Online supplement

Oscillometry and Computed Tomography Findings in Patients with Idiopathic Pulmonary Fibrosis

Yuji Yamamoto*, M.D., Keisuke Miki, M.D., Ph.D., Kazuyuki Tsujino, M.D., Ph.D., Tomoki Kuge, M.D., Fukuko Okabe, M.D., Takahiro Kawasaki, M.D., Takanori Matsuki, M.D., Hiroyuki Kagawa, M.D., Mari Miki, M.D., Ph.D., Hiroshi Kida, M.D., Ph.D.

Department of Respiratory Medicine, National Hospital Organization Osaka Toneyama Medical Center, Toyonaka, Japan

***Corresponding author:** Yuji Yamamoto, M.D., Department of Respiratory Medicine, National Hospital Organization Osaka Toneyama Medical Center, Address: 5-1-1 Toneyama, Toyonaka, Osaka, 560-8552, Japan. Phone: +81-6-6853-2001, Fax: +81-6-6853-3127, E-mail: cyyamamoto1110@gmail.com

Supplementary table 1. Definition of high-resolution computed tomography findings

HRCT finding	Definition
Airspace consolidation	Homogeneous increase in pulmonary parenchymal attenuation that obscured the underlying vessels
Honeycombing	Clustered cystic airspaces from several mm to 1 cm in size with well-defined and thick walls were seen in the subpleural regions
Architectural distortion	Abnormal displacement of bronchi, pulmonary vessels, interlobar fissures, or interlobular septa
Traction bronchiectasis	Irregular bronchial dilatation within or around areas with parenchymal abnormality

HRCT, high-resolution computed tomography.

Supplementary table 2. High-resolution computed tomography scores

Score	0	1	2	3	4
Architectural distortion	Absent	Present			
Traction bronchiectasis	Absent	Bronchial dilatation involving bronchi distal to the fifth generation	Bronchial dilatation involving bronchi distal to the fourth generation	Bronchial dilatation involving bronchi proximal to the third generation bronchi	
Interstitial fibrosis	Absent	Ground-glass attenuation without reticulation	Ground-glass and fine reticular opacity	Reticular opacity and microcysts < 3 mm	Coarse reticular opacity and large cysts > 3 mm

Supplementary table 3. Results of multivariate analyses assessing interactions between treatment for idiopathic pulmonary fibrosis and oscillometric parameters (n = 80)

Parameter	Pirfenidone		Inhaled N-acetylcysteine		Nintedanib		Oral corticosteroids	
	std β	p value	std β	p value	std β	p value	std β	p value
R5	–0.111	0.350	0.137	0.246	–0.073	0.535	–0.103	0.372
R20	–0.114	0.331	0.136	0.245	–0.101	0.385	–0.157	0.171
R5-R20	–0.075	0.531	0.104	0.384	0.005	0.968	0.036	0.760
X5	–0.040	0.742	–0.076	0.524	0.019	0.876	0.010	0.935
Fres	0.139	0.247	0.024	0.841	0.038	0.745	0.091	0.435
ALX	0.075	0.531	0.033	0.783	–0.035	0.771	–0.023	0.843

ALX, low-frequency reactance area; Fres, resonant frequency; R5 and R20, respiratory system resistance at 5 and 20Hz, respectively; std β, standardized partial regression coefficient; X5, respiratory system reactance at 5Hz.

Supplementary table 4. Results of multivariate analysis assessing interactions between forced expiration volume in 1s/forced vital capacity and oscillometric parameters (n = 80)

Parameter	std β	p value
R5	0.198	0.324
R20	indeterminate	indeterminate
R5-R20	–0.259	0.229
X5	–0.246	0.598
Fres	0.533	0.021
ALX	–0.470	0.369

ALX, low-frequency reactance area; Fres, resonant frequency; R5 and R20, respiratory system resistance at 5 and 20Hz, respectively; std β, standardized partial regression coefficient; X5, respiratory system reactance at 5Hz.