Supplementary Material

Progressive Pulmonary Fibrosis: An Expert Group Consensus Statement

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Rajan SK, Cottin V, Dhar R, *et al*. Progressive pulmonary fibrosis: an expert group consensus statement. *Eur Respir J* 2023; 61: 2103187 [DOI: 10.1183/13993003.03187-2021]

Supplement S1

Working expert group methodology

The faculty membership, which included prominent Indian representation, consisted of clinicians from both well-resourced and under-resourced geographies, thus ensuring that the conclusions are widely applicable. The criteria used for the Indian faculty members, comprising respiratory physicians, a rheumatologist, and a palliative care physician, were clinicians significantly involved in clinical and research work in ILD and holding academic positions in established teaching institutes across India. The computed tomography (CT) radiologist runs an academic programme through the university and was selected based on his vast expertise in cardiovascular and lung CT radiology. The lung pathologist is one of the few dedicated pulmonary pathologists in the country based out of a premier academic institute. The international faculty chosen from among many expert candidates to achieve a balance of expertise, gender representation and (in case of some members) a long track record spanning many years of investigating the PPF paradigm, based on their studies of individual ILDs. A patient advocacy leader was also included for the purpose of consulting a patient group on patient-related issues.

A multidisciplinary team of 21 ILD experts (15 pulmonologists, 2 palliative care physicians, 2 radiologists, 1 pathologist and 1 rheumatologist) provided 24 search questions for the four sections that needed to be addressed with respect to PPF: i) definition and diagnosis; ii) monitoring and prognostication; iii) pharmacological treatments; and iv) non-pharmacological treatments, including supportive care.

This expert group met and interacted extensively to reach a consensus on guidance regarding important clinical uncertainties with respect to PPF. To enable thorough analysis, the expert group had split up into four working groups; each group then took up one section of issues

relating to PPF for analysis. This was done in the form of structured questions that were chosen to address ambiguities and uncertainties in clinical practice and were agreed to through whole-group initial discussion (via online meetings and/or e-mail feedback). After whole-group initial discussions, subsequent discussions took place within and among four subgroups, followed by another whole-group discussion and finalisation.

The PubMed and Embase databases, as well as the Cochrane Library, were used to conduct a systematic search *[details provided in Supplement S2]*. Following the online video discussions, the individual working subgroups discussed the evidence, and arrived at conclusions for each question in the sections allotted to them. For questions with low-quality evidence, a criterion of unanimity within the group was used to determine consensus. This was followed by whole group discussions on *all* the subgroup findings and conclusions to arrive at a final consensus statement.

Supplement S2

Search Keywords

Section 1	Section 2	Section 3	Section 4
1. Idiopathic pulmonary fibrosis, IPF 2. Interstitial lung disease, ILD 3. Fibrotic hypersensitivity pneumonitis, F-HP 4. Rheumatoid arthritis, RA-ILD 5. Systemic sclerosis, SSc 6. Scleroderma, SSc-ILD 7. Non-specific interstitial pneumonia, NSIP 8. Usual interstitial pneumonia, UIP 9. Antifibrotic therapy, 10. Connective tissue disease-associated ILD, CTD-ILD 11. Progressive fibrotic phenotype 12. Lung function 13. Biopsy 14. Surgical lung biopsy 15. Quality of life 16. 6-minute walk test, 6MWT 17. Forced vital capacity, FVC 18. DLCO 19. Survival 20. Mortality 21. Bronchoalveolar lavage, BAL 22. High-resolution CT, HRCT	1. Progressive fibrotic-interstitial lung disease, PF-ILD 2. Interstitial lung disease, ILD 3. Non-specific interstitial pneumonia, NSIP 4. Usual interstitial pneumonia, UIP 5. Unclassifiable 6. Connective tissue disease-associated ILD, CTD-ILD 7. Progressive fibrotic phenotype 8. Lung function 9. Biopsy 10. Surgical lung biopsy 11. 6-minute walk test, 6MWT 12. Forced vital capacity, FVC 13. DLCO 14. Bronchoalveolar lavage, BAL 15. Biomarker 16. Prognosis 17. Acute exacerbation 18. High-resolution CT, HRCT 19. Short telomere	1. Idiopathic pulmonary fibrosis, IPF 2. Interstitial lung disease, ILD 3. Progressive fibrotic-interstitial lung disease, PF-ILD 4. Non-specific interstitial pneumonia, NSIP 5. Usual interstitial pneumonia, UIP 6. Antifibrotic therapy 7. Nintedanib 8. Pirfenidone 9. Unclassifiable 10. Lung function 11. Quality of life 12. Survival 13. Mortality 14. Steroids 15. Immunosuppression 16. Acute exacerbations 17. Treatment	1. Progressive fibrotic interstitial lung disease, PF-ILD 2. IPF, idiopathic pulmonary fibrosis 3. Interstitial lung disease, ILD 4. Antifibrotic therapy 5. Pulmonary rehabilitation 6. Lung transplant 7. Oxygen therapy 8. Endpoint 9. Progressive fibrotic phenotype 10. Quality of life 11. Supportive Care

Supplement S3

Panel of recommended/suggested auto-antibodies to evaluate an autoimmune aetiology

Condition	**Antibody Tests**
Routine testing	Antinuclear antibodies, RF, ESR, CRP, Ro/La, RNP, CK, Aldolase, Scl-70 Anti-cyclic citrullinated peptide
Other detailed tests*	Anti-synthetase antibodies (Jo-1 and others, if available) Anti-MDA5 (melanoma differentiation-associated protein 5) Anti-Mi-2 Anti-NXP2 (Nuclear matrix protein 2) Anti-TIF1-γ (transcriptional intermediary factor 1-γ) Anti-SRP (signal recognition particle) Anti-HMGCR (3-hydroxy-3-methylglutaryl-CoA reductase) Anti-SAE (small ubiquitin-related modifier–activating enzyme) Anti-U1RNP (U1 ribonucleoprotein) Anti-PM/Scl75 (polymyositis/scleroderma 75) Anti-PM/Scl100 Anti-Ku
Systemic sclerosis (i.e. scleroderma)	Anti-Scl-70/topoisomerase-1 Anti-centromere Anti-RNA polymerase III Anti-U1RNP Anti-Th/To Anti-PMScl U3 RNP (fibrillarin) Anti-Ku
Sjögren syndrome	Anti-SSA/Ro (Sjögren-specific antibody A) Anti-SSB/La
Vasculitis	Anti-neutrophil cytoplasmic antibodies

* In general, it is preferred that all these tests should be performed upfront in PPF. Understanding that this may be expensive, a significantly positive auto-antibody titre will considerably influence treatment decisions and often avoid the need for a biopsy.

Supplement S4

Additional questions to be asked by the physician to provide better care for patients with PPF

Impact

- Do you face difficulty in performing activities of daily living?
- What activities have you reduced or eliminated that were previously a part of your life?
- What have you given up in life to avoid breathlessness?
- Where would you like your care today?
- Where would you like your care to be when you are much sicker and weaker, and unable to take decisions regarding your health on your own?
- In your opinion, to what extent has your family been affected due to your disease?

Invisibility of underlying breathlessness

- Are you able to do any activity that requires physical exertion, or do you avoid any such work to avoid breathlessness?
- Do I (the physician) believe that the patient's breathlessness is multifactorial and inevitable, and that the patient needs to live with chronic breathlessness unless it becomes more severe?

Purpose

- Should we improve the management, services, and research with respect to chronic breathlessness, that is disabling despite optimal treatment, recognising it to be debilitating for health just like chronic pain?

Supplement S5

Sample advance directive

This is to declare my living will for my future care in case I am unable to make decisions on my own when I am terminally ill or permanently unconscious. In such a situation, I wish that life-sustaining medical treatment for prolonging my life, including ventilation, artificial nutrition and hydration, should be withheld. I request to provide me pain relief even if it may hasten death. I express my wish to donate my organs – cornea, kidney, liver and heart, to the deserving recipients to save their lives. I would like to be cremated in our family crematorium.