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Cystic Fibrosis Research News

Title:

Effectiveness of ivacaftor in cystic fibrosis Patients with non-G551D gating mutations

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What was your research question?

Is the cystic fibrosis drug ivacaftor helpful in adults and children with cystic fibrosis, who have a gating mutation similar to the most common gating mutation G551D?

Why is this important?

We know that ivacaftor is very effective for adults and children who have the CFTR mutation G551D. People with mutations that are similar to G551D, called "gating" mutations, should also respond well to this drug. As there are fewer patients with non-G551D gating mutations, clinical trials to study whether the drug is safe and effective in these patients are difficult to do. More clinical studies to observe these patients over time will help us to be sure the drug is effective.

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What did you do?

People (n = 21) over 6 years of age, who had one of these rare non-G551D gating mutations (e.g.S549N, G178R, S1251N) and were already taking ivacaftor were enrolled in an observational trial. During this trial we monitored them to see if they had improvements in lung function, growth, sweat chloride, quality of life, isolation of *Pseudomonas aeruginosa*, and rates of hospitalization while taking ivacaftor.

What did you find?

We found that the children and adults with cystic fibrosis enrolled in this study over six months had significant improvements in lung function (as measured by spirometry), sweat chloride, weight, and quality of life with ivacaftor use. We also found a trend toward lower rates of hospitalization and isolation of *Pseudomonas aeruginosa*; however these effects, while important, were not statistically significant (i.e. we could not tell if these were really due to the treatment or just a random variation).

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What does this mean and reasons for caution?

Ivacaftor should continue to be used in children and adults over age six years who have a non-G551D gating mutation. Our study was limited because of how few patients were enrolled, due to the rare mutations studied. In addition, this was not a randomized controlled trial, so there was no comparison to patients who did not take ivacaftor, and it was not "blinded", meaning that all patients we studied knew they were taking the drug, which could influence the subjective reports of improvement, especially in improvement of symptoms. These limitations may influence our findings.

What's next?

We will continue to study ivacaftor in this population, as well as younger children and people with other types of mutations, to be sure that ivacaftor continues to be the best and most effective drug for these particular patients.

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