time for the metacarpophalangeal (MCP) joints might yield some disadvantages. Having the hand and arm immobilised for this long might discomfort the patients, thereby reducing acceptability, resulting in poor adherence. The longer imaging time might also increase the risk of motion-induced image degradation.
Objectives: The objective of this study was two-fold. Firstly, we investigated motion-induced image degradation of 2nd and 3rd MCP joints for two methods of standardised positioning of the hand. Secondly, the acceptability of HR-pQCT imaging was explored for patients with established Rheumatoid Arthritis (RA).
Methods: Fifty patients with RA had their 2nd and 3rd MCP joints imaged by HR-pQCT. The patients were scanned two times, using a custom-made positioning splint, with and without an inflatable immobilisation device. In order to investigate acceptability, the patients were afterwards given a questionnaire regarding their procedure experience of HR-pQCT imaging with and without the inflatable hand immobilisation device. For each acquisition, the image quality was graded, and the number, width, depth and length of cortical interruptions were measured. Twenty percent of the acquisitions were reevaluated to determined intrareader reliability using the intraclass correlation coefficient (ICC).
Results: The acceptability regarding HR-pQCT imaging was high, with only 6% preferring conventional X-ray compared to 40% of the patients preferring HR-pQCT imaging. The remaining 54% were indifferent to the modality. Seventy-four percent found it hard to keep their fingers at rest during the imaging. Fifty percent of the patients thought the inflatable hand immobilisation device helped keep their fingers at rest compared to only 6% who believed it impaired their ability to keep their fingers at rest. This was not observable in the image quality, however, as the overall image quality was high and no clinically relevant difference of the visual grading between the acquisitions with and without the inflatable hand immobilisation device was observed. The number, width, depth and length of cortical interruption all indicated excellent reproducibility as shown in table 1. No discernible difference between the two acquisitions was observed.

Table 1. Intraclass correlation coefficients for the number, width, depth and length of cortical interruptions, with and without the inflatable hand immobilization device.

	Acquisition 1	Acquisition 2
Cortical interruptions number	0.99 (0.94 to 1.00)	0.98 (0.91 to 1.00)
Average cortical interruption width	0.98 (0.92 to 0.99)	0.99 (0.95 to 1.00)
Average cortical interruption depth	0.98 (0.92 to 0.99)	0.97 (0.89 to 0.99)
Average cortical interruption length	0.93 (0.75 to 0.98)	0.98 (0.94 to 1.00)

Acquisition 1 - Without the inflatable hand immobilization device.
Acquisition 2 - With the inflatable hand immobilization device.
Data presented as mean (95% confidence intervals).

Conclusion: The high acceptability signifies the feasibility of the novel HR-pQCT imaging; this was evident by the fact that more patients preferred HR-pQCT imaging compared to conventional X-ray examination. The inflatable hand immobilisation device did not reduce motion-induced image degradation as the overall image quality was high for imaging of the MCP joints in both acquisitions. Our result, however, shows that the patients are more than capable of keeping their fingers at rest for the long acquisition time.
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SAT0553 QUANTITATIVE ANALYSIS OF IMAGING FEATURES AT CHEST CT OF PULMONARY ARTERIAL AND VENOUS COMPONENTS IN SYSTEMIC SCLEROSIS-INTERSTITIAL LUNG DISEASE (SSC-ILD).

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Background: Interstitial lung disease (ILD) and pulmonary arterial hypertension carry a negative impact on SSc prognosis. Chest CT is the gold standard in assessing ILD and helps in evaluating associated vascular involvement.
Objectives: As qualitative analysis of CT scans is limited by low reproducibility and time constraints, we aimed at evaluating parenchymal and vascular features in SSc-ILD by quantitative analysis (QA) of CT scans and testing the relationship with clinical-functional data.
Methods: We prospectively enrolled 80 patients who underwent PFTs and chest CT scan spirometry gated at TLC on the same day. Clinical, lung functional and diffusion data, as well as disability indexes were collected. CT images were analyzed by a computational platform for texture analysis of ILD patterns (CALIPER), through Imbio LTA. It quantified the extent of normal pattern (NP %), ground glass opacities (GG %), reticulation (RET %), honeycombing (HC %), total ILD extent (ILD EXT %) and hyperlucent (HL %). Low density areas, representing emphysematous area, were also quantified (LDA %). For lung vessel analysis, a software program developed by the Ludwig Boltzmann Institute for Lung Vascular Research was used. This software determined total, arterial, and venous vascular volumes (TV, AV, VV), and relative volumes (TV%, AV%, VV%), as well as density and number for total, arterial and venous vessels.
Results: 43/80 patients/CT scans were eligible for both software analyses, while 36/43 for arterial and venous separation. TV% and total vessel density were correlated positively with mRSS and negatively with %FVC (r=-0.537 and r=-0.382) and %TLC (r=-0.511 and r=-0.648), while vessel tortuosity correlated positively with %DLco. This was confirmed when separately analyzing arterial vessels, while VV% negatively correlated with %FVC, %TLC and %DLco. There was a positive correlation between %ILD patterns and %vascular volumes, being significant for TV%-AV%, total vessels and arterial density. Conversely, %ILD patterns were negatively correlated with VV and number of veins detected, despite positive correlation between VV% and ILD_EXT%. When clustering patients according to %FVC and %DLco with 80% normal cutoff, %FVC allowed clustering according to significantly different ILD patterns extents and vascular features, while %DLCO for vascular features only. Moreover, the consecutive addition of functional impairment and worsening of ILD (from both normal %FVC and %Dlco, to %DLco impairment only to both %FVC and %Dlco impairment), there was a significant increase in %TV, % AV and %VV, with the exception of decrease in %VV and venous density in patients with double impairment versus DLco single impairment.
Conclusion: This is the first study showing in SSc a direct correlation between ILD and the increase in lung vascular volume, which is characterized by increase in arterial volume and density and reduction in venous volume and number. These results might be explained by the reduction of pulmonary volume due to fibrosis. However, also a para-physiological mechanism of redistribution of blood flow in lung areas, less involved by ILD, might be considered. Further studies on lung vessel quantification and distribution are ongoing.
Disclosure of Interests: Cosimo Bruni Speakers bureau: Actelion, Eli Lilly, Mariaelena Occhipinti Consultant of: Imbio, Gianna Camiciottoli: None declared, Maurizio Bartolucci: None declared, Michael Pienn: None declared, Gemma Lepri: None declared, Alessio Fabbrizzi: None declared, Alessandra Tottoli: None declared, Giuglia Ciardi: None declared, Dilia Giuggioli: None declared, Giovanna CUOMO: None declared, Francesco Masini: None declared, Horst Olschewski: None declared, Federico Lavorini: None declared, Linda Calistri: None declared, Marco Matucci-Cerinic Grant/research support from: Actelion, MSD, Bristol-Myers Squibb, Speakers bureau: Acetelion, Lilly, Boehringer Ingelheim
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SAT0554 SONOGRAPHIC ASSESSMENT OF CALCIUM PYROPHOSPHATE DEPOSITION DISEASE AT WRIST. A FOCUS ON THE SCAPHO-LUNATE LIGAMENT.

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Background: Only few articles evaluated the wrist in calcium pyrophosphate deposition disease (CPPD), although it is the second most frequent target of CPPD. Very recently, in a computed tomography (CT) study ligamentous calcifications were reported as a highly specific feature of CPPD at wrist level (1).
Objectives: i) to determine the prevalence and distribution of the ultrasound (US) findings indicative of calcium pyrophosphate (CPP) crystal deposits at the wrist, with a particular focus on the dorsal aspect of the scapho-lunate ligament (SLL); ii) to investigate the diagnostic accuracy of US and conventional radiography (CR) in the evaluation of CPP crystal deposits at wrist level, iv) to assess the agreement between the different imaging techniques.
Methods: Consecutive patients with a "definite" diagnosis of CPPD according to the Ryan and McCarty criteria and disease controls were prospectively included in this cross-sectional single-centre study. Dorsal part of the SLL, triangular fibrocartilage complex (TFCC), and volar recess of the radio-lunate joint were explored using US (according to EULAR standard scans and OMERACT definitions), CR and CT.
Results: Sixty-one CPPD patients and 39 disease controls were enrolled. Two-hundred wrists were evaluated using both CR and US. CT data of 26 (13.0%) wrists were available: 20 wrists in CPPD patients and 6 wrists in controls. CPP crystal deposits were found by US in at least one wrist in 95.1% of CPPD patients and in 15.4% of controls (p<0.001). SLL calcification was reported in 83.6% of CPPD patients and in 5.1% of controls (p<0.001). CPP crystal deposits were