Two Asthma Drugs' Efficacy Compared

BY DAMIAN McNAMARA
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Low-dose fluticasone propionate significantly improved pulmonary function, controlled nocturnal symptoms, and reduced the need for supplemental albuterol, compared with montelukast in a study of children with persistent asthma.

Fluticasone was significantly more cost effective than was montelukast and earned higher satisfaction ratings among parents and physicians, reported Nancy K. Ostrom, M.D., of the Allergy and Asthma Medical Group and Research Center, San Diego, and her colleagues.

In clinical practice, either medication can be prescribed as initial controller therapy for patients, according to the investigators (J. Pediatr. 2005;147:213-20). Although adult asthma studies demonstrate safety and efficacy of each drug, comparative data in pediatric patients are limited.

The investigators randomized 172 children to 50 mcg fluticasone propionate administered via the Diskus multidose powder inhaler (GlaxoSmithKline) twice daily and 170 others to 5 mg montelukast (Singulair, Merck) once daily. Participants in the randomized, double-blind study were 6- to 12-year-old outpatients from 43 medical centers.

The study was supported by GlaxoSmithKline, a company from which Dr. Ostrom has received consultant, grant, and research support.

The mean percent increase in forced expiratory volume in one second (FEV_1) at 12 weeks in the fluticasone propionate group was 11% versus 5% in the montelukast group, a significant difference.

Also, mean total albuterol supplementation, nighttime albuterol use, and nighttime symptoms scores were significantly lower with fluticasone propionate than with montelukast.

"As a matter of company policy, Merck does not comment on competitor-initiated studies," spokesperson Carmen L. de Gourville said when contacted for comment.

At 12 weeks, more parents were very satisfied with fluticasone propionate (58%), compared with montelukast (46%). Similarly, more physicians were very satisfied at 12 weeks with fluticasone propionate (48%), versus montelukast (29%).

Headache, upper respiratory tract infection, sore throat, fever, and cough were the most common adverse events. Incidence was similar between groups. ■

Infant Wheezing Linked to Stop-and-Go Traffic Proximity

Infants who live near roads with lots of stop-and-go bus and truck traffic are significantly more likely to develop wheezing than those who live near steady traffic or those who aren't exposed to much traffic, Patrick Ryan and his associates reported.

The association may be related to increased amounts of diesel exhaust particles (DEP) shed when the vehicles accelerate from a stop, said Mr. Ryan, of the University of Cincinnati, and his colleagues. Other studies have shown that acceleration from stop increases this particulate matter.

The researchers examined wheezing without cold over 1 year in 622 infants (median age 7.5 months). The infants were part of the Cincinnati Childhood Allergy and Air Pollution Study; all had at least one atopic parent (J. All. Clin. Immunol. 2005; 116:279-84).

Most (374) of the infants were unexposed to traffic; 176 lived near moving bus and truck traffic, and 99 lived near stop-and-go traffic. Infants exposed to stop-and-go traffic were more likely to be black, have out-of-home care, and have a father with asthma, and they were less likely to have been breast-fed. The researchers adjusted for these variables.

Of the 622 infants, 8% (50) reported wheezing without a cold. The prevalence of wheezing in the unexposed infants was 5.8%. The prevalence was 7.4% in infants exposed to moving traffic, and 17.2% in infants exposed to stop-and-go traffic.

The prevalence of wheezing was three times higher (19%) in infants who lived less than 50 meters from moving traffic compared with the unexposed group. The prevalence of wheezing in those who lived 200-300 meters from moving traffic was 12%.

—Michele G. Sullivan

Clinical Guidelines For Family Physicians

Managing Asthma During Pregnancy

BY NEIL S. SKOLNIK, M.D., AND KELLY A. O'DRISCOLL, M.D.

The National Asthma Education and Prevention Program, supported by the National Heart, Lung, and Blood Institute, updated its recommendations on managing asthma during pregnancy, based upon systematic reviews of the evidence and the expertise of a collaborative panel.

Guidelines are most useful when they are available at the point of care. A concise yet complete handheld computer version of this guideline is available for download, compliments of Family Practice News, *at www.redi-reference.com.*

Asthma Medication Safety

► **Inhaled corticosteroids.** Inhaled corticosteroids are recognized as the preferred treatment for persistent asthma. The 2004 evidence review found that the risk of asthma exacerbations during pregnancy is reduced and lung function is improved when inhaled steroids are used. No studies were found that revealed adverse fetal outcomes with inhaled corticosteroids. The preponderance of data on inhaled corticosteroids during pregnancy is on budesonide.

► **β_2-Agonists.** Data remain the same regarding β_2-agonists. They are still safe to use in pregnancy, particularly the short-acting β_2-agonist, albuterol. Data are limited on salmeterol and formoterol—the two long-acting inhaled β_2-agonists available—although their pharmacologic and toxicologic profiles are similar to albuterol.

► **Theophylline.** Both studies and clinical experience confirm the safety of theophylline at controlled dosages, making it suitable as an alternative treatment for moderate to severe asthma (serum levels 5-12 mcg/mL, which differs from the recommended level of 8-12 mcg/mL presented in the 1993 report). However, there are reports of adverse side effects, medication discontinuation, and a greater proportion of women with a forced expiratory volume in the first second (FEV_1) lower than 80%.

► **Oral (systemic) steroids.** There are increased risks for preeclampsia and preterm, low-birthweight babies associated with oral steroid use. In the first trimester, there are increased risks for cleft lip and palate. However, evidence supporting these adverse effects is conflicting.

► **Cromolyn.** The safety of cromolyn in pregnancy is well supported, although it has been shown to be less effective and less tolerated than inhaled corticosteroids; therefore, it is recommended only as an alternative treatment for mild persistent asthma.

► **Leukotriene modifiers.** The evidence reviews produced minimal data regarding the use of leukotriene modifiers during pregnancy, although expert opinion is that they may be considered as an alternative treatment for mild persistent asthma in women who have used them successfully prior to pregnancy.

General Principles

The goals of asthma management during pregnancy are to maintain control and minimize maternal and fetal risks and morbidity.

Four principles of asthma management and control include:

► **Assessment and monitoring.** Because the course of asthma changes in two-thirds of pregnancies, patients should be evaluated at least monthly. Each visit should include a physical exam and questions that focus on symptom frequency, use of medications, and interference with daily activities. Spirometry tests are recommended for the initial visit, and patients should be monitored by spirometry or peak flows at subsequent visits. Consider ultrasounds for women with persistent or suboptimally controlled asthma to monitor fetal growth and activity.

► **Asthma trigger avoidance.** Patients should be advised to avoid all asthma triggers, including allergens, irritants, and—especially—tobacco smoke to achieve optimal control and decrease morbidity.

► **Patient education.** Patients should be taught about self-monitoring; the correct use of inhalers and medications; and asthma warning signs and symptoms. Also, a plan should be created for managing asthma that worsens.

► **Pharmacologic therapy.** A stepwise approach is recommended for incorporating both short- and long-acting medications.

For mild intermittent asthma, a short-acting bronchodilator is the preferred treatment.

For mild persistent asthma, a daily low-dose inhaled corticosteroid is preferred.

For moderate persistent asthma, increasing the inhaled corticosteroid to a moderate-dose or combining a long-acting β_2-agonist with a low-dose inhaled corticosteroid are options. Limited data describe the safety and efficacy of combination therapy in pregnant women, but studies from nonpregnant adults showed improved asthma control by adding a long-acting β_2-agonist rather than increasing the steroid dose. Cromolyn, theophylline, and leukotriene receptor antagonists are alternative treatments.

For severe persistent asthma, if additional medication is required, increase an inhaled corticosteroid to the high-dose range once patient technique and compliance have been carefully assessed. Budesonide is preferred. Adding an oral corticosteroid may be warranted if there is suboptimal control, although risks versus benefits must be considered.

Asthma exacerbations may lead to poor outcomes with the fetus and must be managed aggressively, including the treatment of allergic rhinitis, sinusitis, and gastroesophageal reflux, which may worsen during pregnancy.

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