Table 1. Clinical characteristics, demographics and outcome

	No ILD (n=227)	Subclinical ILD (n=67)	Clinical ILD (n=231)
Age, y (SD)	50 (15.4)	51 (14.4)	52 (15.3)
Male sex, n (%)	89 (39)	22 (33)	111 (48)
Deceased, n (%)	50 (22)	12 (18)	91 (39)
Observation period, y median (range)	13.7 (18.6)	13.9 (17.9)	11.5 (17.1)
FVC% (SD)	97 (18.6)	99 (17.9)	81 (20.9)
FVC decline% (SD)	-0.70 (11.1)	-0.81 (16.5)	-1.61 (15.9)
DLCO% (SD)	73 (19.4)	73 (16.9)	55 (17.4)
Extent of ILD% (SD)	0 (0)	2.3 (1.5)	19.3 (16.8)
ILD progression% (SD)	0.08 (1.0)	3.1 (6.2)	3.6 (9.9)
ILD progressors, n (%)	3 (2)	20 (38)	72 (51)

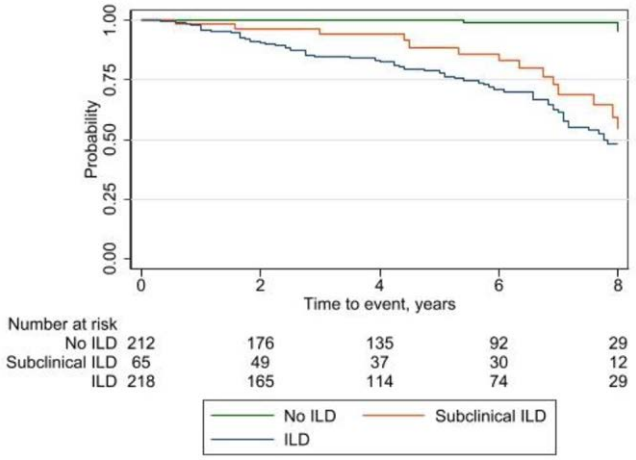

Figure 1. Time to ILD progression in CTD without ILD, with subclinical and clinical ILD

Conclusion: Subclinical ILD is frequently present across CTDs and progresses over time in a substantial subgroup of patients, comparable to patients with clinical ILD. Our findings question the terms sub- and preclinical ILD, which may potentially lead to a suboptimal "watchful waiting management strategy". Monitoring all CTD patients with any ILD is of high importance to identify disease progression early.
Disclosure of Interests: Anna-Maria Hoffmann-Vold Speakers bureau: Actelion, Boehringer Ingelheim, Roche, Merck Sharp & Dohme, Lilly and Medscape, Consultant of: Actelion, Boehringer Ingelheim, Bayer, ARXX, and Medscape, Grant/research support from: Boehringer Ingelheim, Helena Andersson: None declared, Silje Reiseter: None declared, Håvard Fretheim Consultant of: Actelion, Bayer., Imon Barua: None declared, Torhild Garen: None declared, Øyvind Midtvedt: None declared, Ragnar Gunnarsson: None declared, Mike Durheim Speakers bureau: Boehringer Ingelheim and Roche, Consultant of: Boehringer Ingelheim, Grant/research support from: Boehringer Ingelheim, Trond M Aaløkken: None declared, Øyvind Molberg: None declared
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OP0175 INTERNATIONAL MULTICENTRIC PROSPECTIVE STUDY ON PREGNANCY IN SYSTEMIC SCLEROSIS (IMPRESS-2)

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Background: Data about the obstetric outcomes of pregnant women with Systemic Sclerosis (SSc) mainly derive from retrospective studies. Moreover, little evidence is available to define if pregnancy impacts on SSc course and if children of SSc mothers have a normal post-natal development.
Objectives: To assessed the obstetric, pediatric and rheumatologic outcomes of SSc pregnancies in a prospective controlled study
Methods: Prospective recruitment of three cohorts.
1) 110 pregnant women with SSc.
2) 218 control pregnancies without systemic autoimmune diseases
3) 78 non-pregnant control SSc with a matching subject in cohort-1.
SSc was characterized for disease activity, severity, cutaneous/organ involvement and therapy. Women and their offspring were followed until 21 months after enrollment (ie, 12 months after expected delivery).

Results: Gestational and neonatal outcomes
Miscarriages and fetal death occurred in 7% and 5% of SSc pregnancies. Compared to control pregnancies, SSc pregnancies had higher rates of gestational hypertension (12% Vs 4%, p=0.004), pre-eclampsia (9% Vs 1%, p=0.002), fetal growth-restriction (13% Vs 4%, p=0.004), prematurity (26% Vs 7%, p<0.001) and cesarean section (52% Vs 4%, p=0.002). Newborns from SSc mothers weighted less (2773 Vs 3243g, p<0.001), were more frequently small for gestational age (SGA, 18% Vs 12%, p=0.05) and required neonatal-intensive care unit (ICU) more frequently (12% Vs 1%, p<0.001). Rates of newborn malformation/death, and one year-pediatric outcomes were similar.
Univariate and multivariate analyses were performed for relevant outcomes. For example, pre-eclampsia positively associated with baseline skin score and its evolution during pregnancy (p=0.015 and 0.013), immunosuppressive agents, bosentan and iloprost at baseline (p=0.001, 0.041 and 0.007), and twin pregnancy(p=0.006). Multivariate logistic regression for pre-eclampsia in SSc identified baseline arterial hypertension, immunosuppressive agents or of iloprost, twin pregnancy and assisted conception as risk factors (p=0.000, 0.002, 0.0025, 0.000 and 0.027), and baseline calcium channel blockers as protective factors (p=0.001).
SSc course during pregnancy
As compared to matched non-pregnant SSc, SSc pregnant women had lower Medsger disease severity index (0.6 +/-0.9 Vs 1.0 +/-1.1, p=0.022), health assessment questionnaire (HAQ, 0.21 +/-0.38 Vs 0.40 +/-0.55, p=0.026), and lower rate of iv iloprost (21% Vs 42%, p=0.006). Pregnant and non-pregnant SSc women had a similar disease course during the 21 months of follow-up, despite a lower use of immunosuppressive agents (17% Vs 36%, p=0.014). Two scleroderma-renal-crises (SRC) occurred during pregnancy (one was a relapse of a previous SRC; the other occurred at week 33, and resolved after premature delivery of a SGA newborn and ACE-inhibitors, preventing differentiation from pre-eclampsia).
Conclusion: SSc pregnancies have generally a favorable obstetric/pediatric outcome, albeit at a higher risk of gestational hypertension, pre-eclampsia, fetal growth restriction, prematurity, delivery of SGA newborn and requirement of neonatal-ICU. Pregnancy does not impact on SSc course, although SRC during late pregnancy and pre-eclampsia might be hardly discriminated.
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OP0176 ULTRASOUND (US) EVALUATION OF BOWEL VASCULOPATHY IN SYSTEMIC SCLEROSIS (SSC)

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Background: Gastrointestinal involvement is one of the most frequent features of SSc, affecting nearly 90% of patients, with a great impact on quality of life and morbidity. One of the key pathological factors of SSc bowel involvement is vasculopathy (1), although little is known about its pathophysiology and no treatments are currently available.
Objectives: to assess with abdominal US the superior mesenteric artery (SMA) and the inferior mesenteric artery (IMA) vessel characteristics and blood flow in SSc, compared to healthy controls (HC).
Methods: we performed fasting abdominal US in SSc patients fulfilling the ACR/EULAR 2013 classification criteria and HC. Patients with a history of peripheral / coronary arterial disease were excluded. For both SMA and IMA, caliber (mm), Peak Systolic Velocity – PSV (cm/sec), Reverse Velocity – RV (cm/sec), End-Diastolic Velocity – EDV (cm/sec), Mean Velocity – mV (cm/sec), Blood-flow (cm/sec), Resistive Index – RI and Pulsatility Index – PI were measured.
Results: 28 SSc patients [25 females (89.3%), mean age 48.75 ± 12.39 years; 6 (22.22%) anti-centromere and 19 (70.37%) positive for anti-topoisomerase I antibodies] and 28 HC [18 females (64.3%), mean age 36.25 ± 12.08 years] were evaluated. In SSc, the SMA caliber was significantly smaller than in HC (5.75 ± 0.62 vs. 6.45 ± 0.60 mm, p<0.0001), while IMA dimensions did not differ.
The SMA study revealed SSc patients had a significant reduction of RV (7.25 ± 6.37 vs. 18.52 ± 6.16 cm/sec, p<0.0001) and PI (3.33 ± 0.75 vs. 4.53 ± 1.03, p<0.0001) when compared to HC. In addition, in SSc the mV of SMA was significantly lower than in HC (38.03 ± 13.90 vs. 28.32 ±9.25 cm/sec, p=0.0035), as well as the RI (0.88 ± 0.04 vs. 0.91 ± 0.03, p=0.0034); EDV was significantly increased (16.34 ± 7.03 vs. 12.64 ± 5.46 cm/sec, p=0.0321). Similarly to SMA, also in IMA RV and PI were significantly lower that controls (RV: 2.69 ± 6.10 vs. 17.06 ± 5.75 cm/sec, p<0.0001; PI: 3.54 ± 0.95 vs. 6.08 ± 1.53, p<0.0001). Moreover SSc patients presented a significant reduction of PSV and RI of IMA (PSV: 72.27 ± 27.23 vs. 93.81 ± 25.73 cm/sec, p=0.0084; RI: 0.88 ± 0.04 vs. 0.91 ± 0.03, p=0.0132) when compared to HC. Although the HC group was significantly younger than the SSc group (p=0.0003), all the results were confirmed after adjustment for age (Table 1).

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Table 1. comparison of the characteristics of SMA and IMA between SSc patients and HC.

	SSc		HC			Age adjusted
SMA	**N**	**Mean ± SD**	**N**	**Mean ± SD**	**p-value**	**p-value**
Caliber (mm)	28	5.75 ± 0.62	28	6.45 ± 0.60	**<0.0001**	**0.0002**
PSV (cm/sec)	28	137.50 ± 34.50	28	135.26 ± 33.81	0.8075	0.7297
RV (cm/sec)	28	7.25 ± 6.37	28	18.52 ± 6.16	**<0.0001**	**<0.0001**
EDV (cm/sec)	28	16.34 ± 7.03	28	12.64 ± 5.46	**0.0321**	0.0650
mV (cm/sec)	28	38.03 ± 13.90	28	28.32 ±9.25	**0.0035**	**0.0150**
Blood-flow (cm/sec)	28	1073.1 ± 831.16	28	913.36 ± 272.87	0.3409	0.4781
PI	28	3.33 ± 0.75	28	4.53 ± 1.03	**<0.0001**	**0.0002**
RI	28	0.88 ± 0.04	28	0.91 ± 0.03	**0.0034**	**0.0141**
IMA						
Caliber (mm)	26	2.71 ± 0.47	24	2.79 ± 0.37	0.4872	0.5385
PSV (cm/sec)	23	72.27 ± 27.23	23	93.81 ± 25.73	**0.0084**	**0.0044**
RV (cm/sec)	23	2.69 ± 6.10	23	17.06 ± 5.75	**<0.0001**	**<0.0001**
EDV (cm/sec)	23	7.87 ± 2.01	23	7.95 ± 2.10	0.8921	0.9250
mV (cm/sec)	23	17.83 ± 5.33	23	14.75 ± 5.08	0.0514	0.3938
Blood-flow (cm/sec)	23	106.70 ± 47.99	20	84.00 ± 30.13	0.0676	0.3056
PI	23	3.54 ± 0.95	23	6.08 ± 1.53	**<0.0001**	**<0.0001**
RI	23	0.88 ± 0.04	23	0.91 ± 0.03	**0.0132**	**0.0205**

SMA=superior mesentheric artery, IMA=inferior mesentheric artery, PSV=Peak Systolic Velocity, RV=Reverse Velocity, EDV=End-Diastolic Velocity, mV=Mean Velocity, PI=Pulsatility Index, RI=Resistive Index.

Conclusion: this preliminary study shows, for the first time, the presence of a significant reduction of RV, PI and RI in the intestinal arteries of SSc patients when compared to HC. These data show an increased stiffness of the gastrointestinal arterial wall, in agreement with the typical SSc vasculopathy. A larger cohort is needed to confirm the results and explore the possible relationship with other clinical features of the disease.

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Disclosure of Interests: None declared

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OP0177 PRESENCE AND SEVERITY OF DIGITAL OCCLUSIVE ARTERIAL DISEASE PREDICTS DIGITAL ISCHEMIC COMPLICATIONS IN SYSTEMIC SCLEROSIS

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Background: Vasculopathy is a key feature of systemic sclerosis (SSc), manifesting clinically as Raynaud's phenomenon (RP) with or without digital ischemia. Laser doppler flowmetry (LDF) with thermal challenge is a safe, noninvasive and reproducible technique to detect digital occlusive arterial disease (DOAD) with a high sensitivity and specificity of >90% (1).

Objectives: To study the prevalence and clinical correlates of DOAD assessed by LDF in patients with SSc referred for evaluation of RP at a tertiary referral center.

Methods: Medical records of all patients with SSc meeting ACR/EULAR 2013 classification criteria that underwent LDF between Jan 2001-Dec 2018 at our institution were retrospectively reviewed to abstract the presence or absence of DOAD. The presence of DOAD on LDF was confirmed if pre- and post-warming skin blood flow was ≤206 arbitrary units. Severity of DOAD was assessed based on number of digits involved. Risk factors associated with presence of DOAD in SSc, and correlation between presence and severity of DOAD with digital ischemic complications were studied.

Results: 304 patients with SSc (mean age 57.1 ± 3.3 y, 81% females, 93% Caucasians) underwent LDF during the study period. Median time between SSc diagnosis and performing LDF was 12.9 months. Majority of patients with SSc had limited cutaneous SSc (lcSSc) (79.6%) and 64.1% had a positive SSc specific antibody.

On LDF with thermal challenge, presence of DOAD was noted in 243 (79.9%) patients, of whom 78.6% had lcSSc, 42.4% had a centromere antibody (Ab), 17.3% had a Scl-70 Ab, 53.5% had interstitial lung disease, 36.6% had pulmonary arterial hypertension, and 73.3% had gastrointestinal dysmotility (GID). Of 159 patients with DOAD who also had a nailfold capillaroscopy, 70.4% had abnormalities. Large vessel occlusive disease was significantly higher in patients with DOAD in comparison to those without DOAD (29.2% vs 16.4%; p: 0.04). After adjusting for age and sex, GID (OR: 2.73 [95%CI 1.52-4.92]) and telangiectasia (OR: 2.83 [95%CI 1.23-6.40]) were significantly associated with DOAD.

Digital ischemic complications among patients with SSc with DOAD were significantly higher than among those without DOAD (79.8% vs 41.0% had digital ulcers, 53.9% vs 26.2% had pitting/scars, 31.3% vs 8.2% had gangrene/amputation; p <0.001). (Figure 1) Increasing severity of DOAD was associated with a statistically significantly higher incidence of digital ischemic complications as presented in Table 1.

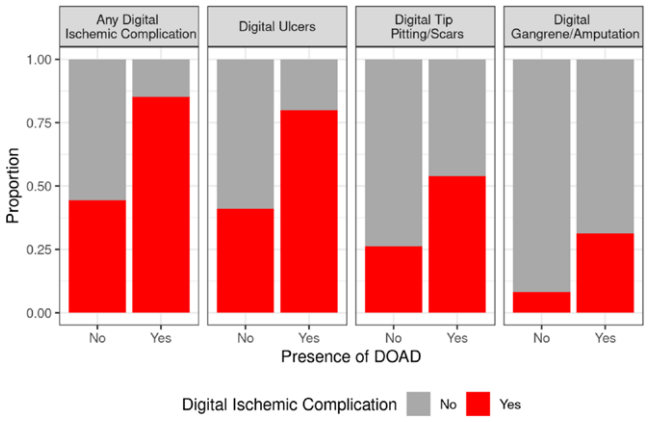

Figure 1. Correlation between the presence of digital occlusive arterial disease (DOAD) and digital ischemic complications in systemic sclerosis

Table 1. Logistic regression models for association of digital ischemic complications and severity of digital occlusive arterial disease

Digital Involvement Complication	Odds Ratio (OR) Reflects "digits vs. 0"	OR	CI 95%
Digital Ulcer	**Unit Increase**	1.28	1.19-1.39
	1-2	2.11	0.927-4.92
	3-7	5.57	2.84-11.2
	8-10	10.9	4.98-25.4
Digital Tip Pitting/Scars	**Unit Increase**	1.17	1.10-1.26
	1-2	1.92	0.803-4.61
	3-7	2.62	1.35-5.28
	8-10	5.45	2.72-11.4
Digital Gangrene/Amputation	**Unit Increase**	1.26	1.16-1.37
	1-2	1.36	0.317-5.48
	3-7	4.10	1.62-12.6
	8-10	9.05	3.60-27.7
Any Digital Involvement	**Unit Increase**	1.35	1.24-1.49
	1-2	2.98	1.27-7.30
	3-7	6.16	3.08-12.7
	8-10	18.5	7.46-53.2

Conclusion: This is the largest single center study to describe the prevalence and predictors of DOAD on LDF in a well-defined cohort of patients with SSc. The high prevalence of DOAD on LDF noted in SSc-RP make it a valuable tool not only for evaluation of vasculopathy in SSc but also to distinguish it from Primary RP. The presence and severity of DOAD strongly correlates with digital ischemic complications and can be used as a guide to counsel patients and determine the aggressiveness of therapeutic interventions. Our study underscores the significance of LDF as a reliable non-invasive modality to detect DOAD and a prognostic tool to identify patients at highest risk of digital ischemic complications.

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Rheumatoid arthritis - prognosis, predictors and outcome

OP0178 ASSOCIATION BETWEEN ENVIRONMENTAL AIR POLLUTION AND RHEUMATOID ARTHRITIS FLARES

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Background: Environmental air pollution has been linked to the pathogenesis of Rheumatoid Arthritis (RA). Nevertheless, evidence linking higher concentrations of air pollutants with the risk of RA reactivations is missing.

Objectives: The objective of the present study was to determine the association between RA flares and air pollution.

Methods: We collected longitudinal data of patients affected by RA and of the daily concentration of air pollutants in the Verona area. We designed a case-crossover study. In case-crossover studies, instead of obtaining information from two groups (cases and controls), the exposure information is obtained comparing two different periods of time in the same group of patients followed longitudinally. We compared the exposure to pollutants in the 30-day and 60-day periods preceding an arthritic flare referent to the 30-day and 60-day preceding a low-disease activity visit. Flare was defined as an increase in DAS28-CRP of >1.2 points with current DAS28-CRP ≥3.2 (OMERACT definition).

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