Progressive Pulmonary Fibrosis in Taiwan: The Role of Functional Assessment in Clinical Practice

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Educational background

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Professional experience

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Progressive pulmonary fibrosis (PPF), encompassing idiopathic pulmonary fibrosis (IPF) and other fibrotic interstitial lung diseases (ILDs), represents a heterogeneous group of conditions marked by relentless functional decline and poor prognosis. In Taiwan, increasing awareness and early identification of PPF have highlighted the need for reliable tools to evaluate disease severity and guide clinical management. Beyond static pulmonary function tests, dynamic functional assessments provide critical insights into exercise limitation, ventilatory reserve, and overall prognosis.

Among these, the 1-minute sit-to-stand test (1MSTS) has emerged as a simple, space-efficient tool reflecting lower-limb strength, desaturation tendency, and short-term mortality risk. Recent Taiwanese cohort data suggest that ≤23 repetitions in 1MSTS correlates with worse dyspnea scores, reduced 6MWT distance, higher GAP stage, and markedly elevated mortality within 18 months. The 6-minute walk test (6MWT) remains a cornerstone in ILD evaluation, capturing exertional hypoxemia and functional exercise capacity—especially when longitudinally monitored.

Cardiopulmonary exercise testing (CPET), though resource-intensive, offers comprehensive physiological profiling including ventilatory efficiency, VO□ peak, and exercise-induced gas exchange abnormalities. In selected patients, CPET can unmask early functional impairment even when resting lung function appears preserved. Together, these dynamic assessments complement static metrics by detecting early disease progression, stratifying risk, and tailoring antifibrotic or supportive therapies.

In clinical practice, integrating 1MSTS, 6MWT, and CPET facilitates multidimensional evaluation of PPF, especially in ambulatory settings. Their combined use supports timely intervention, prognostication, and personalized care pathways. As Taiwan advances in the management of fibrosing ILDs, dynamic functional testing plays an increasingly central role in bridging physiologic assessment with real-world outcomes.