Home spirometry in patients with idiopathic pulmonary fibrosis: data from the INMARK trial

Imre Noth1, Vincent Cottin2, Nazia Chaudhuri3, Tamera J. Corte4,5, Kerri A. Johannson6, Marlies Wijsenbeek7, Stephane Jouneau8, Andreas Michael9, Manuel Quaresma10, Klaus B. Rohr10, Anne-Marie Russell11, Susanne Stowasser10 and Toby M. Maher12,13,14 on behalf of the INMARK trial investigators

1Division of Pulmonary and Critical Care Medicine, University of Virginia, Charlottesville, VA, USA. 2National Reference Centre for Rare Pulmonary Diseases, Louis Pradel Hospital, Hospices Civils de Lyon, Claude Bernard University Lyon 1, Lyon, France. 3North West Interstitial Lung Disease Unit, Manchester University NHS Foundation Trust, Manchester, UK. 4Royal Prince Alfred Hospital, Camperdown, Australia. 5University of Sydney, Sydney, Australia. 6Department of Respiratory Medicine, Erasmus MC, University Medical Center, Rotterdam, The Netherlands. 7Hôpital Pontchaillou – CHU de Rennes, IRSET UMR 1085, Université de Rennes 1, Rennes, France. 8Syneos Health, Farnborough, UK. 9Boehringer Ingelheim International GmbH, Ingelheim am Rhein, Germany. 10College of Medicine and Health, University of Exeter, Exeter, UK. 11National Heart and Lung Institute, Imperial College London, London, UK. 12National Institute for Health Research Clinical Research Facility, Royal Brompton Hospital, London, UK. 13Keck School of Medicine, University of Southern California, Los Angeles, CA, USA.

Corresponding author: Toby M. Maher (t.maher@rbht.nhs.uk)

Shareable abstract (@ERSpublications)
In a 52-week study in 346 subjects with idiopathic pulmonary fibrosis, mean adherence to weekly home spirometry was 86%. Estimates of the rate of decline in forced vital capacity obtained using home and clinic spirometry were poorly correlated. https://bit.ly/2WjIQ4b


This single-page version can be shared freely online.

Copyright ©ERS 2021
This version is distributed under the terms of the Creative Commons Attribution Licence 4.0.
This article has supplementary material available from erj.ersjournals.com
Received: 1 May 2020
Accepted: 9 Dec 2020

Abstract
Background Data from the INMARK trial were used to investigate the feasibility and validity of home spirometry as a measure of lung function decline in patients with idiopathic pulmonary fibrosis (IPF).

Methods Subjects with IPF and preserved forced vital capacity (FVC) were randomised to receive nintedanib or placebo for 12 weeks followed by open-label nintedanib for 40 weeks. Clinic spirometry was conducted at baseline and weeks 4, 8, 12, 16, 20, 24, 36 and 52. Subjects were asked to perform home spirometry at least once a week and ideally daily. Correlations between home- and clinic-measured FVC and rates of change in FVC were assessed using Pearson correlation coefficients.

Results In total, 346 subjects were treated. Mean adherence to weekly home spirometry decreased over time but remained above 75% in every 4-week period. Over 52 weeks, mean adherence was 86%. Variability in change from baseline in FVC was greater when measured by home rather than clinic spirometry. Strong correlations were observed between home- and clinic-measured FVC at all time-points (r=0.72-0.84), but correlations between home- and clinic-measured rates of change in FVC were weak (r=0.26 for rate of decline in FVC over 52 weeks).

Conclusion Home spirometry was a feasible and valid measure of lung function in patients with IPF and preserved FVC, but estimates of the rate of FVC decline obtained using home spirometry were poorly correlated with those based on clinic spirometry.