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THU0331

INTERSTITIAL LUNG DISEASE IN SYSTEMIC SCLEROSIS: DECLINE IN FORCED VITAL CAPACITY DOES NOT PREDICT FURTHER PROGRESSION IN THE FOLLOWING PERIOD

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Background: In systemic sclerosis (SSc) patients with interstitial lung disease (ILD) approximately 30% show progressive ILD. It is unknown whether a progressive ILD period is followed by further lung function decline. In clinical practice, treatment is frequently initiated after observation of lung function decline over 6-12 months and lung function stabilization at follow up is often interpreted as treatment effect.

Objectives: Assess the predictive ability of lung function decline over 12 months for further deterioration adjusted for known risk factors for ILD and treatment in two large and well characterized SSc cohorts.

Methods: Patients with SSc-ILD by HRCT, fulfilling SSc classification criteria, from the Oslo and Zurich University Hospital were included. The first period with three consecutive annual forced vital capacity (FVC) measurements (i.e. at 0, 12 and 24 months, +/- 3 months) was used. Lung function decline was assessed by absolute changes in FVC% predicted. Moderately progressive ILD was defined as FVC decline of >5-10% and significantly progressive ILD as FVC decline $\geq 10\%$ in 12 months. Candidate predictors by experts (including SSc subtype, autoantibodies, disease duration, baseline and FVC decline in the first period, extent of lung and skin (mRSS) fibrosis, CRP, reflux, tendon friction rubs, O₂ desaturation, dyspnea) for FVC decline in the second period were tested using logistic regression analysis. Treatment included low dose corticosteroids, mycophenolate mofetil; and other immunosuppressive treatment (cyclophosphamide, Rituximab and Tocilizumab).

Results: In total, 240 SSc-ILD patients met the inclusion criteria (table). Of these 69 (29%) SSc-ILD patients showed progressive ILD in the first 12 months period; 34 (14%) with moderate (5-10%) and 35 (15%) with significant FVC decline ($\geq 10\%$). Independent of FVC changes in the first period, 77 (32%) showed progressive ILD in the second period; 44 (18%) moderate and 33 (14%) significant FVC decline. Only 21 (9%) SSc-ILD patients had two progressive periods, and 115 (48%) were stable in the two 12 month's periods; all independent of treatment. In multivariable logistic regression, progressive ILD in the first period (moderate, significant or combined FVC decline) was not predictive for progression in the following period. Of all applied risk factors, only mRSS was significantly predictive for further FVC decline, also when adjusted for age, gender and treatment (OR 1.03, 95%CI 1.00-1.08, $p=0.035$).

Conclusion: Decline of FVC in one 12 months period did not predict further ILD progression in the following 12 months independent of treatment. These results have important clinical implications. Firstly, a decline of lung function in one period seems not to be the right indicator for initiating treatment. Secondly, stabilization of lung function under treatment initiated after ILD progression cannot

necessarily be interpreted as a treatment response on the individual patient level.

Table:

	First period		Both periods	
	SSc-ILD (n=240)	ILD progression (n=69)	ILD progression (n=21)	Stable ILD (n=115)
Age, years (SD)	48 (14.7)	49 (13.8)	50 (14.3)	46 (15.3)
Male, n (%)	57 (24)	18 (26)	5 (24)	27 (24)
Disease duration yrs, mean (SD)	10.2 (11.4)	9.8 (10.2)	8.8 (11.0)	10.8 (12.3)
Disease duration <3 years, n (%)	68 (28)	22 (32)	8 (38)	29 (25)
Diffuse cutaneous SSc, n (%)	95 (40)	30 (44)	11 (52)	43 (27)
Anti-topoisomerase I Ab, n (%)	84 (35)	27 (40)	9 (43)	42 (37)
mRSS, mean (SD)	10 (9.3)	11 (10.2)	16 (13.0)	8 (8.3)
CRPml, mean (SD)	3.6 (7.2)	3.3 (6.2)	4.4 (9.1)	3.1 (5.1)
GERD, n (%)	148 (62)	44 (64)	15 (74)	70 (61)
FVC % predicted	90 (20.3)	90 (21.9)	92 (21.7)	89 (19.3)
DL _{CO} % predicted	64 (17.9)	64 (16.6)	70 (11.3)	65 (17.5)
Lung fibrosis >20%, n (%)	55 (23)	16 (23)	4 (19)	27 (24)
Mycophenolate Mofetil, n (%)	47 (20)	15 (22)	5 (24)	23 (20)
Other immunosuppression, n (%)	79 (33)	22 (32)	9 (43)	42 (37)
Corticosteroids, n (%)	62 (26)	18 (26)	8 (38)	28 (24)

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THU0332

ULTRASONOGRAPHIC EVALUATION FOR SALIVARY GLAND INVOLVEMENT IN SYSTEMIC SCLEROSIS

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Background: While salivary gland ultrasound (SGUS) has widely used for evaluating Sjögren's syndrome, information on SGUS findings of systemic sclerosis (SSc) is limited.

Objectives: We aimed to evaluate the salivary gland involvement in patients with SSc using SGUS.

Methods: We consecutively included patients with SSc fulfilling American College of Rheumatology/European League against Rheumatism (ACR/EULAR) 2013 classification criteria, primary Sjögren's syndrome (pSS) fulfilling ACR/EULAR 2016 classification criteria, and idiopathic sicca syndrome. All patients underwent SGUS examination using the Outcome Measures in Rheumatology (OMERACT) definition of a SGUS scoring system. The hyperechoic bands using 0-3 scoring system (none/<25% of the parenchyma/25-50% />50%) and intraglandular power Doppler signal (PDS) were assessed. Hocevar scoring system (0-48) comprising parenchymal echogenicity, homogeneity, hypoechoic areas, hyperechoic reflections, and clearness of posterior borders were also evaluated.

Results: A total of 147 patients were included in the study: SSc (n=59), pSS (n=56), and idiopathic sicca syndrome (n=32). The proportion of the highest OMERACT grades among the four glands ≥ 2 were significantly higher in SSc

(54.2%) and pSS (62.5%) than idiopathic sicca syndrome (3.1%). Total OMERACT SGUS scores, total fibrosis scores, Hoyer score were significantly higher in SSc and pSS compared to idiopathic sicca syndrome (Table 1). The proportion of the highest fibrosis grades among the four glands ≥ 2 were significantly higher in SSc (79.7%) than pSS (62.5%) and idiopathic sicca syndrome (46.9%). There were no significant differences in PDS among 3 groups. Twenty-one patients (65.6%) of 32 SSc patients with OMERACT grade ≥ 2 were anti-centromere antibody (ACA)-positive compared with 9/27 (33.3%) SSc patients with scores of 0–1. The positivity of anti-Ro-60/SSA were also significantly higher in SSc patients with SGUS grade ≥ 2 (37.5%) than those with SGUS scores of 0–1 (3.7%). In SSc group, there was no significant difference in auto-antibody profile and organ involvement between patients with fibrosis scores ≥ 2 and those with scores 0–1.

Table 1. Characteristics of the study population included in the study

	SSc (n =59)	pSS (n =56)	Idiopathic sicca syndrome (n =32)	P- value (SSc vs pSS)	P- value (SSc vs idiopathic sicca)	P- value (pSS vs idiopathic sicca)
Age, mean (SD), years	54.8 (12.1)	60.5 (11.9)	62 (11.2)	0.013	0.006	0.559
Female, n (%)	53 (89.8)	56 (100)	28 (87.5)	0.028	0.737	0.015
Anti-Ro-60/SSA, n (%)	13 (22.0)	39 (69.6)	7 (21.9)	<0.001	0.986	<0.001
ACA, n (%)	30 (30.8)	8 (14.3)	2 (6.3)	<0.001	<0.001	0.238
Anti-topoisomerase, n (%)	16 (27.1)	0 (0)	0 (0)	<0.001	<0.001	1.000
Max OMERACT US grade ≥ 2 , n (%)	32 (54.2)	35 (62.5)	1 (3.1)	0.369	<0.001	<0.001
Total SGUS scores, median (IQR)	4.0 (6)	7.0 (8)	0 (1)	0.231	<0.001	<0.001
Max fibrosis US grade ≥ 2 , n (%)	47 (79.7)	35 (62.5)	15 (46.9)	0.042	0.004	0.263
Total fibrosis scores, median (IQR)	6 (3)	6 (6)	4 (4)	0.674	<0.001	0.006
PDS sum scores of four salivary glands, median (IQR)	2 (5)	0 (4)	0 (2)	0.131	0.152	1.000

Conclusion: Based on OMERACT definitions for SGUS, more than half of the patients with SSc, especially those with ACA, had salivary gland involvement. Salivary glandular fibrosis is more prominent in patients with SSc than those with pSS and idiopathic sicca syndrome.

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THU0333

CARDIOVASCULAR COMORBIDITIES ARE COMMON IN RHEUMATOID ARTHRITIS PATIENTS WHO PRACTICE LESS PHYSICAL ACTIVITY AND WHO HAVE WORSE FUNCTIONAL CAPACITY.

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Background: Patients with rheumatoid arthritis have more cardiovascular comorbidities which contributes to hospitalization and mortality.

Objectives: This study aims to investigate whether there is an association between cardiovascular comorbidities in RA with subgroup of patients and clinical findings of the disease

Methods: This study is a cross-sectional part of Rheumatoid Arthritis in Real Life (REAL), which is a multicenter prospective study conducted in Brazil, involving 13 centers specialized in the care of patients with RA. All subjects met the ARA (1987) or ACR/EULAR (2010) RA classification criteria. Subjects were submitted to clinical interview with physical exam and review of medical

records. A sample of 1116 patients was selected for convenience. The association between cardiovascular comorbidities (systemic arterial hypertension (HA), diabetes mellitus (DM) type2, dyslipidemia, stroke and heart failure), the clinical characteristics and laboratory parameters of RA was evaluated through chi-square hypothesis tests, Student's t-test, Fischer exact test, correlations test and ANOVA. Also, correction Bonferroni test was used for multiple comparisons. Differences were considered statistically significant only when $p \leq 0.05$.

Results: 89% of the patients were female, with a mean age of 58 years. 62% of patients with RA had comorbidities, with HA the most prevalent. There were statistically significant association between cardiovascular comorbidities with age (61.71 $\pm$ 9.69years old vs 53.03 $\pm$ 12.10) ($p < 0.001$), lower educational level (n=282 $\pm$ 66.5vs 143 $\pm$ 33.5) ($p < 0.001$), lower physical activity (n=132 $\pm$ 73.3 vs 48 $\pm$ 26.7) ($p < 0.001$), disease duration (18.5 $\pm$ 9.75 years vs 14.4 $\pm$ 8.61) ($p < 0.001$), positive anti-CCP test (60.5% vs 39.5%) ($p = 0.027$), high clinical disease activity index CDAI (65.9%vs 34.1%) ($p < 0.001$), DAS28VHS (3.72 $\pm$ 1.46 vs 3.45 $\pm$ 1.58) ($p = 0.008$) and HAQ score (1.00 $\pm$ 0.76) vs 0.83 $\pm$ 0.77 ($p < 0.001$).

Conclusion: The frequency of cardiovascular comorbidities is high in RA patients and is associated with age, disease duration and positive anti-CCP test. It is also important to see that these comorbidities are more common in patients with lower frequency of physical activity and lower functional capacity, higher disease activity score and lower level of education. Better control of disease activity and extensive information to patients about the importance of exercise should be parallel objectives in RA.

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