

Cystic Fibrosis Research News

Title:

Impact of elexacaftor/tezacaftor/ivacaftor (ETI) on fat-soluble vitamin levels in children with cystic fibrosis

Lay Title:

Changes in blood levels of vitamins A, D and E after starting Kaftrio

Authors:

Schembri, L^{1*}, Warraich S^{2*}, Bentley, S³, Carr, SB², Balfour-Lynn IM².

Affiliations:

Dept. Paediatric Dietetics¹, Dept. Paediatric Respiratory Medicine², Dept. Paediatric Pharmacy³, Royal Brompton Hospital, London, UK.

What was your research question?

After starting ETI therapy (Kaftrio), it was expected that vitamins might be better absorbed and the children's appetite might be improved. We wanted to assess changes in blood levels of vitamins A, D & E after started the medicine to ensure levels had not become abnormally high.

Why is this important?

High levels of vitamins in the blood can lead to a number of health problems and needs to be avoided. Similarly, there can be problems with abnormally low levels. Blood vitamin levels are usually just checked once a year at the annual review, so it is important to know if starting Kaftrio could lead to abnormal levels, so that we would know if blood levels need to be checked sooner after starting the new medication.

What did you do?

We looked back at our electronic records for a 3½ year period, to check vitamin levels taken at annual review before starting Kaftrio, and then the levels taken after starting.

What did you find?

We studied 54 children, aged 5-15 yrs. Vitamin A levels were increased overall, but only 3/54 (6%) had an abnormally high level after starting Kaftrio (whereas none were high before starting). We also found that whilst 8% had low vitamin A levels before starting Kaftrio, only 4 % had low levels when taking the drug. There were no important changes in levels of vitamins D and E. We also found that less pancreatic supplements (Creon) were needed.



Cystic Fibrosis Research News

What does this mean and reasons for caution?

This means that it is important to check levels of vitamins, especially vitamin A, in people once they have started Kaftrio. We recommend this is done within 3 months, which coincides with when blood needs to be taken for liver function testing. Vitamin doses can then be adjusted if necessary.

What's next?

It would be worth knowing what happens with adults taking Kaftrio. It would also be useful to look at a larger number of people who have been taking Kaftrio for longer, to see if further changes happen, particularly with vitamins D and E.

Original manuscript citation in PubMed

<https://pubmed.ncbi.nlm.nih.gov/37142523/>