

inexperienced and experienced physicians is not sufficiently large to distinguish between the 2 when determining whether clinical gestalt or a clinical prediction rule should be used to determine the pretest probability of pulmonary embolism.

## 119 Nebulized Magnesium Sulfate and Salbutamol Combination Compared to Salbutamol Alone in the Treatment of Acute Bronchial Asthma: A Randomized Study

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**Study objectives:** This study tests the hypothesis that the combined administration of multiple doses of nebulized salbutamol and magnesium sulfate provides additional benefit compared with salbutamol alone in adult patients with acute asthma.

**Methods:** This was a randomized, double-blind, prospective study. One hundred patients who presented to an emergency department with an acute attack of bronchial asthma were randomized into 2 groups. Group A were nebulized with a combination of salbutamol and magnesium sulfate every 20 minutes 3 times, whereas group B patients were assigned to receive salbutamol nebulization alone 3 times at 20-minute intervals. Salbutamol and magnesium sulfate were administered in doses of 0.5 mg and 500 mg, respectively, and the solutions were made isotonic to plasma osmolality. Drugs were coded by one of the investigators. Pulse rate, blood pressure, and peak expiratory flow rate (PEFR) were measured at baseline and then at 15, 60, 75, and 120 minutes. Serum magnesium levels and blood gases were measured at 0 and 120 minutes in both the groups.

**Results:** The baseline parameters were comparable in the 2 groups. Both the groups showed significant increase in PEFR at all intervals. However, there was no significant difference in rise in PEFR between both groups at any time of the study. Serum magnesium levels remained within limits in both groups, although the difference between the 2 groups was significant. There was no difference in requirement of additional medications during the study or hospital admission rates in the 2 groups. No significant side effects were noted.

**Conclusion:** The study suggests that there is no therapeutic benefit from addition of magnesium sulfate to salbutamol nebulization in the treatment of acute bronchial asthma.

## 120 Emergency Department Discharge Asthma Action Plans Improve Controller Medication Compliance in Persistent Asthmatics

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**Study objectives:** The National Institutes of Health National Asthma Education and Prevention Program guidelines recommend chronic use of controller medications such as inhaled corticosteroids for all persistent asthmatic patients (step II or higher). Previous studies have demonstrated poor compliance with controller medication use in emergency department (ED) asthmatic patients. The purpose of this study is to determine whether discharging patients with a written asthma action plan from the ED will improve long-term compliance with controller medications.

**Methods:** A prospective, grant-funded study of ED wheezing patients has been in place since November 2002. In phase II of this study, prospectively enrolled wheezing patients older than 12 months were treated for acute wheezing in an unrestricted fashion. For those discharged from the ED, parents were given a written asthma action plan along with other optional educational tools such as an asthma educational video while in the ED. Patients were later contacted by telephone to assess use of controller medications.

**Results:** Of the 719 encounters (596 subjects) enrolled in phase I, 68 (9%) had written asthma action plans. Three hundred ninety-five encounters were assessed as persistent (step II or higher), and of these, 15% were using controller medications correctly, 12% were using controller medications intermittently, and 73% were not receiving controller medications. Two hundred forty-six patients were interviewed by telephone 2 to 4 weeks after the ED visit, and of these, 14% were using controller medications and 86% were not. The ED encounter alone failed to increase the appropriate use of controller medications. Among the first 160 patients enrolled in phase II, only 15 patients had written asthma action plans at the ED visit. One hundred fifty-two patients received a color-coded written asthma action plan on ED discharge, which clearly recommends inhaled corticosteroids even during well periods (color

coded as green). For the 78 patients assessed as persistent asthmatics (step II or higher), the appropriate use of controller medications improved 2 to 4 weeks later, assessed during a telephone interview compared with controller medication use before the ED visit as follows: using controller medications appropriately (41% versus 18% previously), using controller medications intermittently (13% versus 21% previously), and not using controller medications at all (46% versus 62% previously).

**Conclusion:** Appropriate controller medication compliance rates have increased with the interventions initiated in phase II of this study. The most consistent intervention in this cohort is a written asthma action plan provided from the ED. Although the long-term management of a chronic disease such as asthma is more optimally managed by primary care physicians, asthmatic patients who utilize the ED might have poorer access to or poorer compliance with primary care, and for these reasons, methods to improve long-term controller medication compliance can be enhanced by educational tools such as written asthma action plans provided by the ED and are faster and preferable.

## 121 The Risk of Recurrent Emergency Department Visits or Hospitalization in Asthmatic Children Given Different Asthma Medications

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**Study objectives:** We confirm whether budesonide inhalation suspension (BIS; Pulmicort Respules) reduces risk of recurrent hospitalization or emergency department (ED) visits in asthmatic children.

**Methods:** A managed care organization database (PHARMetrics Patient-Centric database) was used to identify children aged 8 years or younger and with an asthma diagnosis and asthma-related hospitalization or ED visit (July 2000 to June 2002). We used asthma-related prescription claims during the first 30 days after hospitalization or ED visit to form the major comparison groups and calculated relative risk of hospitalization or ED visit for days 31 to 180 (Cox proportional hazards regression, covariates of age, sex, index event [ED visit/hospitalization], past and current asthma medications).

**Results:** The index event was an ED visit for 79% of patients and hospitalization for 21% (N=10,176). Over the next 6 months, 13% of patients had another asthma-related ED visit or hospitalization. After adjustment for 12 factors, BIS patients had a 29% lower risk for subsequent hospitalization or ED visit versus those without BIS.

**Conclusion:** BIS use in asthmatic children demonstrated significant effectiveness in preventing recurrent ED visits or hospitalizations.

Table, abstract 121.

Covariate	No. With Characteristic	Hazards Ratio	95% CI
Age	10,176	0.95*	0.92–0.98
Female sex	3,481	1.01	0.90–1.13
Total number	10,176	1.06*	1.02–1.11
preindex SABA			
Total number	10,176	1.24*	1.16–1.32
preindex OCS			
Total number	10,176	0.97	0.93–1.01
preindex controllers			
Hospitalization as index event	2,155	0.86*	0.75–0.99
SABA	4,826	0.95	0.84–1.07
OCS	5,358	1.23*	1.09–1.38
BIS	819	0.71*	0.57–0.89
ICS (excluding BIS)	918	0.98	0.81–1.19
Leukotriene modifiers	914	0.99	0.81–1.21
Mast cell stabilizers	639	1.54*	1.28–1.86
Long-acting $\beta_2$ -agonists	99	0.90	0.49–1.66

CI, Confidence interval; ICS, inhaled corticosteroid; OCS, oral corticosteroid; SABA, short-acting  $\beta_2$ -agonist.

\* $P < .05$ .