

Review: Leukotriene-receptor antagonists are less effective than intranasal corticosteroids for allergic rhinitis

Wilson AM, O'Byrne PM, Parameswaran K. **Leukotriene-receptor antagonists for allergic rhinitis: a systematic review and meta-analysis.** *Am J Med.* 2004;116:338-44.

QUESTION

In patients with allergic rhinitis, what is the effectiveness of leukotriene-receptor antagonists compared with placebo, antihistamines, or nasal corticosteroids?

METHODS

Data sources: MEDLINE (1966 to February 2003), EMBASE/Excerpta Medica (1980 to February 2003), CINAHL (1956 to February 2003), and reference lists of relevant articles.

Study selection and assessment: Randomized controlled trials in any language that compared leukotriene-receptor antagonists with placebo, antihistamines, or nasal corticosteroids in patients with allergic rhinitis or nasal polyposis. Exclusion criteria were administration of a single dose or lack of symptom score data. 2 reviewers assessed the quality of individual trials using the Jadad scale, which considers randomization, blinding, allocation concealment, withdrawals, and dropouts.

Outcomes: Composite daytime nasal symptom score (expressed as a percentage of the maximum possible symptom score) and standardized rhinoconjunctivitis quality of life (unit score ranging from 0 [no symptoms] to 6 [worst symptoms]).

MAIN RESULTS

11 trials ($n = 4210$) met the selection criteria. Meta-analyses were done using a random-effects model. Leukotriene-receptor antagonists improved composite nasal symptom scores more than did placebo and less than intranasal corticosteroids and did not differ from antihistamines (Table). Leukotriene-receptor antagonists improved rhinoconjunctivitis quality of life less than did antihistamines (Table). Combined leukotriene-receptor antagonists and antihistamines improved nasal symptoms more than did leukotriene-receptor antagonists or antihistamines alone but did not differ from intranasal corticosteroids (Table). Combined leukotriene-receptor antagonists and antihis-

tamines did not differ from leukotriene-receptor antagonists or antihistamines alone for rhinoconjunctivitis quality of life (Table).

CONCLUSION

In patients with allergic rhinitis, leukotriene-receptor antagonists did not differ from antihistamines and were less effective than intranasal steroids in reducing nasal symptoms and improving rhinoconjunctivitis quality of life.

Source of funding: No external funding.

For correspondence: Dr. K. Parameswaran, Firestone Institute for Respiratory Health, St. Joseph's Healthcare, Hamilton, Ontario, Canada. E-mail parames@mcmaster.ca.

Effectiveness of leukotriene-receptor antagonists (LRAs) for allergic rhinitis*

| Comparisons | Number of trials | Weighted mean difference (95% CI) | |
|--|------------------|-----------------------------------|--|
| | | Rhinitis symptom scores† | Standardized quality of life rhinoconjunctivitis |
| LRAs vs placebo | 8 | -5% (-7 to -3) | 0.3 (0.24 to 0.36) |
| LRAs vs nasal corticosteroids | 4 | 12% (5 to 18) | Not evaluated |
| LRAs vs antihistamines | 4 | 2% (0 to 4) | 0.11 (0.04 to 0.18) |
| LRAs plus antihistamines vs LRAs | 3/2‡ | -3% (-6 to -1) | -0.17 (-0.56 to 0.22) |
| LRAs plus antihistamines vs antihistamines | 3/2‡ | -4% (-6 to -3) | -0.06 (-0.27 to 0.15) |
| LRAs plus antihistamines vs intranasal corticosteroids | 3 | 3% (-6 to 11) | Not evaluated |

*CI defined in Glossary. Negative weighted mean differences favor LRAs. Higher scores indicate worse symptoms or quality of life.

†Expressed as a percentage of the maximum score.

‡Number of trials for rhinitis symptoms/number of trials for quality of life.

COMMENTARY

Effective nonpharmacologic treatment of allergic rhinitis includes allergen immunotherapy and reduction of allergen exposure. Some patients can benefit from allergen immunotherapy. Traditional pharmacologic treatment of allergic rhinitis includes oral or intranasal antihistamines, oral decongestants, intranasal cromolyn, and intranasal corticosteroids. More recently, the leukotriene-receptor antagonist montelukast has been approved for treatment of allergic rhinitis in the United States. The systematic review by Wilson and colleagues sheds some light on its effectiveness.

All of the studies systematically reviewed by Wilson and colleagues (except 1 small study involving zafirlukast) evaluated the efficacy of montelukast in reducing symptom scores or improving quality of life scores in patients with seasonal allergic rhinitis. The results show that for allergic rhinitis, montelukast is superior to placebo, about as effective as oral antihistamines, and less effective than intranasal corticosteroids. The combination of montelukast plus antihistamines may be superior to montelukast alone or antihistamine alone, but these differences are probably too small to be clinically important.

A previously published systematic review (1) showed that intranasal corticosteroids are superior to antihistamines in allergic rhinitis. Together with the review by Wilson and colleagues, it is clear that intranasal corticosteroids are the most effective pharmacologic agents for allergic rhinitis. For patients with mild or intermittent symptoms, daily or as-needed antihistamines or montelukast are reasonable alternatives. Although not included in the review by Wilson and colleagues and not well studied in clinical trials, many clinicians recommend intranasal corticosteroids plus antihistamines (or montelukast) for more severe allergic rhinitis.

What about people who have asthma in addition to allergic rhinitis? Because montelukast is efficacious for patients with asthma, selected patients with mild asthma and rhinitis may be good candidates for montelukast.

*James T. Li, MD, PhD
Mayo Clinic and Foundation
Rochester, Minnesota, USA*

Reference

1. Weiner JM, Abramson MJ, Puy RM. Intranasal corticosteroids versus oral H₁ receptor antagonists in allergic rhinitis: systematic review of randomised controlled trials. *BMJ.* 1998;317:1624-9.