Cystic Fibrosis Research News

Title:
Early life growth trajectories in cystic fibrosis are associated with lung function at age six

Lay Title:
More favorable growth profiles in early childhood are associated with higher lung function at age six

Authors:
Kevin J. Psoter[1], Kimberly M. Dickinson[2], Kristin A. Riekert[3], Joseph M. Collaco[4]

Affiliations:
1. Division of General Pediatrics, Department of Pediatrics, Johns Hopkins University, Baltimore, MD, USA
2. Department of Pediatrics, Pulmonary Section, Baylor College of Medicine and Texas Children's Hospital, Houston, TX, USA
3. Division of Pulmonary and Critical Care Medicine, Department of Medicine, Johns Hopkins University, Baltimore, MD, USA
4. Division of Pediatric Pulmonology, Department of Pediatrics, Johns Hopkins University, Baltimore, MD, USA

What was your research question?
Are there different patterns of early childhood growth between birth and age six? Does lung function at age six differ between these groups?

Why is this important?
Many children with CF have difficulty gaining weight. The CF Foundation recommends that children achieve and maintain growth above the 50th percentile. Poorer growth in young children is associated with worse outcomes. Understanding young children's patterns in growth may help us identify children that need additional nutritional support.

What did you do?
Using the CF Foundation Patient Registry, we looked at the growth from birth through age five in more than 6800 children in the United States. A statistical approach called "group based trajectory modelling" was used to identify different patterns of growth over time. We then assigned children into one of the groups that best fit their pattern of growth and compared the lung function of these children at age six between groups.

Cystic Fibrosis Research News

What did you find?

There were six patterns of growth during the first five years of life which we called “Always high”, “Rapid riser”, “Gradual riser”, “Rapid decliner”, “Gradual decliner” and “Always low”. Most growth patterns were above the 50th percentile at age six except for the “Always low” and “Rapid decliner” groups. At age six, lung function was highest in the “Always high” group. Lung function increased as growth percentile of groups increased.

What does this mean and reasons for caution?

Growth patterns that remained high, increased over time or only slowly declined were above the recommended 50th percentile for growth. Children with better growth patterns in early life had better lung function at age six. This study describes typical patterns of growth in children with CF and we cannot explain how an individual child will grow over time. Growth is a result of many different individual and family factors that we could not measure. We also could not determine whether interventions or treatments affected growth. During this study, very few children were prescribed modulator therapy, which may affect growth patterns.

What’s next?

Availability of elexacaftor/tezacaftor/ivacaftor for very young children with CF is anticipated to improve growth during early childhood. We recommend a similar study in the future to examine whether and how ETI impacts early childhood growth.

Original manuscript citation in PubMed

https://pubmed.ncbi.nlm.nih.gov/36858852/

cfresearchnews@gmail.com