Scleroderma, myositis and related syndromes

**SAT0305**

**PERFORMANCE OF HIGH FREQUENCY ULTRASOUND IN THE ASSESSMENT OF SKIN INVOLVEMENT IN SYSTEMIC SCLEROSIS**

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**Background:** The modified Rodnan skin score (mRSS) is the current gold standard for skin assessment in systemic sclerosis (SSc) both in clinical trials and practice. High frequency ultrasound (HFUS) has been suggested to offer a quantitative assessment of skin thickness in SSc by several studies, however results are inhomogeneous with regards to the machine used, number of imaged sites, as well as the various stages of skin involvement.

**Objectives:** Aim of this cross-sectional study was to compare performance of HFUS in the assessment of skin involvement in diffuse cutaneous SSc (dcSSc) patients, at different disease stages, as compared with healthy controls (HC).

**Methods:** Dorsal finger, hand, forearm and upper arm skin thickness of 20 SSc patients, at different disease stages, and of matched-HC were scanned bilaterally using HFUS. Two investigators, expert in MSK ultrasound, blinded to the clinical details, measured skin thickness using Esaote MyLab70 equipped with a 22 MHz probe. Clinical involvement was assessed by a blinded operator using the mRSS and results were compared with imaging data. Statistical analysis was performed using GraphPad Prism software V.7.0.

**Results:** A total of 704 HFUS images were obtained from 22 dcSSc patients [20 Female, mean age 49 ±11 years, 12 with ≤5 years disease duration] and 22 HC [20 Female, mean age 50.7 ±6.7 years]. Skin thickness was significantly higher in SSc patients than in HC at fingers (p<0.001) and hands (p<0.0001), while no significant difference was found at the forearms and upper arms (p>0.05). HFUS showed a good discriminative ability between SSc and HC skin at fingers and hands (AUC 0.91, 0.86 and 0.65 for fingers, hands, forearms and upper arms respectively). When analysing the subgroup of SSc patients with ≤5 years disease duration, HFUS showed a slightly lower performance in discriminating between SSc without clinical skin involvement (site mRSS=0) and HC (AUC 0.68, 0.57, 0.68 for hands, forearms and upper arms respectively). Mean HFUS skin thickness significantly correlated with mRSS at site of analysis (hand: r=0.78, p<0.0001; forearm: r=0.47, p=0.0013; upper arm: r=0.52, p=0.0003) and total mRSS (hand: r=0.53, p=0.0002; forearm: r=0.63, p<0.0001; upper arm: r=0.63, p<0.0001). No significant correlation was found between finger skin thickness and mRSS (both local and total, p>0.05). Interobserver reliability for skin thickness was good to excellent at all sites with intraclass correlation coefficient ranging between 0.79 and 0.94.

**Conclusion:** HFUS of the skin is a reliable measure of skin involvement in SSc. Studies with higher number of patients with different clinical features are needed to explore the potential of HFUS to discriminate between healthy and SSc skin, including sites at a preclinical stage of involvement.

**Disclosure of Interests:** None declared.

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**SAT0306**

**SEMIQUANTITATIVE AND QUANTITATIVE ANALYSIS OF LUNG CT IN THE ASSESSMENT OF INTERSTITIAL LUNG DISEASE IN IDIOPATHIC INFLAMMATORY MYOPATHIES WITH A FOCUS ON ANTISYNTHETASE**

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**Background:** Intstitial lung disease (ILD), is common in patients with idiopathic inflammatory myopathies (IIM) and strongly impact on patients' morbidity and mortality. Patients with anti-aminocarboxyl-transfer RNA-synthetases (anti-ARS) antibodies are associated with an increased risk of ILD.

**Objectives:** Defining the radiological characteristics of IIM patients, with special focus on serological groups, through qualitative, semiquantitative and quantitative analysis of lung CT.

**Methods:** This was a prospective study conducted from 2016 to 2019. Ninety-eight IIM patients (35 men, 63 women) were included. Myositis specific autoantibodies (MSA) were assessed with Myositis Prophylle III (Euroimmune, Luebeck).

Each patient had a baseline CT; the total score of Warwick (WS) was obtained at semiquantitative analysis. The radiological scores ILD% (interstitial lung disease %) and PVR5% (pulmonary vascular related structure) were the result of quantitative analysis in 61 patients (CALIPER). Pulmonary function tests (PFTs) included TLC%, FVC% and DLCO% (65 patients). The analysis was conducted in the whole group and divided in subgroups based on their MSA pattern; in particular anti-ARS Group (1) and patients negative to MSA (Group 2) were analysed.

**Results:** Positive correlations between ILD% and PVR5% (Rho=0.916; p<0.000) and ILD% and PVR5% (Rho=0.663; p=0.000) and WS and PVR5% (Rho=0.637; p<0.001) were found.

The most relevant inverse correlations were found between ILD% and DLCO% (Rho=-0.592; p<0.001). PVR5% and DLCO% (Rho=-0.549; p<0.001) and WS and DLCO% (Rho=-0.471; p=0.001).

Statistically significant higher values of WS, ILD% and PVR5% were found in Group 1 (WS=15, ILD%=11 and PVR5%=3.5), compared to Group 2 (WS=2.5, ILD%=0.84 and PVR5%=2.2). NSP pattern resulted dominant represented in the two groups (80% Group 1, 75% Group 2). No statistically significant differences of DLCO%, FVC% and TLC% were found.

**Conclusion:** The inverse correlation between the radiological scores and the functional data TLC% and DLCO% (p<0.001) confirm the role of lung CT in the clinical management of ILD in IIM patients, and may represent a promising tool for clinical trials. For the first time anti-ARS and serological negative patients were defined through qualitative, semiquantitative and quantitative analysis of lung CT. Further study should be conducted in order to define the prognostic value of the quantitative analysis of lung CT in the follow up of IIM patients.

**Disclosure of Interests:** None declared.

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