skin ulcers ($p=0.0001$), higher values of blood pressure ($p=0.004$), elevated uric acid levels ($p=0.027$) and anti-centromere antibodies positivity ($p=0.0001$).

Conclusion: Our research provides further evidence of the prognostic value of echocardiographic findings in SSc subjects, with focus on PH. Population enlargement is ongoing in order to identify more accurate results about RV-strain, considering the efficacy of PH treatments on cardiac contractility. Speckle tracking echocardiography proves to be a sensitive, low-cost, non-invasive and reliable tool to detect early cardiac impairment in SSc, full of potential future prospects.

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AB0612

SHORT-TERM REVERSIBLE IMPROVEMENT IN EARLY-PHASE ELEMENTS OF NAILFOLD CAPILLARY ABNORMALITIES IN PATIENTS WITH SYSTEMIC SCLEROSIS BY INTRAVENOUS CYCLOPHOSPHAMIDE (IVCY)

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Background: Nailfold capillary abnormalities are one of representative signs in systemic sclerosis (SSc). However, previous reports about changes in nailfold capillary by immunosuppressive therapy have been limited. Especially, there have been no reports about short-term changes in nailfold capillary abnormalities.

Objectives: To clarify whether intravenous cyclophosphamide (IVCY) treatment for SSc patients can improve nailfold capillary abnormalities in half a year.

Methods: Among patients diagnosed as having SSc according to the 2013 ACR/EULAR classification criteria at our hospital from May 2018 to December 2019, those who treated with IVCY for interstitial lung disease (ILD) were consecutively registered. All patients received IVCY six times. Nailfold capillary abnormalities on eight fingers including both second to the fifth fingers were observed with a nailfold videocapillaroscopy (NVC). Each finger was evaluated for enlarged capillary, giant capillaries, hemorrhage, loss of capillary, disorganization of the vascular array, and capillary ramification. Quantitative scoring was performed on a scale of 0 to 3 in accordance with the ratio of each of them. NVC tests were evaluated before IVCY treatment intervention and after IVCY. In all cases, the evaluation of NVC after IVCY treatment was performed 6 months after the administration day. Skin changes were evaluated by modified Rodnan's total skin thickness score (mRSS) at performing NVC. Anti-centromere antibodies, anti-Scl-70 antibodies, anti-RNA polymerase III, and anti-RNP antibodies were measured. Pulmonary function tests (PFTs) including forced vital capacity (FVC) and diffusing capacity of the lung carbon monoxide (DL_{CO}) were performed before and after IVCY. The statistical significance of the differences between means of two groups was evaluated by paired t-test. A p level of 0.05 or less was considered statistically significant.

Results: Five patients were included. The mean age was 59 years and 4 patients were female (80%). High dose corticosteroids were used in 2 patients (40%). Anti-RNA polymerase III was positive in 2 patients (40%), anti-Scl-70 antibody was positive in 1 (20%), and negative test for any specific antibodies was in 2 (40%). Changes in NVC scores, which were total scores of 8 fingers, were as follows: Enlarged; 13.2 ± 4.8 to 6.4 ± 5.9 ($p=0.018$), Giant; 7.0 ± 5.7 to 1.6 ± 1.1 ($p=0.0314$), Hemorrhage; 8.4 ± 6.2 to 3.2 ± 2.3 ($p=0.0274$), Loss; 4.0 ± 2.5 to 0.6 ± 1.3 ($p=0.0288$), Disorganization; 0.6 ± 0.9 to 1.0 ± 1.0 ($p=0.7065$), Ramification; 0.6 ± 0.9 to 0.8 ± 1.8 ($p=0.5730$). (Table) After IVCY treatment, mRSS reduced in 4 cases (80%). Changes in mRSS scores were as follows: 18.8 ± 8.3 to 12.4 ± 13.3 ($p=0.0677$). The cases with improved mRSS and those with improved NVC findings were consistent. The mean FVC before and after IVCY was 2077 ml and 2062 ml, respectively. The mean DL_{CO} before and after IVCY was 9.88 mL/min/mmHg and 9.58 mL/min/mmHg, respectively.

Conclusion: Nailfold capillary abnormalities in patients with SSc could be improved in half a year with IVCY. Especially, early phase elements including enlargement, giant, and hemorrhage were specifically reversible.

Table.

No.	(E)	(G)	(H)	(L)	(D)	(R)	mRSS
1	21→14	16→3	19→7	0→0	0→2	0→0	14→9
2	12→3	4→2	6→1	4→0	2→1	1→0	15→1
3	14→11	8→2	6→2	7→0	0→0	0→4	10→5
4	10→4	6→1	8→3	4→3	0→2	2→0	25→12
5	9→0	1→0	3→3	5→0	1→0	0→0	30→35
mean ± SD	13.2 ± 4.8	7.0 ± 5.7	8.4 ± 6.2	4.0 ± 2.5	0.6 ± 0.9	0.6 ± 0.9	18.8 ± 8.3
	6.4 ± 5.9	1.6 ± 1.1	3.2 ± 2.3	0.6 ± 1.3	1.0 ± 1.0	0.8 ± 1.8	12.4 ± 13.3
p-value	0.018	0.0314	0.0274	0.0288	0.7065	0.5730	0.0677

E: enlarged, G: giant, H: hemorrhage, L: loss, D: disorganization, R: ramification. The table shows the total of eight points for each finding in the NVC test. The previously described values are before treatment and the later values are after treatment.

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AB0613

AUTONOMIC NEUROPATHY AND ITS PREDICTORS IN SYSTEMIC SCLEROSIS

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Background: Systemic sclerosis (SSc), a chronic autoimmune disease, is associated with autonomic neuropathy¹. Autonomic neuropathy, especially cardiovascular autonomic neuropathy (CAN) is significant risk predictor of sudden cardiac death. However, its relationship with disease specific measures remains unexplored in SSc.

Objectives: To assess cardiovascular autonomic neuropathy and sudomotor function and its predictors in systemic sclerosis.

Methods: In this cross-sectional study, 16 SSc patients meeting the 2013 European League Against Rheumatism (EULAR) and American College of Rheumatology (ACR) classification criteria and 15 age and sex-matched healthy controls were recruited. Cardiovascular autonomic function assessed by five cardiovascular reflex tests according to Ewing. Peripheral sympathetic autonomic function assessed by FDA approved Sudoscan (Impeto Medical, Paris) through measurement of electrochemical skin conductance. Disease-specific measures (Disease duration, Modified Rodnan Skin Score (mRSS), EUSTAR activity score), and inflammatory measures (ESR, CRP) were determined. Quality of life measured by Scleroderma Health Assessment Questionnaire (SHAQ).

Results: Systemic sclerosis patients had significantly impaired parasympathetic [Heart rate response to deep breath (HRD) (Fig. 1A), Heart rate response to standing (HRS) (Fig. 1B) and Heart rate response to valsalva manoeuvre (Fig. 1C)] and sympathetic [BP response to hand grip (BPH) (Fig. 1D)] function as compared to healthy controls. Scleroderma patients had significantly impaired sudomotor function ($p<0.05$) as compared to healthy controls. Levels of mRSS, EUSTAR score, ESR, CRP and SHAQ were significantly higher in SSc patients as compared to healthy controls ($p \leq 0.05$). Parasympathetic (HRD & HRS) dysfunction inversely correlated with ESR, CRP and mRSS. Sudomotor function positively correlated with mRSS, disease duration and CRP.

Conclusion: CAN and Sudomotor function are significantly impaired in SSc. Parasympathetic dysfunction is more pronounced than sympathetic dysfunction in SSc. CAN and Sudomotor dysfunction are associated with disease-duration, skin-score, ESR and CRP. These could serve as potential predictors of Cardiovascular Autonomic neuropathy and sudomotor dysfunction in SSc.

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AB0614

METHOTREXATE DOESN'T LOWER THE RISK OF DEVELOPING INTERSTITIAL LUNG DISEASE IN PATIENTS WITH IDIOPATHIC INFLAMMATORY MYOPATHIES WITH JO-1 ANTIBODIES.

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Background: In patients with idiopathic inflammatory myopathies (IIM) most commonly found autoantibody against histidyl-tRNA synthetase (anti-Jo-1) is associated with development of interstitial lung disease (ILD), which has been recognized as a serious mortality factor.

Objectives: To assess if methotrexate as an initial steroid sparing agent lowers the risk of developing ILD in anti-Jo-1 positive patients diagnosed with IIM.

Methods: Medical records of IIM patients treated in a referral clinic in capital city of Poland between 2008 and 2018 were reviewed. Inclusion criteria were: fulfillment of ACR/EULAR 2017 classification criteria for IIM, positivity of anti-Jo-1 antibodies in the EUROLINE test, introduction of corticosteroids equivalent to ≥ 0.5 mg of prednisone. Exclusion criteria: insufficient data on disease course, history of IIM < 18 months.

Results: 29 patients were included for this analysis. ILD was present at the onset in 52% (n:15) patients. Other 14 patients were treated initially with corticosteroids ≥ 0.5 mg/kg along with methotrexate up to 25mg/week. In all 14 patients methotrexate was well tolerated and led to successful reduction of steroid dose. However, ILD attributed to the primary disease appeared in follow up in 50% (n:7) of these patients (medium 36 months), which resulted in alteration of treatment. In 7 patients ILD didn't develop.

Conclusion: Our study shows that methotrexate in dose up to 25mg/week doesn't lower the risk of developing ILD in Jo-1 positive IIM patients in the long term suggesting that other medication should be used as a first line treatment for this group.

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AB0615

MORTALITY AND CAUSES OF DEATH AMONG ROMANIAN SYSTEMIC SCLEROSIS PATIENTS

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Background: Systemic sclerosis (SSc) is associated with an increased risk of death compared to the general population. Survival in SSc patients has improved significantly over the last 20 years with a decrease in renal involvement as a cause of early death and an increase in death caused by cardiopulmonary involvement (1,2). Causes of death in SSc patients have not been described in a Romanian cohort so far.

Objectives: To study the causes of death in patients with SSc prospectively followed-up from 2002 to 2018 in a single tertiary centre from Romania.

Methods: The cohort consists of 197 patients who fulfill the American College of Rheumatology/EULAR 2013 criteria for SSc. We examined the data of patients who had died during follow up. Patients were reviewed at least twice a year and the cause of death was classified as SSc-related or nonSSc-related.

SSc-related deaths were then attributed to the major organ involved. A univariate Cox proportional hazard (PH) regression was used to examine the association between each variable and mortality. Variables reported in the literature to associate with mortality were considered in the multiple Cox PH regression model.

Results: Of 197 SSc patients (87.8% females), 47.7% had diffuse SSc and 52.2% had limited SSc. The mean age at diagnosis was 47 (SD 12) years and mean follow up duration was 6.75 years. There were 41 deaths (20.8%). Survival rate was substantially lower in men ($P < 0.003$). The mean age at the time of death in those with diffuse SSc was lower compared to limited SSc (55.8 years vs 68.7 years). Sixty percent of deaths were SSc-related (pulmonary cause[n=11], cardiac cause[n=6], gastrointestinal involvement [GI, n=3], renal crisis [n=2] and others [n=4]). Deaths not related to SSc were associated with cancer and infections. Age at onset of Raynaud phenomenon [HR 1.05], male gender [HR 3.41], diffuse SSc [HR 0.48], presence of tendon friction rub [HR 4.54], digital ulceration [HR 3], esophagitis [HR 2.07] and cardiovascular involvement [HR 3.68], use of corticosteroids[HR 2.13] and cyclophosphamide [HR 2.02] were associated with poor prognosis in multivariate analysis.

Conclusion: In our cohort the main causes of death were lung and cardiovascular involvement. Deaths occurred early after the onset of the disease and the survival rate was significantly reduced among men. Multivariate analysis showed that age at onset of Raynaud phenomenon, male gender, diffuse disease form, presence of tendon friction rub, digital ulceration, esophagitis and cardiovascular history, use of corticosteroids and cyclophosphamide were independently associated with mortality.

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AB0616

REDUCED BONE MINERAL DENSITY IN PATIENTS WITH IDIOPATHIC INFLAMMATORY MYOPATHIES: A LONGITUDINAL STUDY

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Background: Reduced bone mineral density (BMD) leads to fragility fracture which is associated with a significant morbidity and excess mortality [1,2]. Patients with idiopathic inflammatory myopathies (IIM) should be at a heightened risk of reduced BMD as a result of the systemic inflammation, reduced mobility and corticosteroid use [3]. A previous cross-sectional study demonstrated a high prevalence of osteoporosis (23.7%) and osteopenia (47.4%) in a cohort of IIM patients [4]. However, longitudinal data are lacking.

Objectives: To assess the BMD of IIM patients longitudinally and to investigate the factors associated with accelerated bone loss.

Methods: This is a single centered observational study. Existing adult Chinese patients with IIMs who had serial BMD measurements done were recruited. The diagnosis of IIMs was based on the Bohan and Peter's criteria with definite or probable cases being included [5]. Patients with clinically amyopathic disease must have the typical Gottron's papules or heliotrope rash as determined by rheumatologists or dermatologists, and with no symptoms or signs of muscle involvement according to Sontheimer [6]. BMD was measured by dual energy X-ray absorptiometry (DEXA). Clinical variables thought to be associated with bone health were documented.

Results: All together 28 patients were studied. The mean age of the patients at disease onset was 46.1 years (S.D. 12.2). There was a female predominance (92.9%). The subgroups of IIMs were: dermatomyositis (39.3%), polymyositis (25.3%), clinically amyopathic dermatomyositis (21.4%) and immune mediated necrotising myopathy (14.3%). Only a minority of the patients smoked (7.1%) and none of them drinks regularly. About one fifth of the patients were underweight. All patients have been exposed to systemic corticosteroid, while 82.1% of them were still on it between the two scans with 32.1% even on high dose (> 0.5 mg prednisolone/kg/day). Three out of the 28 patients (10.7%) was found to be osteoporotic at baseline and 17 patients (60.7%) were osteopenic. Follow-up DEXAs were performed mostly 5 to 10 years after the initial scan. Despite 8 patients (28.6%) were given active anti-osteoporotic medications, the bone health deteriorated significantly. The mean baseline neck of femur BMD dropped from 0.711 to 0.657 g/cm² ($p = 0.042$) on follow-up, while the total