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Cystic Fibrosis Research News

Title:

Changes in fecal elastase-1 following initiation of CFTR modulator therapy in pediatric patients with cystic fibrosis

Lay Title:

Changes in pancreatic enzyme function for children with cystic fibrosis while taking modulators (Trikafta®, Orkambi®, Symdeco®, and Kalydeco®)

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What was your research question?

Clinical trials have shown some improvement in pancreatic enzyme function in children with CF taking a modulator such as Trikafta®, Orkambi®, Symdeco®, or Kalydeco®. Our research was designed to answer the question of whether the same is seen in the "real world" environment and to identify characteristics associated with improvement.

Why is this important?

It is important for healthcare providers to have information about the potential for recovery of pancreatic enzyme function so that they can recommend testing. The most important benefit to this information is the individual child who may be able to stop their pancreatic enzyme replacement pills taken at every meal and snack.

What did you do?

We collected stool elastase data retrospectively for 70 children at three CF centers. These centers had started their own procedures for obtaining a stool elastase for children taking modulators and replacement enzymes. Stool elastase is an indirect test used to determine how much digestive enzyme a person's pancreas is making. The cut-off point for elastase is 200 mcg/g. An elastase value <200 mcg/g is labelled "pancreatic insufficient" and would indicate the need for replacement enzymes at meals and snacks. An elastase value ≥200 mcg/g is labelled "pancreatic sufficient" and would not require replacement enzymes.

What did you find?

We found that there was a significant increase in the elastase value when comparing samples taken before starting a modulator to samples taken after starting a modulator. We also found that after starting a modulator 21% (15 of 70) of children had an elastase value ≥200 mcg/g, indicating they were in the pancreatic sufficient range and may no longer need replacement enzyme pills. This small group of children was younger than others when they started their first modulator. This group also had a higher baseline elastase level than others (still <200 mcg/g), drawn before they started a modulator.

What does this mean and reasons for caution?

Our results highlight the need for testing of pancreatic function after starting a modulator in children. Caution is needed for our results due to a bias towards finding children with a higher likelihood for elastase improvement. This is because the guidelines for testing at each center included children of a younger age (≤ 12 years old) and those with clinical symptoms of pancreatic improvement. There is also caution needed when using elastase as a measure for

pancreatic *sufficiency* because there is more variability with higher values near 200 mcg/g. Elastase has less variability at lower values that predict pancreatic *insufficiency*.

What's next?

The next step would include more data on elastase from other CF centers and developing a guideline to inform healthcare providers about which children should have a recheck of pancreatic function. A guideline might include specifics regarding age at modulator start, baseline elastase, or length of time on modulator.

Original manuscript citation in PubMed

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