



Cystic Fibrosis Research News

Title:

RESISTIN IS ELEVATED IN CYSTIC FIBROSIS SPUTUM AND CORRELATES NEGATIVELY WITH LUNG FUNCTION

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What was your research question?

Lung disease in people with CF is a complicated process featuring abnormal immune defense against bacteria and fungi, and perturbed metabolism. This study investigated whether levels of resistin, a signaling molecule used by multiple cells in the body to regulate immunity and metabolism, are abnormal in CF blood and lungs.

Why is this important?

Understanding changes in signaling molecules such as resistin that are associated with CF lung disease is important for two reasons. First, monitoring such changes can provide a window into acute and chronic changes in the lung environment that require major adjustments in therapy. Second, specific signaling molecules such as resistin can give out clues on the underlying processes causing CF lung disease, and therefore open new avenues for therapy.

What did you do?

To determine if resistin levels are altered in the course of CF lung disease, we took advantage of banked samples from three cohorts of adolescent and adult patients with CF who had been enrolled in clinical studies conducted by our team of investigators in recent years. These cohorts spanned a wide range of disease severity, including CF-related diabetes (CFRD), and



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CF-associated allergic bronchopulmonary aspergillosis (CF-ABPA). We used a well-established quantitative method to measure resistin levels in both blood plasma (systemic compartment) and sputum (lung compartment) from this diverse group of patients.

What did you find?

We found that resistin levels are slightly increased in the plasma of patients with CF compared to healthy controls. Sputum resistin levels, however, were increased more than 50-fold compared to plasma in patients with CF, but not healthy controls. Among patients with CF, those with CF-ABPA had higher levels of resistin in plasma, and those with CFRD had higher levels of resistin in sputum. Also, we found that increased sputum resistin levels were strongly associated with decreased lung function, independently of other variables known to impact disease severity (such as age, sex, and type of mutations).

What does this mean and reasons for caution?

Because resistin has been identified in other chronic inflammatory diseases as a mediator of immune and metabolic dysfunction, our findings that CF sputum contains very large amounts of resistin suggest that it may play a similar role in patients with CF. Limitations of this first study of resistin in CF include the retrospective and largely cross-sectional nature of the samples, which is not optimal to assess changes occurring in individual patients over time, notably during and after exacerbations, and upon development of complications such as CFRD and CF-ABPA.

What's next?

Considering the large amounts of resistin in CF sputum and its close association with lung function, follow-up studies should focus on the precise role(s) this signaling molecule plays in modulating immunity and metabolism during CF lung disease, and what to expect from potential therapeutic interventions targeting its activity.

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