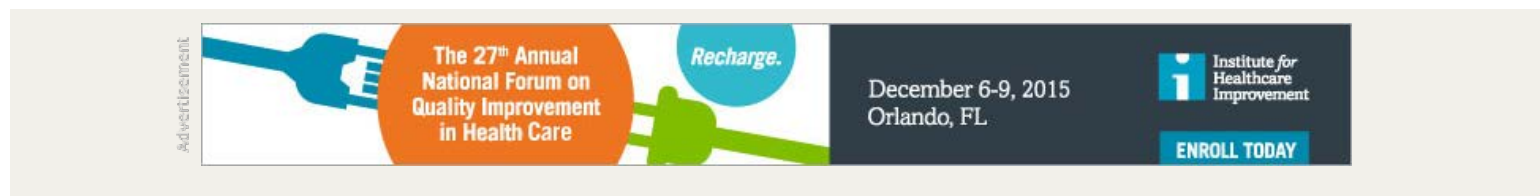


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Reviews | 22 September 2015

## Leukotriene-Receptor Antagonists Versus Placebo in the Treatment of Asthma in Adults and Adolescents: A Systematic Review and Meta-Analysis ONLINE FIRST

Michael Miligkos, MD, MS; Raveendhara R. Bannuru, MD, PhD; Hadeel Alkofide, MS, PhD; Sucharita R. Kher, MD; Christopher H. Schmid, PhD\*; and Ethan M. Balk, MD, MPH\*

[\[+\] Article, Author, and Disclosure Information](#)

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**Background:** Leukotriene-receptor antagonists (LTRAs) are recommended as an alternative treatment in patients with mild asthma, but their effect compared with placebo is unclear.

**Purpose:** To determine the benefits and harms of LTRAs as monotherapy or in combination with inhaled corticosteroids compared with placebo in adults and adolescents with asthma.

**Data Sources:** MEDLINE and the Cochrane Central Register of Controlled Trials from inception through June 2015.

**Study Selection:** Peer-reviewed, English-language, randomized, controlled trials in patients with asthma that reported the effect of LTRAs versus placebo on measures of asthma control.

**Data Extraction:** Three researchers extracted data on study population, interventions, outcome measures, and adverse events. One researcher assessed risk of bias.

**Data Synthesis:** Of the 2008 abstracts that were screened, 50 trials met eligibility criteria. Random-effects meta-analyses of 6 trials of LTRA monotherapy showed that LTRAs reduced the risk for an exacerbation (summary risk ratio [RR], 0.60 [95% CI, 0.44 to 0.81]). In 4 trials of LTRAs as add-on therapy to inhaled corticosteroids, the summary RR for exacerbation was 0.80 (CI, 0.60 to 1.07). Leukotriene-receptor antagonists either as monotherapy or add-on therapy to inhaled corticosteroids increased FEV<sub>1</sub>, whereas FEV<sub>1</sub> percentage of predicted values was only improved in trials of LTRA monotherapy. Adverse event rates were similar in the intervention and comparator groups.

**Limitation:** Variation in definitions and reporting of outcomes, high risk of bias in some studies, heterogeneity of findings, possible selective outcome reporting bias, and inability to assess the effect of asthma severity on summary estimates.


**Conclusion:** Leukotriene-receptor antagonists as monotherapy improved asthma control compared with placebo, but which patients are most likely to respond to treatment with LTRAs remains unclear.

**Primary Funding Source:** National Institutes of Health.

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