



Cystic Fibrosis Research News

Title:

Measured fetal and neonatal exposure to Lumacaftor and Ivacaftor during pregnancy and while breastfeeding

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What was your research question?

CFTR modulators represent an important new class of medication to improve CFTR function, but little is known about their effects on pregnancy. After one of our patients decided to remain on lumacaftor/ivacaftor both while pregnant and to breastfeed following birth, we wanted to know how much drug the baby would be exposed to.

Why is this important?

As health improves for people with CF, more people are choosing to have families of their own. CFTR modulators are an important part of this progress, but little is known about how their use may effect a pregnancy. To date, there is one published report of a woman carrying her pregnancy to term while taking ivacaftor, and there are no such reports for lumacaftor/ivacaftor. Because many women prescribed these drugs will undoubtedly consider pregnancy, it is important for the scientific community to describe and report any experiences to inform patients and providers to develop a medication plan while considering pregnancy and/or breastfeeding.

What did you do?

We reported on the clinical outcome of a mother and her infant daughter from pre-term through six months of age who remained on lumacaftor/ivacaftor during her pregnancy and while breastfeeding. We also measured drug levels in the mother, the infant, as well as breastmilk and cord blood.

What did you find?

The pregnancy was normal and the infant was born without CF and healthy. There were some mild fluctuations in the infant's liver function that we did not believe were due to exposure to lumacaftor/ivacaftor. We also found high levels of both drugs in cord blood; lumacaftor levels in cord

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blood were higher than the mother's blood levels, and ivacaftor levels were similar. We found drug present in breastmilk as well, but at lower levels. The drug was present in infant blood for several months after birth, but were about 1-5% of the mother's levels.

What does this mean and reasons for caution?

Although the patient and her daughter seemed to suffer no ill-effects, this one case report is insufficient to alter the current recommendation that these drugs should be avoided in pregnancy and breastfeeding. Our findings do suggest that both lumacaftor and ivacaftor readily cross the placenta, and that infants may be exposed to the same levels of drug as their mothers during development. Our findings also suggest that the drug is present in breastmilk, and that infants who breastfeed are exposed to low levels of drug. It is also possible that the drug may cause transient abnormalities in liver function in infants.

What's next?

Because the promise of new treatments will likely enable more people with CF to enjoy healthy lives and relationships, it is very important to collect information about people's experiences with these drugs with pregnancy and breastfeeding. Although not discussed in this paper, a registry has been created to collect information which will help patients and their providers make informed decisions with regard to CFTR modulators and pregnancy.

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