from healthy controls (HC) matched for age and sex. Patients underwent BIVA for the assessment of fat mass (FM), free fat mass (FFM), total body water (TBW), extracellular water (ECW), body cellular mass (BCM), basal metabolic rate (BMR) and ECM/BCM ratio, an early index of protein catabolism. Data included anthropometric and clinical features, Body Mass Index (BMI) and specific organ involvement with particular attention to gastrointestinal symptoms. Laboratory parameters, including haemoglobin and albumin levels, were also collected. Additionally, patients completed the UCLA GIT 2.0 questionnaire.

Results: Data from 50 SSc patients (92% female; mean age 61.1±12.5 years; mean disease duration 13.4±10.2 years) and from 50 HC were compared. BIVA revealed that SSc patients presented a significant reduction in BMR, BCM and ECW values compared to HC ($p<0.001$ for all). The former also exhibited a higher ECM/BCM ratio ($p<0.001$). No significant differences regarding FM, FFM, TBW and BMI were found between the two groups. Among the cohort of SSc patients, a direct correlation was found between age and ECW ($p=0.001$; $\rho=0.473$) and between disease duration and FM ($p=0.023$; $\rho=0.325$), whereas age inversely correlated with BMR ($p=0.012$; $\rho=-0.357$). Patients with anaemia and/or hypoalbuminemia had significantly reduced BMR, BCM and TBW values; those with hypoalbuminemia also had elevated ECW levels ($p=0.001$). No other significant associations with BIVA values were found among the laboratory findings and among the gastrointestinal complaints. Results showed relevant interrelations between BIVA parameters and the SSc-related involvement of different organs, e.g. digital ulcers, interstitial lung disease and pulmonary arterial hypertension (See Table 1). In addition, a higher skin involvement inversely correlated with FM ($p=0.038$; $\rho=-0.387$). The only correlation that emerged from the UCLA GIT 2.0 questionnaire was the inverse relationship between TBW and GIT-reflux ($p=0.017$; $\rho=-0.385$). Four patients died during the study: they had significantly lower BMR and BCM, with an increased ECW.

Table 1.

	Ongoing digital ulcers	History of digital ulcers	Interstitial lung disease	Pulmonary arterial hypertension	Heart involvement
FM	$p=0.006$	ns	$p=0.042$	ns	ns
FFM	$p=0.019$	$p=0.046$	ns	ns	ns
TBW	$p<0.001$	ns	$p=0.007$	ns	ns
ECW	ns	ns	$p=0.015$	$p=0.004$	$p=0.02$
BCM	$p=0.01$	$p=0.047$	$p=0.016$	$p=0.013$	$p=0.03$
BMR	$p=0.002$	$p=0.036$	$p=0.004$	$p=0.015$	ns
ECM/BCM	ns	ns	$p=0.034$	ns	ns

Conclusion: BIVA has shown that SSc patients have a worse nutritional status than HC. The parameters obtained with BIVA in SSc patients correlate with serological malnutrition markers (haemoglobin and albumin), with various organ-specific SSc manifestations (cardiopulmonary involvement and digital ulcers) and with mortality. BIVA could therefore play a role in the prognostic stratification of SSc patients.

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SAT0312 SUBCLINICAL ATHEROSCLEROSIS IN SYSTEMIC SCLEROSIS AND RHEUMATOID ARTHRITIS: A COMPARATIVE MATCHED-COHORT STUDY

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Background: Systemic autoimmune inflammatory disorders confer a higher risk of cardiovascular (CV) disease leading to increased morbidity and mortality compared to the general population. CV risk in Systemic Sclerosis (SSc) has not been studied so extensively as in other diseases, such as Rheumatoid Arthritis (RA), and the real impact of CV disease on SSc prognosis remains unknown. Surrogate markers of atherosclerosis namely carotid intima media thickness (cIMT) and pulse wave velocity (PWV) are impaired in some but not all studies in SSc patients.

Objectives: The aim of the study was to investigate the prevalence of subclinical atherosclerosis assessed by cIMT and PWV between two well-characterized SSc and RA cohorts.

Methods: Consecutive SSc patients attending the Scleroderma Clinic were compared with RA patients recruited in the Dudley Rheumatoid Arthritis Co-morbidity Cohort (DRACCO), a prospective study examining CV burden in RA. Cardiovascular risk was assessed using the QRisk3 and cIMT, Augmentation Index (AIx75) and central systolic and diastolic blood pressure were measured in all participants. Propensity score matching, was utilized to select patients from the two cohorts with similar demographic characteristics, CV risk factors (smoking, hypertension, obesity, dyslipidemia, diabetes) and inflammatory load. Unpaired t-test and Chi-square test of independence were applied.

Results: Fifty five age- and sex-matched SSc and RA patients with similar distribution of CV risk factors were included. No difference was demonstrated between SSc and RA regarding cIMT and AIx75% (0.65 vs 0.61mm $p=0.17$ and 33.4 vs 31.7 $p=0.397$ respectively). However average QRisk3 score was significantly higher in the RA compared to the SSc group ($P<0.05$).

Conclusion: The results of this comparative study show that subclinical atherosclerosis is comparable between individuals with SSc and RA, a systemic disease with well-defined high atherosclerotic burden. RA patients have higher CV risk (QRisk3 algorithm) suggesting that disease-specific factors such chronic high-grade inflammation may influence the CV risk in this population.

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Table 1. Demographic and cardiovascular risk factors of the matched patients

	RA N=55	SSc N=55	P
Age	63.6 (14.8)	61.3 (10.9)	0.140
Female	49 (89.1%)	53 (96.4%)	0.438
Smoking	10 (18.2%)	13 (23.6%)	0.5
Diabetes	0 (0.00%)	1 (1.82%)	0.364
Hyperlipidemia:	7 (12.7%)	6 (10.9%)	1.000
Hypertension:	23 (41.8%)	19 (34.5%)	0.441
ESRD	20.4 (18.4)	22.0 (19.1)	0.666
CRP	8.38 (11.6)	6.65 (30.2)	0.692

Table 2. Comparison of IMT, AIx75, Framingham and QRISK3 between matched patients

	RA N=55	SSc N=55	P
IMT right average	0.65 (0.17)	0.61 (0.12)	0.175
IMT left average	0.67 (0.15)	0.64 (0.13)	0.214
IMT average	0.66 (0.14)	0.63 (0.10)	0.137
AIx 75% (%)	33.4 (9.23)	31.7 (10.8)	0.397
Framingham risk			< 0.001
< 10%	9 (31.0%)	37 (74.0%)	
10 – 20%	12 (41.4%)	9 (18.0%)	
20 – 30%	3 (10.3%)	4 (8.00%)	
>30%	5 (17.2%)	0 (0.00%)	
QRISK3	18.2 (15.3)	11.1 (10.6)	0.006

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SAT0313 CORRELATION BETWEEN PROGRESSION OF SKIN FIBROSIS AND PROGRESSION OF INTERSTITIAL LUNG DISEASE (ILD) IN PATIENTS WITH SSC-ILD: DATA FROM THE SENSIS TRIAL

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Background: In the SENSICIS trial in patients with SSc-ILD, nintedanib reduced the rate of decline in FVC over 52 weeks vs placebo, with no difference between groups in change in mRSS.

Objectives: Analyse correlation between progression of skin fibrosis and progression of SSc-ILD in the SENSICIS trial.

Methods: Patients with SSc-ILD were randomised to receive nintedanib or placebo until the last patient reached week 52 but for ≤ 100 weeks. We calculated Spearman correlation coefficients between FVC (mL) at baseline and change from baseline in mRSS, mRSS at baseline and change from baseline in FVC (mL), and changes from baseline in mRSS and FVC at weeks 52 and 100 in all patients. We analysed the rate of decline in FVC (mL/year) in patients who did and did not have progression of skin fibrosis (relative change from baseline in mRSS $>25\%$ and absolute change from baseline >5 points) at week 52.

Results: In the nintedanib ($n=288$) and placebo ($n=288$) groups, respectively, mean (SD) baseline FVC (mL) was 2459 (736) and 2541 (816) and mRSS was 11.3 (9.2) and 10.9 (8.8); 53.1% and 50.7% had dcSSc; 18.4% and 16.0% had progression of mRSS at week 52. No meaningful correlations were observed in analyses between mRSS and FVC (Table). The mean (SE) annual rate of decline in FVC in the placebo group was similar in patients who did and did not have progression of mRSS (-95.2 [27.1] and -91.4 [15.7] mL/year, respectively). The effect of nintedanib vs placebo on reducing the rate of decline in FVC was numerically more pronounced in patients who did not have progression of mRSS vs those who did (difference [95% CI] 44.3 mL/year [0.6, 88.1] vs 24.6 [-53.7, 102.9]), but the interaction p -value (0.66) did not indicate heterogeneity in treatment effect between subgroups.

Conclusion: In the SENSICIS trial, the proportion of patients who had progression of skin fibrosis over 52 weeks was low, without significant differences between placebo and nintedanib. No meaningful correlations were observed between skin fibrosis at baseline or progression of skin fibrosis and progression of SSc-ILD. The rate of decline in FVC was similar between patients who did and did not have progression of mRSS. These findings suggest that in the overall patient population in the SENSICIS trial, progression of skin fibrosis and progression of ILD were distinct manifestations of disease progression.

Table:

	FVC at baseline and change from baseline in mRSS		mRSS at baseline and change from baseline in FVC		Changes from baseline in mRSS and FVC	
	N	Correlation*	N	Correlation*	N	Correlation*
Week 52						
Nintedanib	247	0.11 (-0.01, 0.23)	241	-0.08 (-0.20, 0.05)	238	-0.07 (-0.19, 0.06)
Placebo	254	0.12 (-0.00, 0.24)	257	-0.15 (-0.27, -0.03)	252	0.03 (-0.09, 0.15)
Week 100						
Nintedanib	73	0.21 (-0.02, 0.42)	73	-0.06 (-0.29, 0.17)	70	0.06 (-0.17, 0.30)
Placebo	66	0.28 (0.04, 0.49)	73	0.04 (-0.19, 0.27)	66	-0.14 (-0.37, 0.10)

*Spearman correlation coefficient (95% CI)

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SAT0314

TIMED FUNCTION TESTS ARE AN ALTERNATIVE TO MMT8 AND FI-2 IN INFLAMMATORY MYOSITIS - AN OBSERVATIONAL COHORT STUDY

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Background: Inflammatory myositis are heterogenous group of diseases affecting skeletal muscles and multiple different organs¹. Manual muscle testing (MMT) is the common tool used for assessment of muscle strength. Its limitations include poor sensitivity to change, floor/ceiling effect, and under representation of certain important muscle groups². Functional index 2(FI-2) is an objective measure of dynamic repetitive muscle function at 11 proximal and distal muscle groups which correlates well with patient-reported physical function³. Since MMT8 is inadequate and FI-2 takes longer time to administer, several timed tests to assess muscle function, endurance and fatigability like the 2- minute walk test (2MWT) or 30s raise from a chair test and 30s arm rise test are viable alternatives to be tested. Data looking at the performance of these tests are limited to small controlled studies.

Objectives: To study correlation of timed tests with MMT8 and FI-2 in assessing muscle strength, endurance at baseline and at 3 months of therapy.

Methods: An observational cohort study, included 19 patients with polymyositis and dermatomyositis attending OPD and IPD service of tertiary center. Patients with inclusion body myositis, overlap myositis, chronic kidney disease, coexisting myocarditis, sepsis, malignancy, pregnancy were excluded. MMT8, FI-2 and Timed function tests were done at baseline and after 3 months.

Results: The study had 19 patients of which 6 were polymyositis and 13 were dermatomyositis. Male to female ratio was 1:2.1. Anti-cell antibody was positive in 16 patients. The mean MMT8 of the study group at baseline was 60.84 $\pm$ 16.77 and after 3 months was 67.05 $\pm$ 11.7. Out of 19 patients, all received prednisolone as induction agent followed by Methotrexate in 13, cyclophosphamide in 9, azathioprine in 5, Rituximab by one patient. Mean scores of 30s arm lift, 30s rise from chair test and 2min walk test were 11.7 $\pm$ 6.39, 14 $\pm$ 7.29, 101.5 $\pm$ 46.48 respectively at baseline and 13.05 $\pm$ 6.5, 15.6 $\pm$ 7.1, 117.84 $\pm$ 38.4 after 3 months.