IIM MAA	MSA	ILD	Arthritis	Arthralgia	Myositis	Raynauds	Cutaneous	Malignancy	Final diagnosis	Treatment Outcome
	NXP2				+		+		Dermatomyositis Myasthenia gravis	Prednisolone + IVIG Remission/stable +Azathioprine + pyridostigmine
ILD Ro52	MDA5 SAE1 PL12 PL12 SAE1/ OJ EJ PL12	+		+	+		+		Amyopathic dermatomyositis Dermatomyositis IPF IPF IPF	Prednisolone + MTX Remission/stable Prednisolone + MTX Remission/stable No medication Remission/stable Prednisolone Died No medication Lost follow-up
Ro52	PL7	+	+	+		+	+		IPF Interstitial pneumonia with autoimmune feature (IPAF) Anti-synthetase syndrome	No medication Remission/stable Under evaluation Remission/stable
	PL7	+			+				Anti-synthetase syndrome	Prednisolone + cyclophosphamide Remission/stable then azathioprine Prednisolone + Remission/stable
Ro52	JO-1 JO-1	+				+			Anti-synthetase syndrome Anti-synthetase syndrome	Rituximab No medication Remission/stable Prednisolone + MMF Remission/stable then rituximab
CTD	SAE1/	+						+	Progressive pulmonary fibrosis (post COVID, ARDS and recurrent aspiration) Esophageal Ca T1N2M0 s/p esophagectomy Limited cutaneous scleroderma Sjogren MCTD	Antibiotics + supportive care Remission/stable
Ro52 Others U1snRNP/ Ro52	SRP SRP EJ OJ			+	+	+	+		Autoimmune hepatitis	Nifedipine Remission/stable HCQ Remission/stable Prednisolone+ Remission/stable Azathioprine+HCQ
ku	NXP2 Mi2b			+	+				Polymyalgia rheumatica large vessel vasculitis	Prednisolone Remission/stable Prednisolone+ Remission/stable Tocilizumab
	PL12 Mi2b		+	+			+		PsA PBC	MTX Remission/stable Ursodeoxycholic acid Remission/ stable

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AB0405 FIBROBLAST GROWTH FACTOR-23 IS ASSOCIATED WITH HIGH-DENSITY LIPOPROTEIN IN SYSTEMIC SCLEROSIS PATIENTS

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Background: Systemic sclerosis (SSc) is characterized by calcification, vasculopathy, and endothelial wall damage, all of which can increase the risk for atherosclerosis and cardiovascular disease. Mechanisms by which atherosclerosis is promoted in connective tissue diseases remain unknown, but is believed to be secondary to chronic inflammation, altered lipid profiles and function, autoantibodies, and endothelial dysfunction. Fibroblast growth factor-23 (FGF23) is a circulating regulator of phosphate and vitamin D metabolism and has been implicated as a putative pathogenic factor in cardiovascular disease. FGF23 could exert hormonal control on fat mass and glucose metabolism, since it shares structural similarities with the other FGF subfamily members (FGF15/19 and FGF21) that are involved in carbohydrate and lipid metabolism.

Objectives: The objectives of this study were: to compare serum FGF23 levels between SSc patients and healthy controls and to investigate possible associations between FGF23 and serum lipid profile in SSc patients.

Methods: This cross-sectional study was performed in San Cecilio Hospital, Granada (Spain) from November 2017 to May 2019. Sixty-two women with SSc and 62 age and sex matched healthy controls were enrolled in this study. All patients included in this study had normal serum creatinine (Cr) levels and met the 2013 American College of Rheumatology/European League Against Rheumatism (ACR/EULAR) criteria for SSc. Total cholesterol and triglyceride levels were determined by fully enzymatic techniques. High-density lipoprotein (HDL) was determined after precipitation of apolipoprotein B (apoB)-containing lipoproteins with magnesium sulfate and dextran sulfate. Low-density lipoprotein (LDL) was calculated using the Friedewald formula. Serum FGF23 was analyzed using ELISA.

Results: A total of 62 female patients were included in our study, with a mean (SD) age of 53 ± 10 years. The majority were Caucasian (90.5%). The mean disease duration was 8.8 ± 6.9 years. Forty-four (70.9%) patients had a limited form of the disease and 18 (29.1%) had a diffuse form.

There was no significant differences in FGF23 levels between the patients and controls (78.2 ± 60.5 vs. 80.3 ± 56.3 pg/mL, $p = 0.662$), but we found a statistically significant inverse relationship between FGF23 and HDL-c measurements ($r = -0.27$; $p = 0.03$) in women with SSc. In addition, in the linear regression model, higher FGF23 concentrations were associated with lower HDL-c [$\beta = -1.45$ 95% CI (-2.81, -0.08); $p < 0.05$].

Conclusion: We report an association between circulating FGF23 and HDL-c in SSc female patients, representing a novel pathway linking high FGF23 to an increased cardiovascular risk.

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AB0406 ASSOCIATION OF ENDOTHELIN-1 WITH PULSE WAVE VELOCITY IN SYSTEMIC SCLEROSIS PATIENTS

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Background: Systemic sclerosis (SSc) is a multisystemic disease featured by vascular and immunological disorders along with an excessive accumulation of the components of the connective tissue that cause cutaneous sclerosis and

fibrosis of different organs. The occurrence of endothelial dysfunction together with fibrosis indicates that endothelial cell-derived factors, such as endothelin-1 (ET-1), may have an important role in the pathogenesis of SSc. The upregulation of ET-1 activates inflammatory cells and leads to nitric oxide synthase inhibition associated with arterial stiffness.

Objectives: The purpose of this study was to evaluate ET-1 serum levels in women with systemic sclerosis (SSc) compared with healthy controls and to examine possible associations between ET-1 and markers of arterial stiffness.

Methods: This cross-sectional study was performed in San Cecilio Hospital, Granada (Spain) from November 2017 to May 2019. Sixty-two women with SSc and 62 age and sex matched healthy controls were enrolled in this study. Pulse Wave Velocity (PWV) was measured non-invasively along the carotid-femoral arterial segment. Serum ET-1 was analysed using indirect enzyme-linked immunosorbent assay (ELISA).

Results: A total of 62 female patients were included in our study, with a mean (SD) age of 53 ± 10 years. The majority were Caucasian (90.5%). The mean disease duration was 8.8 ± 6.9 years. Forty-four (70.9%) patients had a limited form of the disease and 18 (29.1%) had a diffuse form.

There was a significant difference in ET-1 serum levels between SSc female patients and healthy controls (28.4 ± 10.6 vs. 21.1 ± 11.7 pg/ml, $p = 0.001$). Serum levels of ET-1 were positively associated with PWV ($r = 0.26$, $p < 0.05$), within the study group. In addition, in the linear regression model, higher ET-1 concentrations were associated with higher PWV [$\beta = 0.03$ 95% CI (0.001, 0.060); $p < 0.05$].

Conclusion: This study shows that ET-1 serum levels are associated with PWV in women with SSc. Therefore, drugs that block ET-1 may be effective in reducing large artery stiffness in women with SSc, and thus cardiovascular risk.

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AB0407

CARDIOVASCULAR BURDEN IN SYSTEMIC SCLEROSIS: QRISK3 VERSUS FRAMINGHAM FOR RISK ESTIMATION

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Background: Cardiovascular (CV) diseases, namely myocardial infarction and stroke, are not among the most known and frequent complications of systemic sclerosis (SSc), but there is growing evidence that SSc patients have a higher prevalence of CV diseases than the general population [1].

Objectives: To compare two algorithms for CV risk estimation in a cohort of patients with SSc, finding any correlation with clinical characteristics of the disease.

Methods: SSc patients without previous myocardial infarction or stroke were enrolled. Traditional CV risk factors, SSc-specific characteristics and ongoing therapies were assessed. Framingham and QRISK3 algorithms were then used to estimate the risk of develop a CV disease over the next 10 years.

Results: Fifty-six SSc patients were enrolled. Framingham reported a median risk score of 9.6% (IQR 8.5), classifying 24 (42.9%) subjects at high risk, with a two-fold increase of the mean relative risk in comparison to general population. QRISK3 showed a median risk score of 15.8% (IQR 19.4), with 36 (64.3%) patients considered at high-risk. Both algorithms revealed a significant role of some traditional risk factors and a noteworthy potential protective role of endothelin receptor antagonists ($p=0.003$). QRISK3 was also significantly influenced by some SSc-specific characteristics, as limited cutaneous subset ($p=0.01$), interstitial lung disease ($p=0.04$) and non-ischemic heart involvement ($p=0.03$), with the first two that maintain statistically significance in the multivariate analysis ($p=0.02$ for both).

Conclusion: QRISK3 classifies more SSc patients at high-risk to develop CV diseases than Framingham, and it seems to be influenced by some SSc-specific characteristics. If its predictive accuracy were prospectively verified, the use of QRISK3 as a tool in the early detection of SSc patients at high CV risk should be recommended.

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AB0408

SYSTEMIC SCLERODERMA AND ENVIRONMENTAL RISK FACTORS: IDENTIFYING ASSOCIATIONS MINING THE BIOMEDICAL LITERATURE

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Background: A debate still exists concerning the role of occupational and environmental factors in the pathogenesis of systemic scleroderma (SSc).

Objective: Our aim was to explore associations between SSc and environmental factors utilizing an automatic semantic interpretation of PubMed results.

Methods: The literature search string: ("systemic sclerosis" OR "scleroderma") AND ("occupational exposure" OR "environmental" OR "risk factor") was used to retrieve abstracts from the entire PubMed database, using Semantic MEDLINE 2, on 6/14/2020. This application represents a network of semantic predications (triples of the form subject-predicate (or relation) -object, e.g. Occupational Exposure causes Systemic Scleroderma) on a knowledge graph. Subject and object arguments of each predication are concepts from the Unified Medical Language System (UMLS) Metathesaurus and the relation is taken from the UMLS Semantic Network. The system allows for choosing the central topic ("Systemic Scleroderma"), the length of the network (3 nodes), and automatic summarization, eliminating the less informative predications.

Results: The search string retrieved 864 citations and identified 6,397 predications by using 34 types of relations. Initially, we focused our attention on the 'CAUSES' type of relation (Figure 1), displaying a network with 59 nodes and 57 edges.

The central concepts of this network, identified as having causal relationship with SSc are autoimmune diseases/autoimmunity, chemicals such as bleomycin, occupational and environmental exposure, especially silica, vinyl chloride and trichloroethylene, genes, including HLA and non-HLA genes, genetic polymorphisms, transcription factors (TFs) such as Flt1 and KLF5, and fibrosis. Eosinophilia-myalgia syndrome, toxic oil syndrome and infection were all causally linked to autoimmune diseases. Minerals were associated with occupational exposure and with autoimmune diseases. Concepts causally linked to fibrosis were rare diseases, HLA genes, other non-HLA genes, such as STAT4, IR4, IR5, TLR4, TLR7 and Rho-associated Kinase, and vinyl chloride monomer. Pathogenic factors associated with SSc were endothelial dysfunction and extracellular matrix proteins. Many of the papers in the network also suggested that hormonal factors are involved.

Conclusion: Inspection on the knowledge graphs reveals concepts central to research on the etiopathogenesis of SSc. The relations in which these concepts participate, provide more specific information. The Semantic MEDLINE graph supports the kind of patterns that underpin literature-based discovery.

Although the pathogenesis of SSc remains elusive, it is accepted that initial vascular damage driven by autoimmunity and environmental factors causes abnormalities in the vasculature resulting in the activation of fibroblasts in various organs. Silica and solvents such as trichloroethylene seem to be the most consistently suspected environmental agents in SSc.

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Figure 1. Semantic Network of Casual Relationships of Systemic Scleroderma.