



Accessing clinical trial data to investigate the potential for biomarkers to predict outcomes for people with pulmonary fibrosis

BACKGROUND:

Pulmonary fibrosis is a debilitating condition which causes scarring of the lungs. It generally emerges as a secondary condition of other diseases, but can occur without any prior cause being identified (known as idiopathic pulmonary fibrosis, or IPF). There is currently no cure, and treatment options are limited. Progression of the disease varies, but life expectancy is generally less than five years from receiving a diagnosis. Globally, pulmonary fibrosis affects about three million people, and is considered a relatively rare condition, which limits access to usable clinical research data.

RESEARCHER QUESTION:

Fasihul Khan, M.D., Ph.D., is a consultant at Glenfield Hospital, University Hospitals of Leicester. For this project, Dr. Khan's and a team of colleagues sought to collect individual patient data



(IPD) from trial participants with pulmonary fibrosis to assess whether short-term changes in physiological biomarkers such as lung function and walking distance could accurately predict clinical outcomes. Ability to use these biomarkers as surrogate endpoints could help accelerate early-phase trials and support adaptive trial designs.

“Accessing individual participant data was essential to better understand the link between biomarkers and treatment outcomes.” - Dr. Fasihul Khan

FINDINGS

Findings from this research demonstrate that changes in FVC over three months predict mortality in individuals receiving both the intervention and the placebo. IPD indicated treatment effects as early as three months, suggesting that 3-month FVC change could be used as a surrogate endpoint in future IPF trials.

IMPACT

This research has produced two journal publications, in the European Respiratory Journal and in the American Journal of Respiratory Critical Care Medicine. Dr. Khan also talked to Vivli about the importance of the findings, especially that the three-month FVC change is associated with mortality, and perhaps more importantly, that a treatment effect could be observed between treatment and placebo arms at three months. These findings have been well received by the research community, and have already been adopted into the design of an adaptive trial in IPF.

Using the three-month FVC change going forward could reduce the length and cost of randomized controlled trials, facilitate the development of adaptive trials, and ultimately enable faster and more flexible assessment of more new IPF therapies.



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PULMONARY FIBROSIS DATA REUSE

RESEARCH PROCESS:

To answer the question of whether short-term changes in several standard biomarkers (such as forced vital capacity or FVC, lung diffusing capacity or DICO, and six-minute-walk distance) could act as surrogate endpoints to accelerate early-phase trials in IPF, the research team was able to access IPD from 12 placebo cohorts totaling 1,819 participants, with treatment data available from 1,684 participants in six cohorts. Assessment focused on determining whether baseline or 3-month changes in FVC, DICO, and 6-minute-walk distance were associated with mortality or disease progression in placebo arms. The research team also used meta-regression to compare three-month and 12-month FVC decline endpoints.

NEXT STEPS:

READ MORE

[A systematic review of blood biomarkers with individual participant data meta-analysis of matrix-metalloproteinase-7 in IPF](#)
(European Respiratory Journal)

[Three-Month FVC Change: A Trial Endpoint for Idiopathic Pulmonary Fibrosis Based on Individual Participant Data Meta-analysis](#)
(American Journal of Respiratory and Critical Care Medicine)

[Interview with Dr. Khan](#)

[Find out more about requesting data from Vivli.](#)