References:

- [1] Hughes M, Herrick AL. Digital ulcers in systemic sclerosis. *Rheumatology (Oxford)* 2017;56 (1):14–25.
- [2] Kowal-Bielecka O, Fransen J, Avouac J et al. Update of EULAR recommendation for the treatment of systemic sclerosis. *Ann Rheum Dis* 2017;76(8):1327–39.

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SAT0319

SUBCLINICAL ATHEROSCLEROSIS IN INDIAN PATIENTS WITH SCLERODERMA – CLINICAL AND SEROLOGICAL ASSOCIATIONS

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Background: Scleroderma has been associated with increased risk of cardiovascular events, however, studies on this from India are sparse. We evaluated clinical and serological factors associated with subclinical atherosclerosis in Indian patients with scleroderma, in a cross-sectional design.

Objectives: To compare carotid intima-medial thickness (CIMT, mean value of both carotids) as a measure of subclinical atherosclerosis (SCA) between patients with scleroderma (n=61) fulfilling 2013 ACR/EULAR criteria, and healthy controls (n=41).

- To compare clinical (body mass index – BMI, waist-hip ratio – WHR, fasting lipid profile) and serological factors (microparticles, endothelial microparticles, inflammatory cytokines associated with increased cardiovascular risk) between patients with scleroderma and healthy controls.

- To identify factors associated with SCA in scleroderma patients.

Methods: Subclinical atherosclerosis (SCA) was defined by presence of carotid plaques, or increased CIMT >2 standard deviations compared with Indian reference standards for age and sex. Total microparticles (TMP) were measured of plasma after ultracentrifugation as per previously described protocol using microbeads of 3 µm size (TMP were of size 0.1–1 µm); of these, microparticles positive for CD31 and CD142 were endothelial microparticles (EMP). Serum cytokines (IL-1, IL-6, TNF-α, IL-17) were measured by ELISA using manufacturer instructions. Linear regression was used to identify the determinants of CIMT in scleroderma. Binomial logistic regression was used to identify factors associated with subclinical atherosclerosis in scleroderma.

Variable	Patients with scleroderma (n=61)	Healthy controls (n=41)	p value
Age	37.8 ± 11.92	35.37 ± 6.69	0.2375
Gender (M:F)	11:50	6:35	0.6516
Diabetes/Hypertension/Tobacco use	1/2/0	0/0/0	NS
Body mass index (kg/m ²)	20.11 ± 3.82	24.38 ± 4.45	<0.0001
Waist-hip ratio	0.86 ± 0.11	0.89 ± 0.07	0.1251
Total cholesterol (mg/dL)	142.5 ± 30.7	147.3 ± 39.5	0.4948
Triglycerides (mg/dL)	99.4 ± 37	121.4 ± 46	0.0087
HDL cholesterol (mg/dL)	46.9 ± 4.9	46.1 ± 4.2	0.4029
LDL cholesterol (mg/dL)	93.6 ± 10.5	93.3 ± 7.5	0.8520
VLDL cholesterol (mg/dL)	19.9 ± 7.4	24.7 ± 9.7	0.0057
Carotid intima-medial thickness (mm)	0.68 ± 0.10	0.53 ± 0.03	<0.0001
Total microparticles (per ±L)	12913 ± 2493	6272 ± 1533	<0.0001
Endothelial microparticles (per ±L)	2623 ± 1032	829 ± 439.5	<0.0001
Serum IL-1± (pg/mL)	38.19 ± 13.46	31.38 ± 18.29	0.0326
IL-6 (pg/mL)	176.6 ± 85.74	128.9 ± 53.61	0.0020
IL-17 (pg/mL)	56.3 ± 20.45	53.89 ± 20.51	0.5611
TNF± (pg/mL)	49.65 ± 26.71	42.09 ± 30.41	0.1879

Results: Despite lower BMI, triglycerides and VLDL cholesterol, CIMT was significantly higher in patients with scleroderma. Patients with scleroderma had significantly higher total microparticles and endothelial microparticles in plasma, and serum IL-1± and IL-6 (Table 1). On multivariable regression, age was the only significant determinant of CIMT. 28 (45.9%) patients had SCA; 13 (21.3%) had carotid plaques. Patients with SCA had higher proportion of males (9/28 in

those with SCA vs 2/33 in those without SCA). Binomial logistic regression did not identify any other significant predictors of SCA.

Table 1. Comparison between patients with scleroderma and healthy controls

Serum IL-1± (pg/mL)	38.19 ± 13.46	31.38 ± 18.29	0.0326
IL-6 (pg/mL)	176.6 ± 85.74	128.9 ± 53.61	0.0020
IL-17 (pg/mL)	56.3 ± 20.45	53.89 ± 20.51	0.5611
TNF± (pg/mL)	49.65 ± 26.71	42.09 ± 30.41	0.1879

Conclusion: Patients with scleroderma had significant burden of subclinical atherosclerosis, which could not be explained by traditional or novel cardiovascular risk factors.

References:

- [1] Psarras A, Soulaïdopoulos S, Garyfallos A, Kitis G, Dimitroulas T. A critical view on cardiovascular risk in systemic sclerosis. *Rheumatol Int*. 2017 Jan; 37(1):85–95.
- [2] Jung C, Drummer K, Oelzner P, Figulla HR, Boettcher J, Franz M, et al. The association between endothelial microparticles and inflammation in patients with systemic sclerosis and Raynaud's phenomenon as detected by functional imaging. *Clin Hemorheol Microcirc*. 2015; 61(3):549–557.

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BONE MINERAL DENSITY AND FRACTURE RISK IN A COHORT OF PORTUGUESE SYSTEMIC SCLEROSIS PATIENTS

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Background: Although poorly understood, patients with Systemic Sclerosis (SSc) seem to have higher prevalence of low bone mineral density (BMD) and an increased spine fracture risk.

Objectives: We aim to determine, by conventional densitometry (DXA) and using the fracture risk assessment tool (FRAX), the prevalence of low BMD and the fracture risk, respectively, in our SSc cohort and its potential determinants.

Methods: Observational transversal study was performed including consecutive patients with the diagnosis of SSc. We collected data regarding demographics, BMD (lumbar spine and femoral neck) and occurrence of fracture. Ten-year risk of osteoporotic fracture was estimated using FRAX v4.1 with the Portuguese population reference. Statistical analysis was performed using SPSS 23.0; p<0.01 was considered statistically significant.

Results: Median age of patients (n=97) was 62 years old [56, 70], 88.7% females (n=86). Seventy-eight patients (80.4%) had limited cutaneous form, 5 (5.2%) presented a diffuse cutaneous form and 13 (13.4%) an overlap syndrome. Regarding clinical features: digital ulcers in 30 patients (30.9%), interstitial lung disease (ILD) in 16 (6.5%), gastrointestinal involvement in 16 (16.5%), myositis in 4 (4.1%) and pulmonary arterial hypertension in 3 (3.1%). Anti-topoisomerase I antibody (anti-Scl70) positivity was present in 15 patients (15.5%) and anti-centromere antibody (ACA) positivity in 63 (64.9%). Nine patients (9.3%) were smokers and 6 (6.2%) reported an alcohol consumption of 3 or more units/day. Median body mass index (BMI) was 25.4 Kg/m² [21.4, 29.1], with 5 patients (5.2%) being underweight. Vitamin D insufficiency was reported in 19 patients (19.6%). Twenty-one patients (21.6%) have been exposed to oral glucocorticoids (GCT) for more than 3 months at a dose of 5mg daily or more. Eleven patients (11.3%) had previous low impact fractures: 10 of which were vertebral and 1 wrist fracture. Regarding the prescribed anti-osteoporotic treatment (AOP), we found: alendronate (n=7, 7.2%), zoledronic acid (n=7, 7.2%), denosumab (n=2, 2.1%) and teriparatide (n=1, 1%).

Low BMD was present in 45 patients (46.4%); median femoral neck BMD (FN-BMD) was 0.827 [0.709, 0.893]. Ten-year probability of fracture (%) was: median risk for major fracture was 5.1 [3.5, 9.7] and 3.8 [2.5, 8], with and without FN-BMD, respectively; for hip fracture the estimated risk was 1.2 [0.6, 3.1] and 1.0 [0.4, 2.5], with and without FN-BMD, respectively. According to FRAX thresholds for the Portuguese population, 25 patients (25.8%) met criteria to start AOP treatment. Among them, only 10 patients (40%) started it, as the agreement between the indication to treat by FRAX and the onset of treatment was weak (k=0.338). A strong agreement was found between FRAX risk threshold with DXA and World Health Organization (WHO) threshold for starting AOP (k=0.814) and no agreement was found between FRAX risk without DXA and WHO threshold. FN-BMD presented a weak correlation with BMI (r = 0.393), a moderate inverse correlation with major fracture risk with and without FN-BMD (r = -0.704,