primary studies - published, non RCT

Evaluating Long-Term Effectiveness of Cystic Fibrosis Modulator Therapies After Rapid Adoption: A Dual-Approach Study.

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Study design (if review, criteria of inclusion for studies)

Retrospective cohort study, data from the US Cystic Fibrosis Foundation Patient Registry (2003-2016). Two approaches: i) within-subject comparisonsand ii) between

Participants

Patients with CF in the U.S. Authors modeled data from 560 ivacaftor-treated individuals with the G551D variant. For between-subject comparisons, propensity scores to match the treated group with 2,800 untreated F508del homozygous individuals.

Interventions

Ivacaftor

Outcome measures

Long-term lung function.

Main results

Results showed an initial average improvement in ppFEV1 in ivacaftor-treated children and adults (ranging from 4.54 to 6.53% predicted based on within-subject comparison of before vs. after ivacaftor initiation). There was a slower decline in adults, compared to children. These ivacaftor-treated cohorts experienced less decline relative to their F508del homozygous counterparts (between-group differences in treated vs. control ranged from 0.36 to 0.64% predicted). Both the within- and between-subject comparisons demonstrated similar levels of ivacaftor effectiveness. However, small differences between the two approaches were observed in younger individuals.

Authors' conclusions

Ivacaftor was associated with improved ppFEV1 across all age groups, with the magnitude of improvement roughly 50% of that observed in clinical trials. The results support the need to account for modulator initiation bias and the use of within-subject analysis in future CFTR modulator effectiveness studies, but caution is advised in younger individuals due to developmental changes that may affect pre- and post-treatment comparability.

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See also

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Keywords

Aminophenols; CFTR Modulators; Genetic Predisposition to Disease; pharmacological_intervention; VX-770; ivacaftor;