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**Screening High Resolution Computed Tomography of the Chest to Detect Interstitial Lung Disease in Systemic Sclerosis: A Global Survey of Rheumatologists**

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Interstitial lung disease (ILD) affects approximately 40-60% of adults with systemic sclerosis (SSc) and is the leading cause of death and hospitalization in this population (1-4). Despite the life-threatening nature of ILD and the availability of existing therapies (5, 6), there are no clinical practice guidelines that recommend screening for ILD in SSc. Although pulmonary function tests (PFTs) are widely used by rheumatologists as a screening test for SSc-ILD, studies have shown that they are neither sensitive nor specific for the detection of ILD in this population (3). Although high resolution computed tomographic scan of the chest (HRCT) is the gold standard test for detection of ILD (7), rheumatologists' HRCT ordering practices in their SSc patients is unknown. The aim of this study was to determine rheumatologists' HRCT screening practices in their newly diagnosed SSc patients.

We emailed a REDCap (8) survey to all 676 American College of Rheumatology member rheumatologists in New York, New Jersey, Pennsylvania, and Connecticut, and to 356 SSc experts (defined as rheumatologist members of the Scleroderma Clinical Trials Consortium and/or the EULAR Scleroderma Trials and Research Group with at least one publication in SSc) worldwide to identify current HRCT screening practices for SSc-ILD. Seventy-six (11%) of the general rheumatologists responded (of whom 73 see at least one new SSc patient per year), as did 135 (38%) of the SSc experts. Overall, 51% of the general rheumatologist respondents and 66% of the SSc expert respondents reported routinely ordering HRCTs in all newly diagnosed SSc patients (Figure 1A). We identified significant global practice variation in HRCT screening practices among SSc experts. Screening HRCTs were routinely ordered by 0% (0/5) of respondents in Australia, 33% (2/6) in Canada, 60% (28/47) in the United States, 79% (45/57) in Europe, 80% (4/5) in Asia, and 100% (7/7) in Latin America. Moreover, among rheumatologists who do not routinely perform screening HRCTs in their SSc patients, there was very little consensus regarding indications for an HRCT in SSc (Figure 1B). For example, only 81% of SSc experts would order an HRCT for dyspnea on exertion, 74% for an abnormal forced vital capacity (< 80 %predicted), and 52% for an abnormal diffusion capacity for carbon monoxide (< 80 %predicted). The reason that SSc specialists were less likely than general rheumatologists to perform an HRCT for certain indications was not explained by this study. Of the 95 SSc

experts who answered a question about circumstances in which they would repeat an HRCT, 9 (9.5%) repeat an HRCT in their SSc patients annually.

A limitation of this study is the low response rate. Given the wide practice variation in HRCT screening practices by both SSc experts and general rheumatologists, further research is needed into the clinical impact of HRCT screening for ILD in SSc. Such research will ultimately help inform the development of a clinical practice guideline for ILD screening in SSc, which would help harmonize rheumatologists' approach to the identification of the leading cause of mortality in SSc.

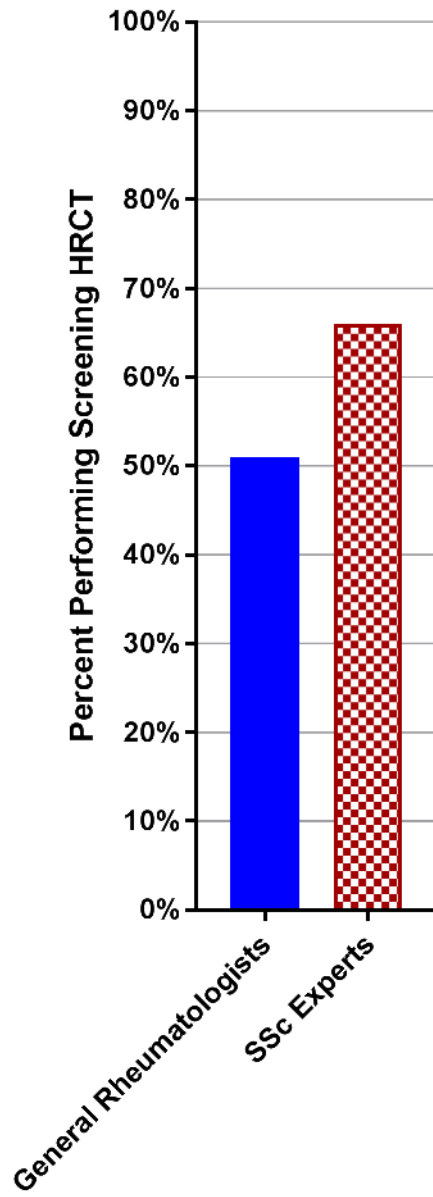
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Figure 1: A) Percent of general rheumatologists (n = 73) and SSc experts (n = 135) who routinely perform screening HRCT in all newly diagnosed SSc patients. B) Indications for HRCT among general rheumatologists (n = 34, blue solid bar) and SSc experts (n = 43, red checked bar) who do not routinely perform screening HRCT in all newly diagnosed SSc patients. The denominator ranges from 32-34 for general rheumatologists and 41-43 for SSc experts due to variable response rates to individual questions. ANA, anti-nuclear antibody; DLCO, diffusion capacity for carbon monoxide; FVC, forced vital capacity; HRCT, high resolution computed tomographic scan of the chest; SpO<sub>2</sub>, peripheral arterial oxygen saturation; LLN, lower limit of normal.

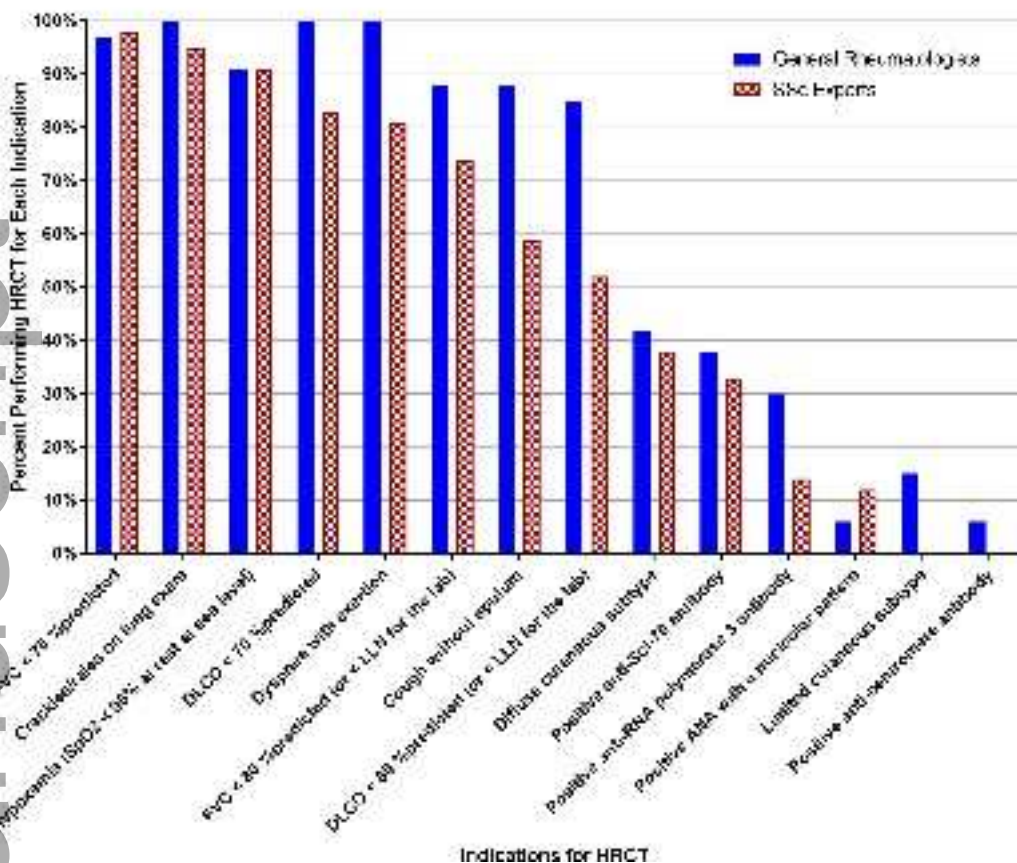
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