

Cystic Fibrosis Research News

Title:

Oxidized glutathione and uric acid as biomarkers of early cystic fibrosis lung disease

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What was your research question?

Can we measure a stable compound in urine or blood to show that white blood cells are fighting an infection in the lungs of children with cystic fibrosis?

Why is this important?

When doctors want to find out if the lungs of young children with cystic fibrosis are infected, they must put a tube into the lungs and remove fluid to examine it for bacteria. This procedure is very unpleasant for the children. Our methods for measuring a stable compound in urine or blood would be more easily tolerated by children. The tests would also give quicker result as to whether white blood cells are fighting an infection in the lungs.

What did you do?

In this study, we collected lung fluid, blood and urine from 36 infants and children (ages 0.2-10 yr). We measured stable compounds in these samples. We then compared the levels of these compounds to how badly the lungs were infected.

What did you find?

The stable compounds we measured were elevated in the lungs of children with lung infections compared to those without infection. In blood and urine, the level of one of the stable compounds (named glutathione sulfonamide; GSA) was raised in children with



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infections. Furthermore, the amount of this stable compound in urine was related to its levels in the lung.

What does this mean and reasons for caution?

Our results show that white blood cells are fighting infections in the lungs of children with cystic fibrosis. The stable compound we found in urine could be used as a sign to indicate that children with cystic fibrosis have an infection in their lungs. Unfortunately, we could examine only a small number of children. This meant that we are not able to show whether the amount of stable compound in urine can tell the doctor how bad infections are in the lung.

What's next?

We need to do larger studies to show that the stable compound in urine can clearly indicate how badly lungs are infected. In future studies, we will measure the compound in urine before, during and after an infection to examine whether it signals the course of the infection.

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