Background: High-resolution computed tomography (HRCT) is the gold standard diagnostic test for interstitial lung disease (ILD), a significant cause of morbidity and mortality in systemic sclerosis (SSc). Different algorithms have been proposed for the screening of SSc-ILD, including the use of pulmonary function tests (Forced Vital Capacity - FVC, Lung Diffusion of Carbonic Oxide - DLCO). A prior survey reported that 50-66% of general rheumatologists and SSc experts ordered HRCT for ILD screening in newly diagnosed SSc patients (1).

Objectives: Given the recent availability of on-label treatment for SSc-ILD (2), the publication of consensus recommendations for the identification of SSc-ILD (3) and recent awareness programs for the use of HRCT to detect SSc-ILD, we aimed to re-evaluate the use of HRCT for screening, re-screening and follow-up of SSc-ILD.

Methods: An invitation was sent to the European Scleroderma Trials and Research (EUSTAR) and Scleroderma Clinical Trials Consortium (SCTC) members, also advertised through social media. Answers were recorded between Nov 25th and Dec 31st 2020. Questions were asked on the use of chest HRCT at baseline, the re-screening of patients with a negative baseline HRCT and the follow-up of HRCT positive SSc-ILD patients. When HRCT was not routinely requested, additional details were collected about the parameters guiding its use.

The results of the survey were tested for association with geographical origin, medical specialty, working environment, SSc referral institute and scientific group membership of the responders, using Chi-squared test.

Results: 205/630 (32.5%) physicians replied to the survey. Participants were widely distributed in terms of geographical origin (130 Europe, 23 Asia, 23 North America, 31 other continents), medical specialty (156 rheumatology, 21 internal medicine, 14 clinical immunology, 14 other), working environment (176 University Hospital, 12 community hospital, 17 other), SSc dedicated clinic (179 referral and 26 non-referral) and scientific group membership (98 EUSTAR, 42 SCTC, 24 EUSTAR and SCTC, 23 not declared).

At SSc diagnosis, 72% of responders would perform HRCT: 66.7% as routine screening for ILD (67.4% of SSc referral and 62% for non-referral physicians) and 29% for diagnostic purposes (among the latter, if cracks on auscultation – 92.5%, FVC<80% predicted - 86.6%, FVCxDLCO relative decline reaching the current definition of ILD progression, 86.6% or dyspnoea at rest/exercise – 65.1/83.3%).

During follow-up, 78.8% of responders would repeat an HRCT in baseline negative cases: 20.3% as a yearly routine screening and 64.5% for diagnostic aims (decision on the latter group was more frequently driven by FVCxDLCO relative decline indicative of ILD progression - 90.6%, new onset or worsening of dyspnoea at rest/exercise – 80.5/86.6%, new onset or worsening of lung cracks on auscultation – 82.6%).

Finally, 94.5% of respondents would repeat a chest HRCT after SSc-ILD diagnosis: 36.8% as a yearly routine and 56.7% according to clinical evaluation (driven by new FVCxDLCO relative decline based ILD progression – 90.8%, new onset or worsening of dyspnoea at rest/exercise – 83.2/81.7%, 5.2% to evaluate treatment effects).

We found no difference in the distribution of answers among groups.

Conclusion: The use of baseline HRCT for the screening of SSc-ILD has slightly increased in non-referral and remained stable in referral centers compared to previous surveys, indicating that the implementation of guidelines might be successful and awareness programs should be continued. In addition, we provide new data on use of HRCT in re-screening and follow-up. The development of validated algorithms to further support the appropriate application of HRCT at follow-up is highly needed.

References:

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Table 1. Convergent validity of the CSF-17

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CSF-17: Cochin 17-item Scleroderma Functional scale. SHAQ: Scleroderma Health Assessment Questionnaire. HADS-A: Hospital Anxiety and Depression Scale-Anxiety. HADS-D: Hospital Anxiety and Depression Scale-Depression. SF-12 MICS: Short Form-12 Mental Component Score. SF-12 PCS: Short Form-12 Physical Component Score. *p<0.05, **p<0.001

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