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AB0434 VITAMIN D IN SYSTEMIC SCLEROSIS PATIENTS

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Background: Systemic Sclerosis (SSc) is a generalized and systemic autoimmune disease that affects the connective tissue of the skin and internal organs, especially kidneys, heart and lungs [1].

Objectives: Numerous data from recent literature confirm the regulatory action of vitamin D on the immune system and, therefore, how a deficit of this micronutrient can lead to alterations in the immune response, as is known to happen in many allergic and autoimmune diseases [2]. We studied the association between vitamin D levels and SSc, evaluating their correlation with the characteristic manifestations of the pathology.

Methods: We dosed the serum levels of 25 hydroxy-vitamin D in 42 patients with SSc (average age 64.63 $\pm$ 7.33) and 40 healthy controls comparable for sex and age. The diagnosis of SSc was formulated in accordance to 2013 ACR/EULAR criteria. None of the subjects involved in the study took vitamin D products.

Results: Patients' vitamin D levels (26.22 $\pm$ 9.82 ng/ml), although they tended to be lower than controls (27.80 $\pm$ 16.53 ng/ml), showed no significant decrease. In patients with pulmonary fibrosis, vitamin D levels were 23.28 $\pm$ 12.30 lower than in patients with trophic ulcers and compared to patients without complications 26.07 $\pm$ 9.92, although with not statistically significant values. No statistically significant difference was found between vitamin D levels in patients with trophic ulcers compared to controls without complications.

Conclusion: According to the studies in the literature, in our sample, vitamin D deficiency was therefore greater in patients with SSc, especially with pulmonary fibrosis, than in controls [3,4]. Vitamin D levels in diffused-type SSc patients were significantly lower than those in limited-type SSc patients. Further studies are needed to clarify the role that vitamin D deficiency plays in SSc, but lower vitamin D levels in these patients may suggest the need to monitor blood levels of vitamin D and supplement it appropriately.

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AB0435 CAPILAROSCOPY DOES NOT PREDICT CARDIOVASCULAR EVENTS IN PATIENTS WITH SYSTEMIC SCLEROSIS: A RETROSPECTIVE STUDY

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Background: Systemic sclerosis is associated with increased risk of cardiovascular disease (CVD) (1) and studies using MRI suggest that microvascular disease has an important role (2). Capillaroscopy is a non invasive and safe technique that assesses peripheral microvascular damage (3).

Objectives: The objective of this study was to evaluate the predictive value of the capillaroscopy in relation to major adverse cardiovascular events (MACE).

Methods: Retrospective study with three timepoints (at baseline, at 5 and 10 years) including patients with scleroderma from EUSTAR center 096. Data were collected from the registry and observation papers. We performed capillaroscopy to all patients at the time of inclusion in the EUSTAR registry (2004) and at baseline (2009). Also, CV risk scores were calculated at baseline and were reassessed at 5 and at 10 years using the SCORE calculator. Risk score was considered low if it was between 0 and 2, moderate 3-9 and high >10. The relation between capillaroscopy and MACE was tested in using bivariate regression.

Results: Of 22 patients, mean (standard deviation (SD)) age was 43.1 (11.5), all patients were females, mean (SD) disease duration was 5.4 (4.5). During the 10 years of follow up, 5 (22.7) patients had been lost of follow up and 8 (36.4) patients had died. Only 9 (40.9) patients completed the 10 year follow up.

At the time of inclusion in the EUSTAR, one patient showed early scleroderma pattern at capillaroscopy, 15 had active pattern and 6 patients had late pattern. Capillaroscopic scoring showed 2 (9.1) patients with disarranged (<50%) aspect, 5 (22.7) patients with disarranged (>50%) aspect, 4 (18.2) patients with local paucity, 10 (45.5) patients with enlarged loop bordering local paucity and 1 patient (4.5) with complete paucity.

Capillaroscopy at baseline showed active pattern in 4 patients and late pattern in 18 patients. Thus, 13 (59.1) of patients had a progression of the disease at capillaroscopy before follow up.

At baseline, 14 (63.6) patients had traditional CV risk factors. Cardiovascular risk scores found 21 (95.5) patients with a low risk score and 1 (4.5) patient with a moderate risk score. At 5 years 11 (0.5) patients had a low risk score and 1 (4.5) patient had moderate risk score and at 10 years, 5 (22.7) and 2 (9) patients had low and moderate risk scores, respectively. We found 6.2 MACE/100 patient-year and 5.5 deaths/100 patient-year.

Capillaroscopy (p=0.684), disease progression on capillaroscopy (p=0.781), capillaroscopic scoring (p=0.92) and CV risk score (p=0.98) were not predictive factors of MACE.

Conclusion: Patients with systemic sclerosis are at high risk of MACE and traditional CV risk scores underestimate this risk. Changes/progression on capillaroscopy is not predictive for MACE. However, this hypothesis needs to be tested on a bigger cohort.

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AB0436 OUTCOMES OF DOSE-REDUCTION OR DISCONTINUATION OF TOCILIZUMAB IN PATIENTS WITH EARLY DIFFUSE CUTANEOUS SYSTEMIC SCLEROSIS

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Background: Potential efficacy and favorable safety profiles of tocilizumab (TCZ) have been demonstrated in patients with diffuse cutaneous systemic sclerosis (dcSSc) [1, 2]. However, clinical outcomes after dose-reduction or discontinuation of TCZ due to an improvement of skin thickness remain unclear.

Objectives: To investigate the clinical outcomes after dose-reduction or discontinuation of TCZ in patients with dcSSc in a real-world setting.

Methods: This is a single-center, retrospective, observational study using a database of consecutive SSc patients who visited our center between April 2014 and October 2020. For this study, we selected eligible patients from the database based on the following criteria: patients who (i) fulfilled the ACR/EULAR classification criteria, (ii) were classified as having dcSSc, (iii) had been treated with TCZ for at least 6 months, and (iv) were follow-up >6 months after TCZ introduction. Clinical information including demographic and clinical characteristics at TCZ introduction; dosing, administration route, and adherence of TCZ; and serial clinical parameters

(modified Rodan total skin thickness score [mRSS], and percent predicted forced vital capacity [%FVC]), safety profiles, and outcomes after TCZ introduction regardless of TCZ continuation were extracted from the database.

Results: Of 404 patients enrolled in the database, 13 dcSSc patients were eligible for this study. Baseline characteristics included a mean age of 51 ± 9 years, 85% female, disease duration of 27 ± 24 months, and mRSS of 19.5 ± 10.6 . Seven patients (54%) had HRCT-confirmed ILD at baseline, and 9 (69%) were positive for anti-topoisomerase I antibody. Two (14%) and 11 (85%) were on mycophenolate mofetil and low-dose prednisolone (7.2 ± 6.0 mg/day), respectively. Seven patients (54%) each had active skin disease and elevated inflammatory markers defined in the phase III clinical trial [2], while only 4 (31%) fulfilled the inclusion criteria. TCZ was initially administered intravenously (8 mg/kg every 4 weeks) in 8 patients and subcutaneously in 5 (162 mg every 2 weeks in 4 and every week in one). At one year, mRSS was improved from 20.9 ± 11.4 to 10.7 ± 8.9 in 11 patients ($p = 0.007$), and %FVC was stable in 7 patients with ILD (76.8 ± 15.0 to 78.6 ± 16.1). During the observation period of 60.4 ± 26.7 months, 4 patients were treated with a stable dose of TCZ, while TCZ dose was reduced and/or discontinued in 9. Four of them discontinued TCZ due to adverse events ($n = 2$: acute lung injury and phlegmon) or prominent improvement of skin thickening ($n = 2$). Of 9 patients with dose reduction/discontinuation of TCZ, 4 patients who discontinued TCZ ($n = 3$) or received dose reduction of TCZ ($n = 1$) experienced a recurrence of progressive skin thickening together with inflammatory complications, including edematous induration of the skin, progression of ILD, polyarthritis, and/or pericarditis with increased inflammatory markers. The interval between dose-reduction/discontinuation of TCZ and clinical worsening ranged from 2 to 11 months. These manifestations were promptly improved by dose-escalation or resumption of TCZ in all patients except one who experienced progressive ILD and died of respiratory failure 27 months later.

Conclusion: In dcSSc patients who experienced improvement of skin thickness during treatment with TCZ, dose-reduction or discontinuation of TCZ may result in a recurrence of the disease. Randomized comparative studies are necessary to examine optimal timing for dose-reduction or discontinuation of TCZ in dcSSc patients after improvement of skin thickness.

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AB0437

OESOPHAGEAL DILATATION ON HIGH-RESOLUTION CT CHEST IN SYSTEMIC SCLEROSIS: SIGNIFICANT INDEX?

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Background: Systemic sclerosis (SSc) is chronic, autoimmune multisystem disorder presented by thickening and fibrosis of the skin and internal organs. Esophageal involvement is one of the most common manifestation. Esophageal enlargement on HRCT is a common finding in scleroderma patients and may also be associated with other scleroderma-related clinical findings (1).

Objectives: The aim of this study to evaluate the association between esophageal dilatation on chest HRCT at diagnosis with the other SSc features.

Methods: The study was planned for SSc patients registered between October 2007 and September 2020 in Dokuz Eylul University Rheumatology Department database. Demographics, clinical features and medical history were recorded. The baseline HRCT reports were screened in terms of esophageal dilatation. Then, the initial HRCT images were assessed for esophageal dilatation by an experienced chest radiologist according to recommendation of Pitrez et al.

Results: In our study, there were 233 SSc patients (f:206 M:27, mean age 59.9 ± 12.7 years) 71 (31.4%) of them diagnosed with diffuse disease. Median follow-up of study was 73 (1-272) months. Esophageal dilatation on HRCT was detected in 60 (25.8%) of SSc patients. 67 out of 155 patients (43.2%) had proof of esophageal involvement in esophageal transit scintigraphy. There is no statistical correlation was found between esophageal dilatation on HRCT with gender, smoking, arthritis, pulmonary hypertension and autoantibody subtypes.

Development of digital ulcer and telangiectasia is statistically higher in SSc patients with oesophageal dilatation on baseline chest HRCT ($p=0.001$ and $p=0.039$, respectively). There was a positive correlation between Modified Rodnan Skin Score (mRSS) and esophageal dilatation ($r=0.213$, $p=0.004$).

Conclusion: HRCT can be a reproducible and non-invasive method for evaluating esophageal dilatation. Presence of esophageal dilatation at baseline HRCT might be indicative for pulmonary involvement and SSc related gastrointestinal complications. Consecutive chest HCRT should be evaluated to obtain more reliable data about the relationship between esophageal dilatation and SSc related clinical features.

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Table 1. Clinical and demographic characteristics of the presence of esophageal dilatation on HRCT

	Esophageal dilatation on HRCT			
	Total (n=233)	Yes (n=60, 25.8%)	No (n=173, 74.2%)	p
	Mean±SD.	Mean±SD.	Mean±SD.	
Age, years	59.9±12.7	59.7±12.2	60.1±12.6	>0.05
	n	n	n	
Female	206	53	149	>0.05
Smoking	79	19	60	>0.05
Diffuse SSc	71	23	44	>0.05
Overlap syndrome	33	8	25	>0.05
Pulmonary fibrosis	118	42	76	>0.05
Arthritis	80	23	56	>0.05
Telangiectasia	156	48	105	0.039
Digital ulcer	87	34	51	0.001
Anti-Scl 70 (+)	89	28	59	>0.05
Anti-centromer (+)	75	15	59	>0.05

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AB0438

SERUM HOMOCYSTEINE AND BONE STATUS IN SYSTEMIC SCLEROSIS PATIENTS

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Background: Systemic sclerosis (SSc) is a complex autoimmune connective tissue disease characterized by self-amplifying microvascular damage sustained by autoimmune response and progressive skin and visceral fibrosis. Besides, SSc patients show higher incidence of bone micro/macroarchitectural damages and bone fractures. Emerging data demonstrate that high serum levels of homocysteine (Hcy) could modulate osteoclastogenesis and are recognized as risk factors for osteoporosis (2). Furthermore, serum levels of Hcy were found to be higher in SSc patients than in healthy controls (3).

Objectives: to evaluate the bone status according to Hcy serum levels in a cohort of SSc patients.

Methods: 20 female patients fulfilling ACR 2013 criteria for SSc underwent a dual-energy X-ray absorptiometry scan (DXA) (Lunar Prodigy) to evaluate bone status. We analysed bone quantity and quality respectively by bone mineral density (BMD) and trabecular bone score (TBS). According to the WHO criteria, osteoporosis was defined as a bone density of 2.5 standard deviations below that of a young adult (T-Score). Fasting blood samples were obtained from all patients in order to test serum Hcy level and bone turnover markers after obtaining the informed consent. All subjects underwent morphometric spine X-Ray to evaluate vertebral fractures. Statistical analysis was performed using non-parametric tests.

Results: The mean age of patients was 64.15 ± 10.8 years with a mean disease duration of 9.1 ± 2.3 years. The mean modified Rodnan Skin Score (mRSS) was 10.7 ± 8.5 . All patients showed a "scleroderma pattern" at nailfold Videocapillaroscopy (NVC): in particular, 7 patients showed the "Late" pattern, 9 patients the "Active" pattern and 4 patients the "Early" NVC pattern. Hyperhomocysteinemia (HHcy) was found in 25% of patients. Interestingly, SSc patients with the "Late" NVC pattern showed a significantly higher serum level of Hcy compared to the "Early/Active" group (11.15 ± 4.4 vs 17.17 ± 6.4 , $p=0.03$). No significant differences were observed in relation to the autoantibody profiles. Of note, 60% of patients with HHcy were found osteoporotic and 40% had bone fractures.