to 2.94, $p < 0.0001$) for vertebral fractures and 1.62 (1.07 to 2.38, $p = 0.0093$) for hip fractures. PM/DM patients experienced vertebral fractures and hip fractures at younger ages (62.2 vs 68.4 and 66.0 vs 75.4 years, respectively; both $p < 0.001$). Multivariable Cox regression analyses showed that being female gender, age ≥ 50 years, having hypertension, coronary artery disease, asthma, and using daily prednisolone equivalent to > 5 mg are associated with OFs.

Table 1. IRs and IRRs of osteoporotic fractures: overall and subgroup analysis

Subgroup	IM IR	Control IR	IRR (95% CI)	p Value
Overall fracture	10.90	5.23	2.08 (1.73 to 2.49)	<0.0001
Age <50 year	4.51	1.38	3.27 (2.19 to 4.81)	<0.0001
Age ≥ 50 year	22.59	9.85	2.29 (1.85 to 2.82)	<0.0001
Vertebral fracture	8.18	3.43	2.39 (1.92 to 2.94)	<0.0001
Age <50 year	3.39	0.98	3.47 (2.17 to 5.44)	<0.0001
Age ≥ 50 year	16.82	6.33	2.66 (2.07 to 3.39)	<0.0001
Hip fracture	2.20	1.36	1.62 (1.07 to 2.38)	0.0093
Age <50 year	0.65	0.10	6.56 (1.75 to 24.6)	0.0027
Age ≥ 50 year	4.87	2.83	1.72 (1.09 to 2.62)	0.0081
Radius fracture	0.96	0.83	1.15 (0.60 to 2.02)	0.3081
Age <50 year	0.43	0.35	1.25 (0.31 to 3.69)	0.3289
Age ≥ 50 year	1.86	1.40	1.35 (0.62 to 2.63)	0.1857

IR, incidence rate per 1000 person-year; IRR, incidence rate ratio; CI, confidence interval.

Conclusions: Adult PM/DM patients had a high IR of vertebral and hip fractures. Patients who were female, advanced age, having certain comorbidities, and exposed to corticosteroid exhibited a higher risk.

Disclosure of Interest: None declared

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FRI0382 USE OF THE DETECT ALGORITHM FOR EARLY PULMONARY ARTERY HYPERTENSION DIAGNOSIS IN PATIENTS WITH SYSTEMIC SCLEROSIS IN EVERYDAY CLINICAL PRACTICE

C. Koutsianas, S. Subasinghe, K. Douglas. *Department of Rheumatology, The Dudley Group NHS Foundation Trust, Dudley, United Kingdom*

Background: The DETECT algorithm (DA)¹ provides a sensitive tool for early identification of patients with Systemic Sclerosis (SSc) at risk of Pulmonary Arterial Hypertension (PAH) and advocates evaluation with Right Heart Catheterisation (RHC). Few published data look into its implementation in everyday clinical practice and compare it to annual echocardiographic (TTE) screening.

Objectives: To compare DA and TTE screening of SSc patients for RHC referral rates and related patient characteristics.

Methods: Data on 57 consecutive patients with a diagnosis of SSc that had at least one visit to Russell's Hall Hospital Scleroderma clinic from February to November 2016 was prospectively collected on Excel (clinical history, physical examination, immunological status, treatment, PFTs, NT-proBNP, urate, ECG, TTE, CXR and HRCT results). DETECT scores were calculated (www.detect-pah.com) and compared with the TTE probability for PAH as per the 2015 ESC/ERS Guidelines².

Results: 31 patients with a full set of data were included in the final analysis. 93.5% were female with a mean age of 64.4 ± 12.9 years, 87% had limited cutaneous (lc) SSc, 58.1% positive antitopoisomerase antibody and mean time since diagnosis was 6.2 ± 3.2 years. The majority of patients (80%) were asymptomatic

for PAH. Mean DLCO was $60.9 \pm 18.3\%$ predicted (the DETECT study included on patients with $DLCO < 60\%$). We did not exclude patients with renal insufficiency; mean eGFR was 74 ± 17.7 ml/min.

The implementation of DA recommended RHC in 18/31 patients (DETECT step 2 score ≥ 35 , 58%, see table 1) compared to just 4/31 (13%) based on TTE by 2015 ESC/ERS guidelines. The additional 14 patients identified by DA were found to have no statistically significant differences in SSc type, dyspnea symptomatology, immunosuppressive treatment, presence of interstitial lung disease (ILD), age, time from diagnosis or symptom onset, eGFR and CRP compared to patients where RHC was not recommended. From the 18 patients identified by DA, only 4 reported shortness of breath. 2/18 had existing cardiac conditions (aortic stenosis, left ventricular hypertrophy), while 9/18 had ILD (5 mild, 2 moderate, 2 severe as per HRCT).

Table 1

	DETECT step 2 score			p
	<35	35-39	>40	
Age, years (median (IQR))	65.8 (26.9)	63.2 (22.3)	72.4 (25.1)	0.875
Disease duration, years (median (IQR))	8 (4)	4 (7)	5 (9)	0.996
eGFR, ml/min (median (IQR))	80 (28)	83 (17)	54.5 (47)	0.958
CRP, mg/L (median (IQR))	3 (5)	3 (3)	3 (2)	0.636
DLCO, % (median (IQR))	65 (17)	64 (12)	53 (30)	0.757
ILD (no. of patients)	No			
Mild	10	5	3	0.087
Moderate	1	3	4	
Severe	2	1	0	
	0	0	2	

Conclusions: Implementation of DA in a largely asymptomatic non-selected SSc patient population is more sensitive for RHC referral than annual TTE screening. Recommendations for RHC per DETECT score are difficult to predict on symptom and other traditional clinical parameters. The use of DA will lead to increased RHC referrals. Cardiologists may need education on this new method for screening and although the ESC/ERS 2015 guidelines discuss DA, they conclude that its cost-effectiveness has not been clarified as compared with symptom-based detection.

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FRI0383 DETECT SCREENING FOR PULMONARY ARTERIAL HYPERTENSION IN SYSTEMIC SCLEROSIS: DATA FROM AN EUSTAR COHORT

C. Ancuta^{1,2}, C. Pomirleanu^{1,2}, R. Maxim², F. Mitu^{1,3}. ¹University of Medicine and Pharmacy Grigore T Popa Iasi; ²Rheumatology 2; ³Cardiology, Clinical Rehabilitation Hospital, IASI, Romania

Background: Early documentation of pulmonary arterial hypertension (PAH) related to systemic sclerosis (SSc) remains a challenge in daily clinical practice, with major prognostic and therapeutic implications. Although several screening algorithms specifically designed to optimize the detection of secondary PAH have already been proposed (e.g., DETECT, REVEAL), no precise approach received complete validation, especially the use of invasive diagnostic right heart catheterization (RHC).

Objectives: Main objective was to assess the risk of PAH in patients with SSc and to compare with PAH screening promoted by European Society of Cardiology/ European Respiratory Society (ESC/ERS) 2009 guidelines, while secondary one to identify predicting factors for developing PAH among clinical and immunological SSc variables.

Methods: Cross-sectional prospective single-center study, applying the DETECT calculator in patients with SSc recruited in EUSTAR 162 center cohort between January 2013- December 2016; all SSc completing at least two monitoring visits at 6 months were considered.

Standard assessments included MEDS (minimal data set EUSTAR), annual echocardiography with systolic pulmonary artery pressure (sPAP), pulmonary function tests with forced vital capacity (FVC), percentage predicted/diffusing capacity for carbon monoxide (DLCO) % predicted, ECG, serum biomarkers (serum urate, NT-proBNP).

PAH risk calculator (<http://detect-pah.com/pah-risk-calculator>), a tool developed and validated in the DETECT study, is able to identify patients requiring echocardiography (STEP 1) respectively RHC (STEP 2), and was systematically applied in our cohort. All sPAP ≥ 45 mmHg or between 35-45 mmHg in the presence of dyspnea were proposed for invasive testing.

Statistical analysis was performed in IBM SPSS-19 version, $p < 0.05$.

Results: 41 out of 56 SSc in our database were recruited: mainly women (85.36%) with diffuse cutaneous SSc (63.41%), anti-topoisomerase (up to half) and anti-centromere (about one third) positive disease; one out of four 4 SSc presented with digital ulcers and one of three with active capillaroscopic pattern.

Using the DETECT PAH calculator, 14/ 41 (34.14%) were recommended for RH as follows: an initial value above 300 points in STEP 1 (with further indication of echocardiographic assessment) and subsequent STEP 2 over 35 were recorded. On the other hand, only 9/41 (21.95%) cases met the ultrasound criteria to be addressed to an invasive assessment when applying the ESC/ERS 2009 guidelines, the difference being statistically significant as compared to DETECT ($p<0.05$). PAH was finally confirmed in 8/41 (19.51%) cases, supporting our preliminary results in a pilot study on a limited number of patients.

Conclusions: DETECT is a reliable algorithm for early detection of PAH in patients with SSs, optimizing PAH screening and prompting the rheumatologist-cardiologist collaboration.

Disclosure of Interest: None declared

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FRI0384

A MINI-INVASIVE TECHNIQUE FOR HAEMODYNAMIC EVALUATION: NEW PERSPECTIVES FOR PULMONARY ARTERIAL HYPERTENSION (PAH) DIAGNOSIS IN SYSTEMIC SCLEROSIS (SSC)

E. Bellucci¹, M.S. Romano², M. Chiostrì², C. Bruni¹, C. Giglioli², P. Bernardo³, M.L. Conforti¹, S. Bellando-Randone¹, S. Guiducci¹, M. Matucci-Cerinic¹.

¹Department of Experimental and Clinical Medicine, Division of Rheumatology, University of Florence; ²Department of Heart and Vessels, Division of Cardiology I; ³Department of Heart and Vessels, Division of Structural Interventional Cardiology, Azienda Ospedaliera Universitaria Careggi, Firenze, Italy

Background: PAH is one of the most severe complication and cause of mortality in SSs, with frequent late diagnosis as asymptomatic in its early stages. Right Heart catheterization (RHC) is the gold standard for PAH detection, though its invasive nature with high risk of procedure related complications stress the need for developing new screening methods to investigate it in early and possibly reversible stages. Pressure Recording Analytical Method (PRAM) was recently developed to obtain a minimally invasive haemodynamic monitoring, using an arterial line and proximal pulsosimetry. This analyses arterial blood pressure curve and measure both cardiac [Cardiac Index, Cardiac Contractility and Vascular Stiffness ratio (dP/dT)] and vascular [vascular stiffness, elastance], which can be usually obtained only through RHC.

Objectives: to evaluate the clinical usefulness of PRAM method in SSs patients and to identify haemodynamic parameters related to increased risk of developing PAH.

Methods: 40 ssc patients (35 women, mean age 60±9,3 years; mean disease duration 7.5 years) were evaluated with both RHC and PRAM on the same day. Mean pulmonary arterial pressure (mPAP), cardiac index (CI), systemic vascular resistances (SVR), right cardiac power index (RCPI, calculated with mPAPXCI_{PRAM}/451) were measured and concordance of the two methods was

Univariate Logistic Regression	Unadjusted OR	95% CI	p value
Dicrote Pressure	1.04	1.00–1.09	0.064
Arterial Elastance	3.16	0.70–14.24	0.134
Right Cardiac Power index	1.11	1.04–1.18	0.002
DLCO	0.94	0.90–0.99	0.021
Multivariate Logistic regression with backward stepwise analysis	Unadjusted OR	95% CI	p value
Right stroke work index	1.12	1.03–1.21	0.007
DLCO	0.94	0.87–1.01	0.072

assessed through Bland-Altman analysis. Systolic pulmonary arterial pressure and TAPSE from echocardiography, forced vital capacity, total lung capacity, both absolute and alveolar volume adjusted Carbone oxide lung diffusion (DLCO and DLCO/VA) from pulmonary function tests, blood tests parameters, nailfold videocapillaroscopy scleroderma patterns were recorded. Univariate and multivariate logistic regression analysis identified variables correlating with RHC-diagnosed PAH: a scoring system was then created, giving 1 point for value satisfying cut-off level.

Results: PRAM showed concordance with RHC estimate of CI and SVR within 95% interval confidence; 14 patients were diagnosed with PAH (mean age 64.4±9.3, mean disease duration 10.5 years, ISSc 61.5%). Multivariate logistic regression analysis showed DLCO (cut off value 47% obtained through ROC curve analysis, $p=0.004$) and RCPI (cut off value 0.12 Watt obtained through ROC curve analysis, $p<0.001$) as the most highly PAH-associated variables. When combining these two variables in the scoring system, patient with score=0 ($DLCO<47\%$ and $RCPI<0.12$ Watt), score=1 ($DLCO<47\%$ or $RCPI\geq 0.12$ Watt) and score=2 ($DLCO<47\%$ and $RCPI\geq 0.12$) were 0%, 21.4% and 78.6% of the PAH population respectively.

Conclusions: PRAM is comparable to RHC in detecting haemodynamic parameters such as SVR and CI. The scoring system combining DLCO and RCPI, obtained with non-invasive tools, could offer the possibility of detecting PAH patients with a high specificity.

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FRI0385

JOINT MANIFESTATIONS IN PATIENTS DIAGNOSED WITH IDIOPATHIC INFLAMMATORY MYOPATHY: MULTICENTER REGISTRY

D.C. Hernández Flórez¹, L. Valor¹, J. Martínez¹, B. Joven², L. Nuno³, C. Larena⁴, I. Llorente⁵, C. Barbadillo⁶, P. García de la Peña⁷, L. Ruiz⁸, H. Moruno⁹, T. Cobo¹⁰, R. Almodovar¹¹, L. Lojo¹², M. García¹³, F. Lopez-Longo¹, ¹H. Gregorio Marañon; ²H.12 de Octubre; ³H.La Paz; ⁴H.Ramon y cajal; ⁵H.La Princesa; ⁶H.Puerta de Hierro; ⁷H.Norte Sanchinarro; ⁸H.Nino Jesus; ⁹H.Principe de Asturias, Madrid; ¹⁰H.Infanta Sofia, Asturias; ¹¹H.F.Alcorcon; ¹²H.Infanta Leonor; ¹³InMusc, Madrid, Spain

Background: Idiopathic inflammatory myopathies (IIM) comprise a heterogeneous group of autoimmune conditions. Joint involvement can be considered to be part of the IIM systemic manifestations, together with a possible gastrointestinal, cardiovascular and/ or pulmonary involvement. Although articular involvement in the IIM has been described as variable and non-specific with a chronic course it might be an early symptom of dermatomyositis in up to 30% of cases and in those patients with overlap syndromes.

Objectives: To evaluate and to identify joint manifestations in IIM patients.

Methods: We evaluated a cohort of 479 patients that included 12 hospitals in the Community of Madrid belonging to the IIM registry of the Society of Rheumatology of Madrid (SORCOM-REMICAM) with diagnosis from January 1980 to December 2014. All patients were diagnosed of IIM according to Bohan and Peter criteria (1). The presence of arthralgia and arthritis was considered. IIM were classified as dermatomyositis (primary and secondary dermatomyositis) (DM) and polymyositis (PM) including the rest of the patients (classification I). Also, IIM were classified (II) as primary polymyositis (PPM), primary dermatomyositis (PDM), overlap syndrome (OSd), juvenile myopathies (JM), cancer-associated myopathies (CAM), autoimmune necrotizing myopathy and inclusion body myositis (these were grouped as other myositis; OM).

Results: We found 70 (18%) patients with acute arthritis (<6 weeks), 74 (19%) patients with chronic arthritis (>6 weeks) and 245 (65%) patients without any joint manifestations. Using the Tanimoto et al. criteria (1), the presence of erosive arthritis was observed in 149/479 (38.3%) of the patients. When comparing the joint manifestations in the PM and DM groups ($n=250$, 52.2% vs. $n=229$, 47.8%) no statistically significant differences were observed. However, assessing joint manifestations according to classification II, we observed that the highest prevalence was found in the OSd group, followed by the PDM group ($p=0.0001$). The group with less joint manifestations was JM compared to OSd and PDM (Table 1).

Table 1: Joint manifestations in IIM according to classification II

Joint manifestations	Comparison between groups		Frequency	P
	OSd vs.	PPM PDM JM CAM OM	90% vs. 54% 90% vs. 71% 90% vs. 45% 90% vs. 49% 90% vs. 58%	
Arthralgias	OSd vs.	PPM PDM JM CAM	90% vs. 54% 90% vs. 71% 90% vs. 44% 90% vs. 49%	0,0001
Arthritis	OSd vs.	PPM JM CAM	90% vs. 34% 90% vs. 28% 90% vs. 33%	0,0001

Conclusions: The presence of joint manifestations associated with IIM in our cohort is higher compared to other studies described in the literature so far and