European Cystic Fibrosis Society

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Cystic Fibrosis Research News

Title:

Elexacaftor/tezacaftor/ivacaftor in liver or kidney transplanted people with cystic fibrosis using tacrolimus, a drug-drug interaction study

Lay Title:

Is it safe to use Elexacaftor/tezacaftor/ivacaftor if you have had a kidney or liver transplant?

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What was your research question?

The safety of using elaxacaftor/tezacaftor/ivacaftor (ETI) in people with cystic fibrosis after organ transplantation is not clear. Ivacaftor may increase the amount of anti-rejection drug (tacrolimus) in the blood. We want to investigate the safety of this drug combination and the effect of ETI in this situation.

Why is this important?

We know from research but also from daily practice that many people with CF using ETI have fewer complaints and often also better lung function. These effects are promising and we expect that people with cystic fibrosis who have had a kidney of liver transplant will have similar benefit. Before we treat them with ETI, it is necessary to investigate whether its use is safe.

What did you do?

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We started ETI in 5 people with CF and a history of liver or kidney transplantation. To learn if ETI use changed the amount of tacrolimus in the blood we measured blood levels of both ETI and tacrolimus. Two weeks before starting ETI treatment we started with measuring the amount of tacrolimus in the blood. This was repeated several times until four weeks after ETI was started. In case the blood levels of tacrolimus were too high or too low, the dosage of tacrolimus was adjusted.

What did you find?

In all 5 study participants the blood levels of tacrolimus increased after starting ETI. In 4 study participants one or more dose adjustments of tacrolimus were needed. No side effects were reported and all study participants had a good effect on ETI treatment which was comparable with the benefits of this drug in people with CF without an organ transplantation.

What does this mean and reasons for caution?

With the results of our study we showed that ETI treatment in people with CF after a liver or kidney transplantation has the same robust effect as in the general CF population. We have shown that ETI increases the amount of tacrolimus in the blood which gives reason to adjust the tacrolimus dosage. Due to the observed beneficial effect and the absence of side effects we advise considering treatment with ETI in liver and kidney transplant people with CF. Tacrolimus levels and side effects must be monitored closely.

What's next?

In our study treatment duration was 4 weeks only. Long term studies are needed to get insight in the safety on the long term.
Because the benefit of treatment with ETI after lung transplantation is less obvious, we chose to perform our study in people with CF after kidney and liver transplantation. Few small studies are performed in lung transplanted people with CF but larger studies are needed to better understand what the risks and the benefits are of ETI treatment after lung transplantation.

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