CONCLUSIONS. Montelukast was not inferior to fluticasone in terms of asthma RFDs; however, the use of montelukast was associated with more asthma attacks and more systemic steroid use. FEV1, β-agonist use, and quality of life improved significantly better for those in the fluticasone group.

REVIEWER COMMENTS. This study represents the first direct comparison between montelukast and an ICS measuring differences in multiple parameters of asthma control in children with mild persistent asthma. This study establishes the noninferiority of montelukast compared with fluticasone in terms of RFDs; however, in terms of FEV1, systemic corticosteroid use, number of asthma attacks and β-agonist use, fluticasone was significantly superior to montelukast. This study underscores the fact that asthma control cannot be determined with just one measure and confirms the role of montelukast as an alternative to ICSs as suggested by the current guidelines. The role of montelukast in future asthma guidelines is currently under investigation. Future studies are needed for evidence-based clinical application.

Montelukast Reduces Asthma Exacerbations in 2- to 5-Year-Old Children With Intermittent Asthma


PURPOSE OF THE STUDY. To evaluate the role of montelukast in prevention of viral-induced asthma exacerbations among 2- to 5-year-old children with a history of intermittent asthma.

STUDY POPULATION. A total of 549 children aged 2 to 5 years (from 68 sites in 23 countries) with a history of intermittent wheezing associated with upper respiratory infections.

METHODS. This was a multicenter, double-blind, parallel-group randomized trial comparing once-daily oral montelukast (4- or 5-mg chewable tablets) with placebo for 12 months. Subjects were required to have been free of symptoms and β-agonist use in a typical week over the 3 months before enrollment. An asthma exacerbation was defined as any 3 consecutive days with daytime symptoms and at least 2 β-agonist treatments per day; rescue use of oral/inhaled corticosteroids during ≥1 days; or a hospitalization because of asthma. The primary efficacy end point was number of exacerbation episodes over 1 year. Numerous secondary outcomes were also measured.

RESULTS. Patients in the montelukast group experienced a mean of 1.60 asthma-exacerbation episodes, compared with 2.34 in the placebo group, for a 31.9% rate reduction (P ≤ .001). Other end points with significant differences favoring the montelukast group included time to first exacerbation (median: 206 vs 147 days; P = .0024), rate of inhaled corticosteroid use (39.8% rate reduction; P = .027), and proportion of patients with asthma episodes (45% vs 56%; P = .008). There were no statistically significant differences in rates of oral corticosteroid use, average duration and severity of exacerbations, or proportion of patients who missed time from day care or school. Both groups experienced more exacerbations in the fall and fewer in the summer. Montelukast was well tolerated, and no patient discontinued therapy because of a drug-related adverse event.

CONCLUSIONS. The authors concluded that once-daily montelukast significantly reduces asthma exacerbations secondary to respiratory tract infections compared with placebo among 2- to 5-year-old children with intermittent asthma and also reduces time to first exacerbation and need for β-agonist or inhaled corticosteroid therapy. There was no difference in severity or duration of episodes, although the authors argue that the study was not specifically designed to detect differences in these end points.

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A Meta-analysis on Intravenous Magnesium Sulphate for Treating Acute Asthma


PURPOSE OF THE STUDY. To evaluate the effectiveness of intravenous magnesium sulfate in the treatment of acute asthmatic attacks in children.
STUDY POPULATION. Pediatric patients (n = 182) with moderate-to-severe asthmatic attacks in the emergency department in 5 randomized, placebo-controlled trials comparing intravenous magnesium sulfate to placebo, with co-therapies of inhaled β₂ agonists and systemic steroids.

METHODS. Meta-analysis that evaluated outcomes of hospitalization, short-term pulmonary-function tests, and symptom scores.

RESULTS. Magnesium sulfate was effective in preventing hospitalization (odds ratio: 0.29; 95% confidence interval: 0.143–0.589). The number needed to treat was 4 (95% confidence interval: 3–8). Secondary outcomes of short-term pulmonary-function tests and clinical symptom scores also showed significant improvement. The therapy was well tolerated with only minor adverse effects reported.

CONCLUSION. Intravenous magnesium sulfate probably provides additional benefit in moderate-to-severe acute asthma in children treated with bronchodilators and steroids.

REVIEWER COMMENTS. Meta-analyses are useful when multiple previous studies have shown inconsistent results. They may not, however, be the final answer, because subsequent large trials can alter the conclusion of a meta-analysis. Nonetheless, the data to date considered in this meta-analysis seem quite convincing. Also, the treatment is inexpensive and well tolerated, and the number needed to treat is small (you would need to give this therapy to only 4 children to keep 1 out of the hospital).

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