

Cystic Fibrosis Research News

Title:

AGE-DEPENDENT VARIATION OF FECAL CALPROTECTIN IN CYSTIC FIBROSIS AND HEALTHY CHILDREN

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What was your research question?

Individuals with cystic fibrosis (CF) can suffer from gut inflammation. Calprotectin measured in stool is a test to detect gut inflammation. Calprotectin is normally elevated in healthy infants without CF. Our research question was "What are the levels of calprotectin across different ages in children with CF and healthy children?"

Why is this important?

Gut inflammation may affect the gut's ability to absorb food correctly. Children with CF often struggle to achieve their ideal weight and height. Comparing calprotectin levels

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between CF and healthy individuals may provide us with more clues to understanding gut inflammation in CF and at what age it starts.

With the availability of new treatments that address the underlying defect in CF, it is important measure the effects of these drugs on gut inflammation. Calprotectin is convenient and non-invasive measure. Thus, it is important we know what calprotectin levels are present in CF and healthy children across different ages.

What did you do?

We collected stool samples from children with CF and healthy children aged 0 to 10 years. After measuring calprotectin levels in these samples in the laboratory, we used statistical tests and graphs to determine the trend of calprotectin across different ages.

What did you find?

Calprotectin levels in CF and healthy children varied according to age. Furthermore, calprotectin levels in both groups were very different from one another depending on age.

In healthy children, calprotectin levels in stool were high shortly after birth then progressively decreased and remained low after four years of age. In children with CF, calprotectin levels were lower during the first year of life compared with healthy children. Calprotectin levels in CF children increased and by four years old, calprotectin levels were much higher in children with CF compared with healthy children and stayed consistently elevated beyond this.

What does this mean and reasons for caution?

Calprotectin levels were significantly different between infants with CF and without CF shortly after birth. This suggests that differences in the gut of children with CF compared with healthy children are present from the early years of life. It is unclear why calprotectin is lower in children with CF compared with healthy children however this may be related to abnormal immunity in children with CF.

While calprotectin levels could be used as a marker to measure the effects of new treatments in CF, careful interpretation is required especially when used in children less than four years old.



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What's next?

The cause of gut inflammation in CF remains unclear and requires further investigation. It would be useful to understand why calprotectin is lower in infants with CF compared with healthy infants. Identification of an alternative, non-invasive measure of gut inflammation for young children below 4 years would be ideal.

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