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Cystic Fibrosis Research News

Title:
CAN LUMACAFTOR-IVACAFTOR TREAMENT IMPROVE CYSTIC FIBROSIS RELATED DIABETES?

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What was your research question?
Will CFTR modulators delay the onset of diabetes or will prevent or treat diabetes in CF?

Why is this important?

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Life expectancy of people with CF has dramatically increased and currently extends to over 50 years. This lengthening of life expectancy is accompanied by the emergence of new aspects of the disease, especially diabetes. CF-related diabetes (CFRD) represents one of the most frequent complications of CF. Currently, diabetes is present in about 15-20% of the adolescents and in 50% of the adults with CF.I Its prevalence is expected to increase with the improvement of survival. CFRD is associated with worse clinical outcomes like a higher pulmonary exacerbation rate and a faster decline of lung function.

What did you do?
We have conducted a clinical observational multicenter study involving ten French CF centers. We evaluated the impact of one-year lumacaftor-ivacaftor treatment, a combination of CFTR modulators. We observed the impact in pre-diabetic people with CF having blood sugar levels above the normal range, but not high enough to be diagnosed as having overt diabetes) and people with CF having a CFRD diagnosed with oral glucose tolerance test.

What did you find?
At the start of the study, 78% of the participants were pre-diabetic and 22% had newly diagnosed CFRD. Metabolic status improved, after one-year of modulator treatment, 50% of the participants was free of CFRD, 40% was pre-diabetic and 10% remained diabetic. We observed also an improvement in respiratory function with an increase in body weight. Furthermore, a decrease in percentage of people who received at least one intravenous antibiotic course per/year was reported . These findings are in line with previous clinical trials.

What does this mean and reasons for caution?
These positive results must be tempered by the non-randomized design of our study. However, since beneficial lumacaftor–ivacaftor treatment effects have convincingly been demonstrated in people with CF, randomization with a placebo would have been unethical. As such, we conducted this observational, prospective study, including only people with CF who did not use CFTR modulators before. The strength of our study is that it was performed in a real-world setting.

What's next?
In conclusion, we demonstrated a positive impact of lumacaftor-ivacaftor on pre-diabetes or newly diagnosed CFRD in people with CF. Larger studies are needed to confirm our results and to evaluate other combinations of CFTR modulators.

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