

ASYMPTOMATIC AUTOIMMUNE INTERSTITIAL LUNG DISEASE: CLINICALLY SILENT BUT NOT CLINICALLY INSIGNIFICANT

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Abstract

Introduction: Autoimmune interstitial lung disease (ILD) may be present without dyspnea or cough, but the clinical significance of asymptomatic disease remains uncertain. We aimed to estimate the registry-based prevalence of asymptomatic autoimmune ILD and compare clinical, functional, and radiologic characteristics between asymptomatic and symptomatic patients.

Materials and methods: We performed a baseline cross-sectional analysis of the Argentine Prospective Registry of Autoimmune Interstitial Lung Disease (EPIMAR II). Adults with autoimmune ILD diagnosed by multidisciplinary evaluation were classified as asymptomatic if they reported no dyspnea or chronic cough at registry enrollment. Pulmonary function test, 6-minute walk test data, and centrally reviewed high-resolution computed tomography findings were analyzed.

Results: Among 215 patients, 75 (35%) were asymptomatic at enrollment. Asymptomatic patients had higher FVC % predicted than symptomatic patients (74% vs. 68%, $p = 0.02$), whereas diffusing capacity of the lungs for carbon monoxide (DLCO) % predicted was numerically higher but did not reach statistical significance (60% vs. 54%, $p = 0.20$). Extent of radiologic involvement >20% was present in 30/75 asymptomatic patients (40%) and 92/140 symptomatic patients (66%). Patients with extent

of radiologic involvement >20% had lower forced vital capacity (FVC) % predicted and DLCO % predicted than those with <20% involvement.

Conclusion: Asymptomatic autoimmune ILD was frequent and was associated with measurable radiologic and functional abnormalities. Absence of dyspnea or cough should not be equated with absence of clinically relevant lung involvement.

Key words: interstitial lung disease, autoimmune diseases, connective tissue diseases, respiratory function tests, multicenter study

Resumen

Enfermedad pulmonar intersticial autoinmune asintomática: clínicamente silente pero no clínicamente insignificante

Introducción: La enfermedad pulmonar intersticial autoinmune puede estar presente sin disnea ni tos, pero el significado clínico de la enfermedad asintomática no está bien definido. El objetivo fue estimar su prevalencia en el Registro Prospectivo Argentino de Enfermedad Pulmonar Intersticial Autoinmune (EPIMAR II) y comparar las características clínicas,

funcionales y radiológicas de pacientes asintomáticos y sintomáticos.

Materiales y métodos: Se realizó un análisis basal transversal del registro multicéntrico EPIMAR II en Argentina. Se incluyeron adultos con enfermedad pulmonar intersticial autoinmune diagnosticada por evaluación multidisciplinaria. Los pacientes fueron clasificados como asintomáticos si no presentaban disnea ni tos crónica al ingreso. Se analizaron función pulmonar, caminata de 6 minutos y tomografía computarizada de alta resolución con lectura centralizada.

Resultados: Entre 215 pacientes, 75 (35%) estaban asintomáticos al ingreso. La capacidad vital forzada % predicha fue mayor en asintomáticos que en sintomáticos (74% vs. 68%, $p = 0.02$), mientras que la difusión de monóxido de carbono % predicha fue numéricamente mayor, sin significación estadística (60% vs. 54%, $p = 0.20$). La extensión radiológica >20% estuvo presente en 30/75 asintomáticos (40%) y 92/140 sintomáticos (66%). Los pacientes con extensión >20% tuvieron menor capacidad vital forzada y difusión de monóxido de carbono % predichas que aquellos con extensión <20%.

Conclusión: La enfermedad pulmonar intersticial autoinmune asintomática fue frecuente y se asoció con alteraciones radiológicas y funcionales objetivas. La ausencia de disnea o tos no debe equipararse con ausencia de compromiso pulmonar clínicamente relevante.

Palabras clave: enfermedad pulmonar intersticial, enfermedades autoinmunes, enfermedades del tejido conectivo, pruebas de función respiratoria, estudio multicéntrico

KEY POINTS

Current knowledge

Autoimmune interstitial lung disease can occur without dyspnea or cough. Symptom-based assessment may miss early or clinically silent disease, particularly in systemic autoimmune rheumatic diseases. The clinical meaning of asymptomatic disease remains incompletely defined in multicenter real-world cohorts.

Contribution of this article to current knowledge

- In the Argentine Prospective Registry of Autoimmune Interstitial Lung Disease (EPIMAR II), 35% of patients were

asymptomatic at enrollment. Many had reduced lung function, radiologic extent >20%, or exercise desaturation. These findings support structured baseline assessment and risk-based screening rather than relying only on respiratory symptoms.

Interstitial lung disease (ILD) encompasses a diverse group of pulmonary disorders characterized by variable degrees of inflammation and fibrosis that may be associated with impaired respiratory function and adverse prognosis¹. Within systemic autoimmune diseases, ILD may be present without overt respiratory symptoms, creating a diagnostic challenge when screening relies mainly on dyspnea or cough²⁻⁴. These asymptomatic or so-called “subclinical” presentations are increasingly recognized, but their clinical interpretation remains uncertain⁵⁻¹⁰.

Patients with rheumatoid arthritis, systemic sclerosis, idiopathic inflammatory myopathies, and other autoimmune rheumatic diseases are at increased risk of ILD, which may represent an important contributor to morbidity and mortality¹¹. Early identification is clinically relevant because longitudinal studies suggest that some patients may progress despite absent or minimal symptoms¹².

The Argentine Prospective Registry of Autoimmune Interstitial Lung Disease (EPIMAR II) provides a multicenter real-world cohort to estimate the registry-based prevalence and clinical correlates of asymptomatic autoimmune ILD in Argentina^{13,14}. The primary objective of this baseline cross-sectional analysis was to determine the prevalence of asymptomatic autoimmune ILD and to compare clinical, functional, and radiologic characteristics between asymptomatic and symptomatic patients. A secondary objective was to examine the cross-sectional relationship between radiologic extent and pulmonary function.

Materials and methods

Study design and population

EPIMAR II is a multicenter, observational registry of autoimmune ILD conducted in Argentina. This manuscript reports a baseline cross-sectional analysis of 215 consecutive eligible patients enrolled in the registry

between February 2021 and September 2024, inclusive, using baseline data available for the present analysis. Eligible patients were adults with ILD diagnosed by multidisciplinary evaluation and associated with connective tissue disease (CTD), interstitial pneumonia with autoimmune features (IPAF), or ANCA-associated disease.

ILD was defined by high-resolution computed tomography (HRCT) findings consistent with interstitial lung abnormalities. Patients with alternative ILD etiologies, including occupational exposure-related disease or drug toxicity, were excluded. The analysis was restricted to patients with the required baseline clinical and radiologic information for classification according to symptom status.

Definition of asymptomatic interstitial lung disease

Asymptomatic autoimmune ILD was defined as the absence of dyspnea and chronic cough at registry enrollment, based on physician-administered clinical interrogation. No validated dyspnea scale was used for this definition. Therefore, “asymptomatic” refers to symptom status at enrollment and does not imply absence of radiologic or physiologic disease.

Clinical, functional, and radiologic assessment

Baseline data included age, sex, smoking status, autoimmune ILD category, pulmonary function testing, 6-minute walk test (6MWT), and HRCT features. Spirometry and DLCO were recorded as percent predicted values. Desaturation was defined as a fall in oxygen saturation greater than 5% during the 6MWT.

All HRCT scans were centrally reviewed by Adrián Gaser, a thoracic radiologist with more than 15 years of experience in ILD, blinded to clinical and symptom status. Radiologic extent was visually categorized as <20% or >20% lung involvement according to predefined EPIMAR registry criteria. CT patterns were categorized as fibrotic or non-fibrotic.

Bias mitigation, study size, and missing data

Potential selection and information bias were addressed by consecutive enrollment of eligible registry patients, multidisciplinary diagnostic evaluation, standardized registry definitions, and central blinded HRCT review. No formal sample size calculation was performed; all eligible patients with baseline data available at the time of this analysis were included. Missing data were handled by complete-case analysis for each variable, with available denominators shown in the tables.

Ethical considerations

This study was conducted in accordance with Good Clinical Practice guidelines and the ethical principles of the Declaration of Helsinki. The EPIMAR II registry protocol and informed consent form were approved by the Institutional Review Board/Research Ethics Committee of Hospital Privado de Comunidad (Mar del Plata, Prov. de Buenos Aires). All patients provided written informed consent before inclusion in the registry. Personal data were anonymized and handled according to applicable national regulations on personal data protection.

Statistical analysis

The analyses were descriptive, consistent with the exploratory cross-sectional objectives. Continuous variables were summarized as mean (SD) or median [Q1, Q3], and categorical variables as n/available (%). Between-group comparisons used Student's t test or Wilcoxon test for continuous variables and chi-square or Fisher exact test for categorical variables, as appropriate. Analyses were performed using available data for each variable; denominators are reported when missing data were present. No imputation was performed. Statistical significance was set at $p < 0.05$. Analyses were conducted using R version 4.4.0 (R Foundation for Statistical Computing, Vienna, Austria). Reporting was reviewed against STROBE recommendations for cross-sectional studies.

Results

Prevalence and baseline characteristics

Among 215 patients with autoimmune ILD, 75 (35%) were asymptomatic at enrollment. Baseline characteristics according to symptom status are shown in Table 1. There were no significant differences in age, sex distribution, or tobacco exposure between asymptomatic and symptomatic patients. CTD-associated ILD was the most frequent autoimmune ILD category in both groups (Table 2).

Patients with asymptomatic ILD showed relatively preserved lung function compared with symptomatic patients. FVC % predicted was higher in the asymptomatic group (74.1% vs. 68.0%, $p = 0.02$), whereas DLCO % predicted was numerically higher but not statistically significant (60.4% vs. 53.6%, $p = 0.20$). Among patients with available 6MWT desaturation data, desaturation >5% occurred in 8/32 asymptomatic patients (25.0%) and 28/86 symptomatic patients (32.6%) ($p = 0.57$).

Table 1 | Baseline characteristics according to symptom status

Characteristic	Asymptomatic ILD (n = 75)	Symptomatic ILD (n = 140)	p value
Age, years, mean (SD)	59.9 (14.6)	61.6 (13.3)	0.51
Female sex, n/available (%)	55/74 (74.3)	118/140 (84.3)	0.11
Ever smoker, n/available (%)	25/72 (34.7)	53/135 (39.3)	0.62
CTD-associated ILD, n/available (%)	64/74 (86.5)	118/139 (84.9)	
IPAF, n/available (%)	5/74 (6.8)	18/139 (12.9)	0.10
ANCA-associated ILD, n/available (%)	5/74 (6.8)	3/139 (2.2)	
FVC, % predicted, mean (SD)	74.1 (21.5)	68.0 (23.3)	0.02
FVC available, n/N (%)	58/75 (77.3)	123/140 (87.9)	
DLCO, % predicted, mean (SD)	60.4 (20.9)	53.6 (27.2)	0.20
DLCO available, n/N (%)	41/75 (54.7)	101/140 (72.1)	
Desaturation >5% during 6MWT, n/available (%)	8/32 (25.0)	28/86 (32.6)	0.57
6MWT distance, m, median [Q1, Q3]	450 [200, 510]	389 [160, 465]	0.41
6MWT distance available, n/N (%)	25/75 (33.3)	80/140 (57.1)	
Radiologic extent >20%, n/N (%)	30/75 (40.0)	92/140 (65.7)	0.001
Non-fibrotic CT pattern, n/N (%)	68/75 (90.7)	130/140 (92.9)	0.76

ILD: interstitial lung disease; CTD: connective tissue disease; IPAF: interstitial pneumonia with autoimmune features; ANCA: antineutrophil cytoplasmic antibody; FVC: forced vital capacity; DLCO: diffusing capacity for carbon monoxide; 6MWT: six-minute walk test; CT: computed tomography

Note: Values are mean (SD), median [Q1, Q3], or n/available (%) unless otherwise indicated. Available denominators are shown for variables with missing data. Available denominators may differ between 6MWT distance and desaturation because some records included oxygen saturation data without complete walking-distance data. The radiologic extent distribution reflects the most recent centralized radiologic analysis and supersedes earlier preliminary tables

Table 2 | Prevalence of asymptomatic autoimmune ILD according to autoimmune ILD category

Autoimmune ILD category	Asymptomatic ILD, n/N (%)	Symptomatic ILD, n/N (%)	Total N
CTD-associated ILD	64/182 (35.2)	118/182 (64.8)	182
IPAF	5/23 (21.7)	18/23 (78.3)	23
ANCA-associated ILD	5/8 (62.5)	3/8 (37.5)	8
Missing/uncategorized	1/2 (50.0)	1/2 (50.0)	2

ILD: interstitial lung disease; CTD: connective tissue disease; IPAF: interstitial pneumonia with autoimmune features; ANCA: antineutrophil cytoplasmic antibody

Note: Percentages were calculated within each autoimmune ILD category. Overall comparison across categorized groups: $p = 0.10$. The table accounts for all 215 patients included in the analysis.

Radiologic findings and pulmonary function

Radiologic extent greater than 20% was less frequent among asymptomatic than symptomatic patients (30/75 [40.0%] vs. 92/140 [65.7%], $p = 0.001$). Non-fibrotic CT patterns were similarly frequent in both groups (68/75 [90.7%] vs. 130/140 [92.9%], $p = 0.76$).

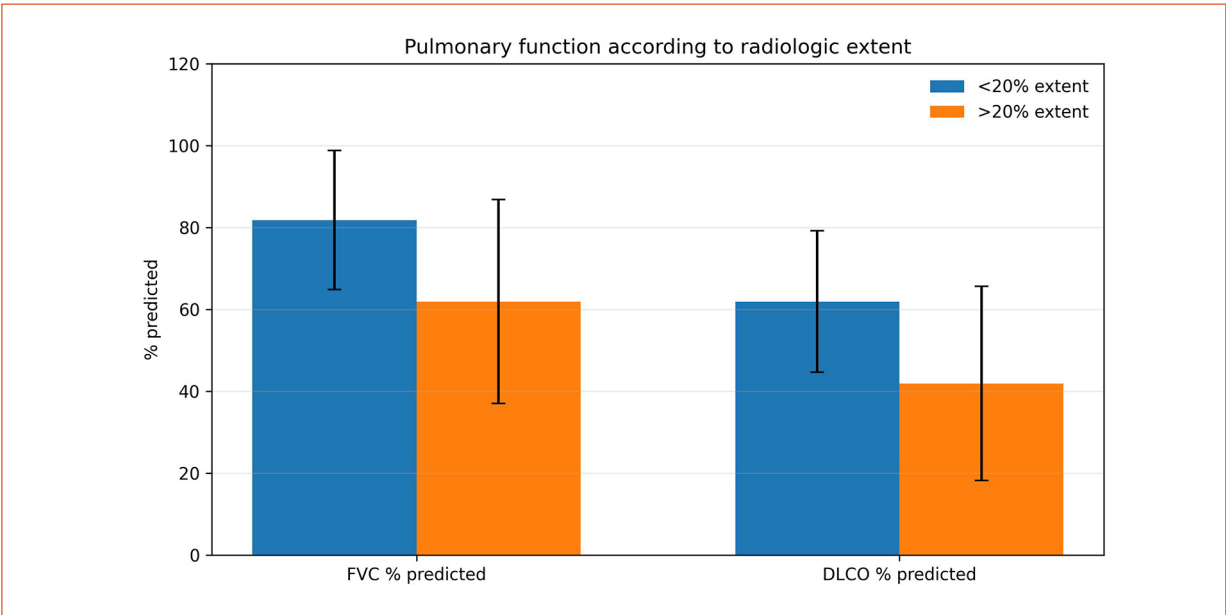
When patients were compared according to radiologic extent (<20%, $n = 93$; >20%, $n = 122$), those with >20% lung involvement had lower FVC % predicted and DLCO % predicted than those with <20% involvement (FVC % predicted: 61.9% vs. 81.8%, $p = 0.02$; DLCO % predicted: 41.9% vs. 61.9%, $p = 0.04$) (Table 3 and Fig. 1).

Table 3 | Functional characteristics according to radiologic extent of lung involvement (<20% vs. >20%)

Characteristic	Radiologic extent <20% (n = 93)	Radiologic extent >20% (n = 122)	p value
FVC, % predicted, mean (SD)	81.8 (17.0)	61.9 (24.9)	0.02
DLCO, % predicted, mean (SD)	61.9 (17.3)	41.9 (23.7)	0.04

FVC: forced vital capacity; DLCO: diffusing capacity for carbon monoxide

Figure 1 | Predicted forced vital capacity and diffusing capacity for carbon monoxide according to radiologic extent



FVC: forced vital capacity; DLCO: diffusing capacity for carbon monoxide; SD: standard deviation

Patients with radiologic extent >20% showed lower FVC % predicted and DLCO % predicted compared with those with less extensive lung involvement. Error bars represent SD. These findings represent cross-sectional associations.

These findings describe cross-sectional associations and should not be interpreted causally.

Discussion

In this baseline cross-sectional analysis of the EPIMAR II cohort, asymptomatic autoimmune ILD was common and not synonymous with trivial disease. Thirty-five percent of patients were asymptomatic at enrollment, and 40.0% of asymptomatic patients had radiologic extent >20%. The key point is that, although patients without dyspnea or cough had better lung function than symptomatic patients, their lung function was still reduced on average: mean FVC was 74.1% predicted and mean DLCO was 60.4% pre-

dicted. In addition, among those with available 6MWT data, 8/32 asymptomatic patients (25.0%) desaturated >5%; although this was not statistically different from the symptomatic group, it supports the presence of objective exercise abnormalities in a subset of patients without respiratory symptoms. These findings support the central premise of this study: absence of respiratory symptoms does not reliably exclude clinically relevant autoimmune ILD.

The observed prevalence is consistent with increasing recognition that silent or minimally symptomatic lung involvement occurs across systemic autoimmune rheumatic diseases. In rheumatoid arthritis, HRCT-based and prospec-

tive studies have described subclinical or pre-clinical abnormalities in a substantial minority of patients^{7,8,10,15,16}. Recent work has also linked subclinical RA-ILD to risk factors such as the MUC5B promoter variant, male sex, age, and disease activity^{6,17}. Population-based and smoking-enriched cohorts further suggest that RA-related interstitial abnormalities may carry prognostic information^{18,19}. In systemic sclerosis, EUSTAR and SENSIS data also show that absence of cough or dyspnea does not necessarily preclude clinically important ILD behavior^{20,21}.

These findings have implications for terminology. The terms “preclinical” and “subclinical” are convenient but may imply benign or clinically insignificant disease. Volkmann et al have argued that this terminology can be misleading in RA-associated ILD². EPIMAR II adds a multicenter autoimmune ILD perspective to this concern. In this study, asymptomatic disease was defined by the absence of dyspnea or cough at enrollment, not by the absence of radiologic or physiologic involvement. Therefore, the central issue is not only that asymptomatic patients had better lung function than symptomatic patients, but that many still had reduced lung function, radiologic involvement, or exercise desaturation despite lacking respiratory symptoms.

Radiologic burden provided an objective frame for interpreting symptom status. Radiologic extent >20% was more frequent in symptomatic than in asymptomatic patients, but a substantial proportion of asymptomatic patients also exceeded this threshold. In the whole cohort, greater radiologic extent was associated with lower FVC % predicted and DLCO % predicted. Because the present analysis is cross-sectional, these relationships should be interpreted as associations rather than causal relationships or evidence of longitudinal decline.

The screening implications are consistent with recent guideline and consensus documents. The 2023 ACR/CHEST guideline conditionally recommends pulmonary function tests and HRCT for screening people at increased risk for ILD, and pulmonary function tests, HRCT, and ambulatory desaturation testing for monitoring established ILD²². Multidisciplinary statements and recent reviews similarly emphasize risk-based early detection across CTD subtypes^{9,23-25}.

EPIMAR II supports this approach while avoiding therapeutic over interpretation: the data do not imply that every asymptomatic radiologic abnormality requires immediate treatment, but they do support structured baseline assessment and follow-up.

This study has several strengths, including multicenter real-world recruitment, multidisciplinary ILD diagnosis, central blinded HRCT review, and integration of symptom status, pulmonary function, exercise testing, and radiologic extent. The main limitations should also be acknowledged. First, the cross-sectional design prevents inference about progression, prognosis, or treatment response. Second, symptom status was based on physician-administered clinical interrogation rather than a validated dyspnea or cough instrument, which may have misclassified patients with mild or activity-limited symptoms. Third, 6MWT variables were unavailable for a proportion of patients, limiting precision for exercise-related analyses. Fourth, baseline treatment status and disease duration were not available, so residual confounding by treatment exposure, disease stage, autoimmune subtype, smoking status, or time since diagnosis cannot be excluded. Finally, this registry-based sample reflects patients evaluated in specialized centers and should not be interpreted as a population-based prevalence estimate.

In conclusion, asymptomatic autoimmune ILD was frequent in EPIMAR II and should not be equated with clinically insignificant disease. Many patients without dyspnea or cough had objective abnormalities, including reduced mean FVC % predicted and DLCO % predicted, radiologic extent >20% in 40.0%, and desaturation >5% during the 6MWT in 25.0% of those with available data. In the whole cohort, greater radiologic extent was associated with lower FVC % predicted and DLCO % predicted. These findings support avoiding the assumption that symptom absence equals normal lung function or clinically trivial disease. They also support structured baseline evaluation and risk-based screening rather than reliance on respiratory symptoms alone. Longitudinal EPIMAR II follow-up will be essential to determine which asymptomatic patients remain stable, which progress, and which baseline features best guide monitoring and treatment decisions.

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Conflict of interest: None to declare

Use of generative artificial intelligence

During manuscript preparation, the authors used ChatGPT to assist with language editing, formatting, and editorial organization. After using this tool, the authors reviewed and edited the content as necessary and take full responsibility for the final manuscript.

References

1. Maher TM. Interstitial lung disease: a review. *JAMA* 2024; 331: 1655-65.
2. Volkmann ER, Sparks JA, Hoffmann-Vold AM, et al. Preclinical/subclinical rheumatoid arthritis-associated interstitial lung disease: misleading terms with potentially deleterious consequences. *Lancet Rheumatol* 2023; 5: e116-e118.
3. Solomon JJ, Fischer A. Connective tissue disease-associated interstitial lung disease: a focused review. *J Intensive Care Med* 2015; 30: 392-400.
4. Matson SM, Demoruelle MK. Connective tissue disease associated interstitial lung disease. *Immunol Allergy Clin North Am* 2023; 43: 229-44.
5. Doyle TJ, Dellaripa PF. Lung manifestations in the rheumatic diseases. *Chest* 2017; 152: 1283-95.
6. Juge PA, Granger B, Debray MP, et al. A risk score to detect subclinical rheumatoid arthritis-associated interstitial lung disease. *Arthritis Rheumatol* 2022; 74: 1755-65.
7. Lucchino B, Di Paolo M, Gioia C, et al. Identification of subclinical lung involvement in ACPA-positive subjects through functional assessment and serum biomarkers. *Int J Mol Sci* 2020; 21: 5162.
8. Robles-Perez A, Luburich P, Rodriguez-Sanchon B, et al. Preclinical lung disease in early rheumatoid arthritis. *Chron Respir Dis* 2016; 13: 75-81.
9. Morais A, Duarte AC, Fernandes MO, et al. Early detection of interstitial lung disease in rheumatic diseases: a joint statement from the Portuguese Pulmonology Society, the Portuguese Rheumatology Society, and the Portuguese Radiology and Nuclear Medicine Society. *Pulmonology* 2025; 31: 2416840.
10. Abdelwahab HW, Shalabi NM, Ghoneim MMR, et al. Screening for subclinical interstitial lung disease in rheumatoid arthritis patients: functional and radiological methods. *Turk Thorac J* 2022; 23: 261-7.
11. Fischer A, Richeldi L. Cross-disciplinary collaboration in connective tissue disease-related lung disease. *Semin Respir Crit Care Med* 2014; 35: 159-65.
12. Spagnolo P, Ryerson CJ, Putman R, et al. Early diagnosis of fibrotic interstitial lung disease: challenges and opportunities. *Lancet Respir Med* 2021; 9: 1065-76.
13. Enghelmayer JJ, Naval N, Gaser A, et al. Argentine patients with autoimmune related interstitial lung diseases: first results from the EPIMAR II registry [conference abstract]. *Am J Respir Crit Care Med* 2024; 209 (Suppl 1): A1832.
14. Vivero F, Campins F, Lancellotti D, et al; EPIMAR Group. Autoimmune interstitial lung disease in Latin-America. *Clin Immunol* 2019; 199: 52-6.

15. Chen J, Shi Y, Wang X, et al. Asymptomatic preclinical rheumatoid arthritis-associated interstitial lung disease. *Clin Dev Immunol* 2013; 2013: 406927.
16. Robles-Perez A, Luburich P, Bolivar S, et al. A prospective study of lung disease in a cohort of early rheumatoid arthritis patients. *Sci Rep* 2020; 10: 15640.
17. Matson SM, Deane KD, Peljto AL, et al. Prospective identification of subclinical interstitial lung disease in a rheumatoid arthritis cohort is associated with the MUC5B promoter variant. *Am J Respir Crit Care Med* 2022; 205: 473-6.
18. Samhoury BF, Vassallo R, Achenbach SJ, et al. Incidence, risk factors, and mortality of clinical and subclinical rheumatoid arthritis-associated interstitial lung disease: a population-based cohort. *Arthritis Care Res (Hoboken)* 2022; 74: 2042-9.
19. McDermott GC, Hayashi K, Yoshida K, et al. Prevalence and mortality associations of interstitial lung abnormalities in rheumatoid arthritis within a multicentre prospective cohort of smokers. *Rheumatology (Oxford)* 2023; 62: SI286-SI295.
20. Hoffmann-Vold AM, Allanore Y, Alves M, et al; EUSTAR collaborators. Progressive interstitial lung disease in patients with systemic sclerosis-associated interstitial lung disease in the EUSTAR database. *Ann Rheum Dis* 2021; 80: 219-27.
21. Volkmann ER, Kreuter M, Hoffmann-Vold AM, et al; SENSICIS trial investigators. Dyspnoea and cough in patients with systemic sclerosis-associated interstitial lung disease in the SENSICIS trial. *Rheumatology (Oxford)* 2022; 61: 4397-408.
22. Johnson SR, Bernstein EJ, Bolster MB, et al. 2023 American College of Rheumatology (ACR)/American College of Chest Physicians (CHEST) guideline for the screening and monitoring of interstitial lung disease in people with systemic autoimmune rheumatic diseases. *Arthritis Care Res (Hoboken)* 2024; 76: 1070-82.
23. Joy GM, Arbiv OA, Wong CK, et al. Prevalence, imaging patterns and risk factors of interstitial lung disease in connective tissue disease: a systematic review and meta-analysis. *Eur Respir Rev* 2023; 32: 220210.
24. Good SD, Sparks JA, Volkmann ER. Screening, diagnosis, and monitoring of interstitial lung disease in autoimmune rheumatic diseases: a narrative review. *Rev Colomb Reumatol* 2024; 31 Suppl 1: S3-S14.
25. Koduri G, Solomon JJ. Identification, monitoring, and management of rheumatoid arthritis-associated interstitial lung disease. *Arthritis Rheumatol* 2023; 75: 2067-77.