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Title:

DIFFERENCES BETWEEN WHO AND CDC EARLY GROWTH MEASUREMENTS IN THE ASSESSMENT OF CYSTIC FIBROSIS CLINICAL OUTCOMES

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What was your research question?

Studies have shown that children with cystic fibrosis (CF) who grow well tend to have better adult lung function and longevity. We compared early growth based on two different growth standards [World Health Organization (WHO) and Centers for Disease Control (CDC)] to determine which is better at predicting long-term lung function in people with CF.

Why is this important?

Children with CF are weighed and measured at all medical visits. The Cystic Fibrosis Foundation (CFF) recommends that children with CF hit the 50th percentile weight-for-length (WFL) on the CDC charts during the first two years of life. However, paediatric CF clinics now use WHO growth charts for measuring infants and toddlers. WHO and CDC growth charts are not the same. For the same child, WHO WFL percentiles at age two are almost always higher than CDC-based percentiles. Growth percentile goals have not been established when the WHO growth charts are being used for measurements in young children with CF.

What did you do?

We used the CFF patient registry to identify patients who were diagnosed with CF as infants or toddlers in the early 1990s. We classified their early growth using both CDC and WHO

growth scales. Specifically, we compared patients that made it to the current growth goal to those who made it to >50th percentile on the WHO growth charts but who did not hit >50th percentile on the CDC growth chart. We then tracked these patients' lung function, lung transplant status and survival into early adulthood.

What did you find?

There was a significant difference between children who hit the current growth goal and those that made it to 50th percentile WFL on the WHO scale but not the CDC. The group hitting the current growth goal were shown to have better lung function starting in elementary school and this difference was present all the way into adulthood. The group with the best early growth also had the best chance of living to early adulthood without a lung transplant.

What does this mean and reasons for caution?

We confirmed that early growth in children with CF can be associated with lung function and survival without lung transplant into adulthood. Our research indicates that 'bigger is better' in the first few years of life for children with CF. However, a few things remain unclear. First, we cannot say why some children with CF grow well in the first two years of life while others do not. Second, we are not sure if prescribed diets or medications will improve early growth so children who catch up from early underweight status will have better long-term lung function and overall survival.

What's next?

We need to study the characteristics of CF patients who grow well during early life, considering their genetic mutations, what they eat, and what their home life is like. Then we need to study our ability to encourage catch up growth in those who are underweight, to determine if our interventions are effective.

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