Test Helps Identify Asthma Patients Likely to Fail Corticosteroid Therapy

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DENVER , CO — Although national and international guidelines recommend inhaled corticosteroids to control inflammation in asthma, growing evidence indicates they do not help a portion of asthma patients. New research, published in the January issue of the *Journal of Allergy and Clinical Immunology*, confirms that certain patients may not benefit from inhaled corticosteroids and suggests how those patients can be identified.

"Our findings suggest that if inhaled corticosteroids do not help a patient in the first six weeks, they are unlikely to help in the long term," said Richard Martin , MD, lead author of the study and chair of medicine at National Jewish Medical and Research Center.

"Studies such as this provide important insight to help us tailor asthma therapy to individual patient needs," noted James Kiley, PhD, director of the Division of Lung Diseases for the National Heart, Lung, and Blood Institute (NHLBI), which funded the study. NHLBI is part of the National Institutes of Health, the nation's medical research agency. "If these findings are confirmed in larger studies, we will be one step closer to our goal of being able to offer personalized medicine for more effective patient care."

Dr. Martin and his colleagues in the NHLBI's Asthma Clinical Research Network sought to identify characteristics that could predict an asthma patient's response to an inhaled corticosteroid. They took medical histories and performed numerous biological and physiological tests on 72 adults with asthma, then gave them a six-week course of the inhaled corticosteroid beclomethasone dipropionate (QVAR).

After six weeks, the researchers evaluated the benefits of the medication with a noninvasive lung-function test called spirometry, which measures how much air can be expelled from the lungs in one second, known as FEV1.
Thirty-nine of the patients (54%) were classified as responders to the inhaled corticosteroid because their FEV1 improved more than 5%. The other thirty-three (46%) were classified as non-responders because their FEV1 improved less than 5% or worsened. Several characteristics predicted who would do well in the six-week trial, including a good response to the rescue medication albuterol and low initial FEV1measurement.

The researchers then continued the trial with half the patients continuing to receive the inhaled corticosteroid and half receiving placebo. After 16 weeks, patients completed an asthma control questionnaire.

Patients who did not benefit from inhaled corticosteroid in the first part of the study had the same results whether they continued treatment or used placebo. Among those who initially benefited from the inhaled corticosteroid however, those who continued the medication maintained asthma control, while those who were given placebo got worse.

"In our study, almost half of patients with asthma were not helped significantly by inhaled corticosteroid," said Dr. Martin. "Although we did identify several biomarkers that predicted patients' response, other studies have identified different predictive biomarkers. We believe a more promising predictive tool is a simple lung-function test done after six weeks of therapy."

Unfortunately, there are few widely accepted alternatives to inhaled corticosteroids for the control of inflammation in asthma.

"I believe this research may cause us to reevaluate guidelines that rely so heavily on the use of inhaled corticosteroids," said Dr. Martin. "It should also spur us to seek additional therapies to help asthma patients who do not benefit from those medications."

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