Symptomatic Viral Infection Is Associated With Impaired Response to Treatment in Children With Acute Asthma


PURPOSE OF THE STUDY. To examine the influence of viral respiratory infection (VRI) on treatment response in acute asthma.

STUDY POPULATION. A total of 218 children (mean age, 6.6 years) with acute asthma were recruited.

METHODS. Clinical symptoms were recorded, an asthma severity score was determined, and, whenever possible, a per-nasal aspirate was obtained for detection of viruses. Each child’s response to inhaled β2-agonists was assessed after 6, 12, and 24 hours.

RESULTS. The 168 children with VRI symptoms received more treatment with inhaled β2-agonists after 6 hours (P = .01), 12 hours (P = .002), and 24 hours (P = .0005) compared with the 50 children without such symptoms. Asthma severity did not differ between the 2 groups. A per-nasal aspirate was obtained from 77% of the children. The most frequently identified virus was rhinovirus (61.4%). Among children with symptoms of a VRI, those with rhinovirus had an impaired response to β2-agonists at 6 hours (P = .032).

CONCLUSIONS. Children with acute asthma and symptoms of VRI respond less effectively to β2-agonists after 6, 12, or 24 hours and thus may benefit from more intense therapy and monitoring.

REVIEWER COMMENTS. An association between viral upper respiratory infections and exacerbations of asthma has been recognized for many years and, specifically, rhinovirus appears to have a unique and stronger relationship with acute asthma in children compared with other viruses. The authors state that the identification of VRI symptoms at the initial assessment would be of potential clinical importance because children presenting clinically with such symptoms may benefit from more intensive therapy and monitoring. Potential limitations to this study included (1) the investigators were unable to obtain a per-nasal aspirate for virus detection in all study subjects; (2) as opposed to the administration of β2-agonists as the primary measure of clinical response, more objective measures, such as spirometry or use of oral corticosteroids, may have been better measures to assess; and (3) the timing of other treatment administered before presentation to the emergency department, duration of the preceding infection, and/or allergen exposure was not completely controlled for in this study. Despite these issues, this study presents interesting clinical findings.

Intermittent or Daily Montelukast Versus Placebo for Episodic Asthma in Children


PURPOSE OF THE STUDY. To investigate the efficacy of montelukast in the treatment of young pediatric patients with episodic asthma.

STUDY POPULATION. Children aged 6 months to 5 years with a history of asthma symptoms during the past year and symptom-free periods between episodes were included in this multicenter (111 sites), randomized, double-blind, double-dummy trial that took place from November 2006 to August 2009.

METHODS. Patients were randomized to 1 of 3 groups: daily montelukast plus intermittent, episode-driven placebo; daily placebo with montelukast given during episodes; or daily placebo with placebo given during episodes. Doses were given at night. Episode-driven medications were given for 12 days from the start of the episode. All patients could use short-acting β-agonists as needed for symptom relief. Action plans were given to the families. On a daily basis, symptom calendars were completed by parents, which included respiratory symptoms and use of medication for the treatment. During episodes of asthma, questions included day and night symptoms, use of asthma medications, limitation of activity, and use of health care resources. The primary endpoint was the number of episodes leading to an asthma attack that led to utilization of health care.
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