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Cystic Fibrosis Research News

Title:
Circulating CRP and calprotectin to diagnose CF pulmonary exacerbations

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What was your research question?
C-reactive protein and calprotectin are proteins that normally circulate in our blood. Their levels increase with inflammation, making them useful markers to monitor certain diseases including cystic fibrosis. Can C-reactive protein and calprotectin levels be used to help diagnose pulmonary exacerbations?

Why is this important?
Cystic fibrosis patients are vulnerable to pulmonary exacerbations, which are episodes characterized by increased symptoms and decreased lung function. Untreated, they can lead to permanent airway damage. Currently, we do not have a standardized set of diagnostic criteria to identify these exacerbations. This can lead to variability among doctors, where milder cases of pulmonary exacerbations may be missed. C-reactive protein and calprotectin may help in making the diagnostic process more objective and standardized.

What did you do?
We examined levels of blood C-reactive protein and calprotectin in our patients at the St. Paul's Hospital Adult Cystic Fibrosis Clinic (Vancouver, Canada). Protein levels were collected not only during pulmonary exacerbation visits but also during visits where patients felt they were well.

We assessed the ability of the proteins to identify pulmonary exacerbations using two approaches. First, can we define cut-offs for C-reactive protein and calprotectin across all

patients to diagnose exacerbations? Alternatively, can we establish personalized levels of these proteins for each patient when he/she is well, and use increases in the protein levels from these levels to diagnose exacerbations?

What did you find?

C-reactive protein and calprotectin levels showed substantial variability across different patients, as well as when we examined multiple visits from an individual patient. A single threshold of C-reactive protein and calprotectin may have some utility. However, examining a patient's protein level in comparison to his/her personalized baseline level has a greater advantage in diagnosing pulmonary exacerbations.

What does this mean and reasons for caution?

C-reactive protein and calprotectin could help doctors to diagnose pulmonary exacerbations. These proteins may complement the diagnostic process during routine clinic visits, especially in situations where the exacerbations may have milder symptoms or show only a slight decline in lung functions.

What's next?

More research is needed to confirm the role of C-reactive protein and calprotectin to diagnose pulmonary exacerbations. Once confirmed, these proteins may be included in a standardized set of criteria to identify exacerbations among cystic fibrosis patients.

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