

Ibuprofen-induced bronchospasm

Nonsteroidal anti-inflammatory drugs (NSAIDs) can cause bronchospasm and trigger asthma exacerbations, presumably by increasing leukotriene production due to cyclooxygenase-1 isoenzyme inhibition. The aim of this study was to determine the prevalence of ibuprofen-sensitive asthma in school-aged children with mild or moderate persistent asthma.



Message

Ibuprofen administration could cause bronchospasm in predisposed patients

Methods

A randomised, double-blind, placebo-controlled, crossover bronchoprovocation challenge study was performed in 127 children aged 6–18 years with mild or moderate persistent asthma. Patients received a single dose of ibuprofen or placebo per randomisation, and returned 2–7 days later to repeat the procedures after taking the drug not received at the first visit. At each visit, patients performed spirometry before and 0.5, 1, 2 and 4 hours after administration of the drug. Bronchospasm was defined as a $\geq 20\%$ decrease from baseline in forced expiratory volume in one second (FEV₁) and ibuprofen sensitivity as bronchospasm following administration of ibuprofen but not placebo.

Results

Two patients had bronchospasm following ibuprofen administration, with decreases in FEV₁ of 35 and 25%, respectively. The maximal drop in FEV₁ occurred 1 hour after ibuprofen

administration in both subjects. Both of these patients experienced shortness of breath and had wheezing on auscultation 1 hour following ibuprofen, and both experienced a resolution of symptoms and a return to baseline lung function values following administration of salbutamol. Neither of these patients had a decrease in FEV₁ after placebo. Both had moderate persistent asthma and neither had nasal polyps. Another 2% of the study population had clinically relevant decreases in spirometric measures after ibuprofen administration, but they did not meet *a priori* criteria for a positive challenge test (FEV₁ $\leq 20\%$).

Conclusion

The prevalence of ibuprofen-sensitive asthma was low in this group of children with mild or moderate asthma. However, the possibility of ibuprofen-induced bronchospasm should be considered before administering ibuprofen to children with asthma.

Editorial comments

Children with asthma rarely have the classic triad of aspirin-induced bronchospasm, rhinosinusitis and nasal polyps, but the prevalence of aspirin-induced bronchospasm following oral provocation challenge is ~9–28% [1]. The cross-sensitivity between aspirin and other NSAIDs, including ibuprofen, is high in adults, and there have been anecdotal reports of severe and fatal asthma associated with ibuprofen exposure [2, 3]. Although the cross-sensitivity between aspirin and other NSAIDs is presumed to be high in children as well, the prevalence of ibuprofen-induced bronchospasm in children is unknown.

Since the mid-1990s, the use of ibuprofen as an over-the-counter analgesic and antipyretic in children has increased dramatically. Thousands of children with asthma take ibuprofen each year, often during acute illnesses, including upper respiratory tract infections. It is possible that ibuprofen may exacerbate asthma in some of these children, but the risk is not yet known and few studies have evaluated the effect of ibuprofen on asthma morbidity.

LESKO *et al.* [4] reported that ibuprofen, when compared with acetaminophen, was associated with a reduced risk of outpatient visits for asthma during the month following study entry, but there was no difference in hospitalisations. With the increasing use of ibuprofen, it is possible that this could be due to an increase in ibuprofen-induced bronchospasm.

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References

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Original article

Debley JS, Carter ER, Gibson RL, Rosenfeld M, Redding GJ. The prevalence of ibuprofen-sensitive asthma in children: a randomized controlled bronchoprovocation challenge study. *J Pediatr* 2005; 147: 233–238.