4.16 Perfenidone vs Nintedanib for Idiopathic Pulmonary Fibrosis - an Observational study at a Teaching Hospital in Republic of Ireland.

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Introduction: Pirfenidone and nintedanib are well-established idiopathic pulmonary fibrosis (IPF) treatments[1]. In this study we compared the two anti-fibrotic treatment regimens available for the treatment of idiopathic lung fibrosis.

Methods: In this observational study, 220 participants aged ≥ 40 years were followed-up using their files and respiratory-medicine data-base, during the period of January 2014 to January 2023. We compared the mean difference in percentage rate of lung function decline, mortality rate, hospital admissions and tolerability of the two drugs. We also looked at the lung function decline based on the gender and age (Table 2).

Results: 57 out of 103 (55%) and 63 out of 117 (53.8%) died in nintedanib and pirfenidone groups respectively (Table 3). There was no significant difference (p-value=0.0731) in tolerability / side-effects with nintedanib (16.50%) and pirfenidone (26.50%). Nintedanib surpasses pirfenidone in context of exacerbations / hospital admissions. (Table 4). Percentage rates of decline in FVC, DLCO and TLC were not significantly different between the two groups (Table 1 & 2).

Conclusion: Both treatments were well tolerated, similarly efficacious and remain good therapeutic choices in slowing lung function decline albeit in the context of a disease with enduring mortality[2].

Conflict Of Interest : The authors declare that they have no conflict of interest

Abbreviations

FVC   Forced vital capacity.

DLCO   Diffusing capacity of the lungs for carbon monoxide.

TLC   Total lung capacity.

References:

1. Sadon AAE-A, Kenawy AS, Abdelsalam AH, Attia HM. Pirfenidone vs nintedanib for treatment of idiopathic pulmonary fibrosis in clinical practice: efficacy, tolerability, and adverse effects. The Egyptian Journal of Chest Diseases and Tuberculosis. 2020;69(3):549-59.

2. Cameli P, Refini RM, Bergantini L, d'Alessandro M, Alonzi V, Magnoni C, et al. Long-term follow-up of patients with idiopathic pulmonary fibrosis treated with pirfenidone or nintedanib: a real-life comparison study. Frontiers in Molecular Biosciences. 2020;7:581828.

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Table 1: Test of rate of decline mean difference between treatments.

Measure	Time Period	Treatment		T-test (p-value)
		Nintedanib Mean (n)	Pirfenidone Mean (n)	
FVC	Baseline and after 12 months	-6.83 (49)	-4.89 (65)	0.5690
	12 months and follow-up after 24 months	-8.05 (49)	-0.32 (65)	0.0499
DLCO	Baseline and after 12 months	-7.79 (49)	-7.19 (57)	0.8989
	12 months and follow-up after 24 months	-8.77 (49)	-2.62 (57)	0.0546
TLC	Baseline and after 12 months	-2.22 (17)	-6.20 (41)	0.3531
	12 months and follow-up after 24 months	-5.57 (5)	-3.17 (17)	0.5061

Table 2: Mean Percentage Rate of Decline between Treatments by Gender and Age.

Measure	Time point	Nintedanib Mean (n)		Pirfenidone Mean (n)		Nintedanib Mean (n)		Pirfenidone Mean (n)	
		Female	Male	Female	Male	<70 years	≥70 years	<70 years	≥70 years
FVC	Baseline to 12 months	-12.40 (11)	-5.22 (38)	-1.48 (20)	-7.73 (45)	-1.38 (8)	-7.90 (41)	-0.81 (23)	-7.13 (42)
	12 to 24 months	-9.14 (11)	-7.74 (38)	-7.54 (20)	-2.90 (45)	-7.35 (8)	-8.19 (41)	-1.59 (23)	-1.36 (42)
DLCO	Baseline to 12 months	-4.50 (11)	-8.74 (38)	-2.92 (19)	-9.32 (38)	-8.44 (8)	-7.66 (41)	-2.83 (22)	-13.48 (35)
	12 to 24 months	-8.46 (11)	-8.86 (38)	-6.41 (19)	-0.73 (38)	-4.44 (8)	-9.62 (41)	-1.87 (22)	-5.44 (35)
TLC	Baseline to 12 months	-14.67 (4)	-1.60 (13)	-7.03 (14)	-5.76 (27)	-2.64 (3)	-2.13 (14)	-9.05 (18)	-3.97 (23)
	12 to 24 months	-2.74 (1)	-7.65 (4)	-6.57 (6)	-8.48 (11)	-12.26 (1)	-3.90 (4)	-3.68 (7)	-2.81 (10)

Table 3: Multivariable Logistic Regression Model

Variable	Group	OR (95% CI)	P-value
Treatment	Pirfenidone	1	
	Nintedanib	0.92 (0.54 – 1.56)	0.749
Gender	Female	1	
	Male	0.67 (0.38 – 1.20)	0.176

Table 4: Other Outcomes

Variable	Outcome	Nintedanib %(n)	Pirfenidone %(n)
Hospital Admissions	0	60.19 (62)	44.44 (52)
	1	20.39 (21)	19.66 (23)
	2	13.39 (14)	17.95 (21)
	3	4.85 (5)	9.40 (11)
	4	0.97 (1)	5.98 (7)
	5	0.00 (0)	1.71 (2)

	7	0.00 (0)	0.85 (1)
Tolerability	Tolerable	83.50 (86)	73.50 (86)
	Intolerable	16.50 (17)	26.50 (31)