

Who Benefits from Singulair?

MAY 14, 2008

DENVER — Girls and children exposed to secondhand tobacco smoke respond particularly well to montelukast (brand name, Singulair) according to researchers at National Jewish Medical and Research Center. Associate Professor of Pediatrics Nathan Rabinovitch, MD, and his colleagues also identified two biomarkers that may help physicians predict even more precisely which patients will benefit from montelukast.

“These findings will help doctors know in advance which patients are most likely to benefit from montelukast and to tailor an effective treatment regimen for specifically them,” said Dr. Rabinovitch.

The study was recently published online and will appear in the June issue of the *Journal of Allergy and Clinical Immunology*.

Inhaled corticosteroids are considered the first-line treatment for cases of persistent asthma. However, steroids alone do not effectively control asthma in 30 percent to 40 percent of patients and they may have some side effects, especially in children. In those cases, a secondary medication is often used. Montelukast is one such medication.

Montelukast, one of the most widely prescribed medications for asthma and allergies, blocks the action of chemicals called leukotrienes, which contribute to inflammation. However, physicians have found that montelukast is quite variable in its effectiveness, helping some patients but not others. Dr. Rabinovitch and his colleagues set out to better understand its variable effectiveness.

They followed the 27 asthmatic students from the Kunsberg School on the National Jewish campus for five months. The children received daily montelukast or a placebo without any change in their other asthma medications. The primary measure of asthma control was how often children needed to use their short-acting rescue medication albuterol.

Before the children began taking montelukast, researchers found that when leukotriene levels in their urine rose, the children used 20 to 25% more albuterol two days later. Once they began taking montelukast, however, children did not need to take albuterol as often when their leukotriene levels rose. Two groups of children responded particularly well to montelukast: girls and children with high levels of cotinine in their urine, which indicated exposure to secondhand tobacco smoke. Both had statistically significant reduced sensitivity to leukotrienes once they began taking montelukast.

“When looking at a general population of patients, montelukast does not appear to be very effective,” said Dr. Rabinovitch. “However, in certain patients, the choice of montelukast may be warranted, particularly in school-age girls and children exposed to tobacco smoke.”

Dr. Rabinovitch and his colleagues also found that measuring exhaled nitric oxide, a measure of inflammation in patients’ breath, and leukotrienes in their urine, could also help them predict which patients would respond well to montelukast-- those with a high leukotriene/nitric oxide ratio.

“Increasingly we have come to understand that asthma is not just one disease; it is more likely several diseases that present with similar symptoms. Thus different medications are likely to work for different patients,” said Dr. Rabinovitch. “It is important that we be more selective and tailor our medication regimen so that each child receives the most safe and effective treatment for their type of asthma.”

National Jewish Health is the leading respiratory hospital in the nation. Founded 123 years ago as a nonprofit hospital, National Jewish Health today is the only facility in the world dedicated exclusively to groundbreaking medical research and treatment of patients with respiratory, cardiac, immune and related disorders. Patients and families come to National

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