Background: Pulmonary disease is one of the most relevant with interstitial lung disease (ILD) being one of the most frequent forms of involvement with resultant worsening of morbidity and mortality in disorders such as systemic sclerosis (SSc), rheumatoid arthritis (RA), or inflammatory myopathies. High-resolution computed tomography (HRCT), which is the current gold standard for diagnosis and evolutionary control, is problematic owing to ionizing radiation, cost, and accessibility. In this context, lung ultrasound (LUS) is an attractive tool in a growing research and validation process.

Objectives: to assess specificity and sensitivity of LUS in rheumatic diseases on Russian cohorts of patients.

Methods: 110 pts with ILD of rheumatic disease such as: systemic sclerosis (n=80) (mean age 49.8±13.3, fem 57); vasculitis n=11 (mean age 40.7±9.1, fem 5); dermatomyositis (DM), anti-synthetase syndrome (ASS), polymyositis (PM) n=20, (mean age 48.7±11.9, fem 13); rheumatoid arthritis (RA) n=9 (mean age 56.5±6.3, fem 7); Sjogren’s syndrome (SSj) n=9 (mean 59.6±12.3, fem 8). Chest HRCT were evaluated. Control group (n=30) without rheumatic diseases and ILD (mean age 51.4±15.4, fem 24); (chest X-ray (CXR) were evaluated). LUS examination protocol that include the anterior, lateral, and/or posterior thorax have been suggested. The B-lines score denoting the extension of ILD was calculated by summing the number of B-lines on a total of 58 scanning sites. In each patient ultrasound comets (ULC) score was obtained by summing the number of comets detected as previously recommended. The data were collected in protocols for statistical testing. The diagnostic accuracy LUS is expressed as sensitivity, specificity, ROC (receiver operating characteristic) curves and AUCs (areas under curve) were used of analyze the accuracy of B-lines in recognizing the presence of ILD on HRCT.

Results: the analysis included all the 110 patients enrolled in the study. ROC curve analysis the ULC score of anterior chest area was (AUC =0.876; 95% CI 0.82-0.96; p<0.0001); ROC cure analysis the ULC score of posterior chest area was (AUC =0.908; 95% CI 0.858-0.958; p<0.0001); ROC cure analysis for the total ULC score was (AUC =0.932; 95% CI 0.892-0.972; p<0.0001). Accuracy of echographic signs (B-line) in the different chest areas in the detection of interstitial lung disease (Table 1).

<table>
<thead>
<tr>
<th>Chest Area</th>
<th>Total B-line Score (TBLS)</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior chest</td>
<td>&gt;5</td>
<td>61.8%</td>
<td>96%</td>
</tr>
<tr>
<td></td>
<td>&gt;10</td>
<td>48.2%</td>
<td>100%</td>
</tr>
<tr>
<td>Posterior chest</td>
<td>&gt;5</td>
<td>85.5%</td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td>&gt;10</td>
<td>73.6%</td>
<td>90%</td>
</tr>
<tr>
<td>All chest areas</td>
<td>&gt;5</td>
<td>89.1%</td>
<td>70%</td>
</tr>
<tr>
<td></td>
<td>&gt;10</td>
<td>81.8%</td>
<td>87%</td>
</tr>
</tbody>
</table>

Using the TBLS to identify a positive LUS examination, sensitivity and specificity were different depending on the area investigation. The best results were in the posterior area and all chest areas.

Conclusion: our research documented the high diagnostic accuracy of LUS in the detection of ILD. Our findings support the use of LUS a sensitive tool for ILD detection, especially considering that it’s an inexpensive and nonionizing technique.

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Background: The evaluation of human body composition is crucial for body weight management, especially in pathological conditions. Patients whose body weight greatly exceeds or remain below the reference range, need regular monitoring in order to personalise the nutritional treatment plan. To this end, bioelectrical impedance analysis (BIA) is a widely accepted tool, along with ultrasound techniques. Among emerging ultrasound-based technologies, Radiofrequency Echographic Multi Spectrometry (REMS) is a powerful approach that can be effectively used for body composition analysis.

Objectives: The present study aims to assess the accuracy of REMS in comparison to BIA for body composition assessment.

Methods: The cohort included 141 males and females aged between 60 and 80 years. All subjects underwent body mass measurement by REMS and BIA and both body fat percentage (BFP) and basal metabolic rate (BMR) parameters were assessed.

Results: The estimation of BFP measured with BIA resulted in 40.4% (interquartile range [IQR]: 35.5% to 45.2%), which value did not differ from 41.1% (IQR: 36.5% to 47.1%) obtained with REMS (p=0.6). The BMR determined by BIA was 1329.0 kcal/day (IQR: 1270.5 to 1423.5 kcal/day), which was in a similar range as the value of 1323.5 kcal/day (IQR: 1266.0 to 1420.0 kcal/day) assessed by REMS (p=0.7).

Conclusion: The present study demonstrated the excellent ability of REMS to accurately determine the body composition, resulting as an alternative approach to conventional BIA.

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1Jena University Hospital – Friedrich Schiller University Jena, Department of Internal Medicine III, Jena, Germany; 2Jena University Hospital – Friedrich Schiller University Jena, Department of Internal Medicine I, Jena, Germany; 3V.A. Nasonova Research Institute of Rheumatology, Inflammatory Arthritis, Moscow, Russian Federation

Background: Interstitial lung disease (ILD) in inflammatory rheumatic diseases (IRD) is associated with increased mortality. Moreover, the lung is one of the most affected organs on IRD, but the clinical manifestations and severity can vary from subclinical abnormality to dyspnea, respiratory failure, and death.

Objectives: The objective of the following study is to evaluate the frequency and type of ILD in asymptomatic patients at the onset of IRD.

Methods: The study represents a sub-analysis of a case-control study performed earlier, and includes 126 patients with a newly diagnosed IRD. The study cohort was divided in two groups (ILD group: n = 63 and control group: n = 63). The patients were evaluated for respiratory symptoms (cough, spumt, dyspnea) and sarcospiophenia. If possible, all patients received a lung function test and optional a chest x-ray. Patients with pathological findings in the screening tests (chest x-ray or reduced diffusing capacity for carbon monoxide (DLCO) < 80 %) maintained a high-resolution computer tomography (HR-CT) of the lung. The sub-analysis includes 20 patients with asymptomatic ILD at the onset of IRD.

Results: The asymptomatic ILD group consists out of 75 % female (n = 15) and 25 % male (n = 5) patients, with median age of 51.8 years (SD ± 17.1 years). In comparison, asymptomatic ILD patients are significant younger (t(27 .4) = 2.36, p = 0.026), but the distribution of gender is similar. The mean values in different pulmonary function parameter are: FVC: 89.9% ± 19.3%; DLCO: 69.9% ± 21.2%; FEV1: 87.9% ± 21.4%; TLC: 91.0% ± 16.5% and TLCO: 82.1% ± 20.6% (FVC = Forced Vital Capacity, FEV1 = Forced Expiratory Volume in 1 second, TLC = Total Lung Capacity, TLCO = Transfer factor of the Lung for carbon monoxide). The observed CT patterns are pure ground glass opacities (GGO) (50%, n = 10), non-specific interstitial pneumonia (NSIP) (25%, n = 5), granuloma/proliferations (15%, n = 3), usual interstitial pneumonia (UIP) (5%, n = 1) and lymphoctic interstitial pneumonia (LIP) (5%, n = 1). The distribution of CT pattern was not significant to the study cohort was divided in two groups (ILD group: n = 63 and control group: n = 63). The patients were evaluated for respiratory symptoms (cough, spumt, dyspnea) and sarcospiophenia. If possible, all patients received a lung function test and optional a chest x-ray. Patients with pathological findings in the screening tests (chest x-ray or reduced diffusing capacity for carbon monoxide (DLCO) < 80 %) maintained a high-resolution computer tomography (HR-CT) of the lung. The sub-analysis includes 20 patients with asymptomatic ILD at the onset of IRD.


1Jena University Hospital – Friedrich Schiller University Jena, Department of Internal Medicine III, Jena, Germany; 2Jena University Hospital – Friedrich Schiller University Jena, Department of Internal Medicine I, Jena, Germany; 3V.A. Nasonova Research Institute of Rheumatology, Inflammatory Arthritis, Moscow, Russian Federation


1Jena University Hospital – Friedrich Schiller University Jena, Department of Internal Medicine III, Jena, Germany; 2Jena University Hospital – Friedrich Schiller University Jena, Department of Internal Medicine I, Jena, Germany; 3V.A. Nasonova Research Institute of Rheumatology, Inflammatory Arthritis, Moscow, Russian Federation