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Cystic Fibrosis Research News

Title:

The role of basophil activation test in allergic bronchopulmonary aspergillosis and *Aspergillus fumigatus* sensitization in cystic fibrosis patients

Authors:

Anna Katelari[1], Marianna Tzanoudaki[2], Maria Noni[1], Maria Kanariou[2], Maria Theodoridou[3], Emmanuel Kanavakis[4], Stavros-Eleftherios Doudounakis[1], Christina Kanaka-Gantenbein[3]

Affiliations:

[1]"Aghia Sophia" Children's Hospital, Department of Cystic Fibrosis, Thivon & Papadiamantopoulou str., GR 11527, Athens, Greece.
[2] "Aghia Sophia" Children's Hospital, Department of Immunology & Histocompatibility, Thivon & Papadiamantopoulou str., GR11527, Athens, Greece.
[3] First Department of Pediatrics, Medical School, National and Kapodistian University of Athens, "Aghia Sophia" Children's Hospital, Thivon & Papadiamantopoulou str., GR 11527, Athens, Greece
[4] Department of Medical Genetics, Medical School, National and Kapodistrian University of Athens, Choremeion Research Center, Thivon & Livadias str., GR 11526, Athens, Greece

What was your research question?

Basophils (i.e. white blood cells) play a key-role in allergy. Basophil activation test (BAT) is a way to identify and measure the amount of specific markers on the basophil surface and is used in the diagnosis of many allergic diseases. Our research questions were: Is BAT helpful to diagnose allergic broncholpulomary aspergillosis (ABPA)? Can BAT identify a subgroup of people, who are *Aspergillus fumigatus*-sensitized (AFS) and at a higher risk of developing ABPA?

Why is this important?

People with CF often develop sensitization to *A. fumigatus*. Whilst some people will remain sensitized and others will lose their sensitization, a group of them will develop ABPA. If untreated, ABPA may lead to a decrease in lung function. Thus, quick diagnosis and starting appropriate treatment may prevent progression to lung damage. However, current criteria for diagnosing ABPA often fail to identify cases at an early stage, mainly because there is an

overlap between the signs and symptoms of CF and ABPA. This may result in the start of appropriate treatment being delayed.

What did you do?

We studied 56 people with CF (17 people diagnosed with ABPA; 24 people with AFS; 15 people without AFS). We performed BAT in each person to see whether BAT values could help diagnose ABPA and we also estimated the best BAT values for the diagnosis. Based on these values, we performed a second analysis in those without ABPA to identify people who are more likely to develop ABPA over time.

What did you find?

We found raised values, using BAT, in all people with ABPA and we have proposed cut-off values that could help healthcare professionals diagnose ABPA. BAT results were also raised in people with AFS, although their values were lower than those with ABPA. Using our proposed cut-off values, we identified a subgroup of people with AFS, who had a higher risk of developing ABPA. Half of these patients developed ABPA during the first nine months of the follow-up period.

What does this mean and reasons for caution?

Our results suggest that BAT could complement the method currently used to diagnose ABPA when it is suspected. The potential clinical value of our findings is that we can better identify those people with CF, not fully meeting the criteria of ABPA diagnosis but who could possibly benefit from earlier administration of ABPA treatment. Additionally, BAT could be considered as a potential marker to monitor people with AFS, who are more likely to develop ABPA over time. However, these results should be used with caution and together with the already existing criteria until the results are verified.

What's next?

Our study could form the basis for future larger multi-center studies aiming to identify ways that could lead to earlier treatment of ABPA, in order to avoid irreversible lung damage.

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