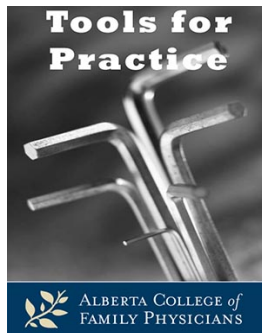


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## **Pills vs. Puffers: Leukotriene receptor antagonists for childhood asthma**

**Clinical Question: Are leukotriene receptor antagonists (LTRAs) effective in pediatric asthma?**

**Bottom-line: Using leukotriene receptor antagonists instead of inhaled corticosteroids as monotherapy will lead to one more exacerbation in every 21 patients. As add-on to inhaled corticosteroids, leukotriene receptor antagonists are inferior to long acting beta-agonists (LABAs), and show similar outcomes to increased doses of inhaled corticosteroids (ICS). Data is limited and not supportive of use in children  $\leq 5$  years.**

### **Evidence:**

- Randomized Controlled Trials (RCTs) report many outcomes, particularly surrogate endpoints like FEV1. We focused on objective clinical outcomes.
  - Three systematic reviews of RCTs: ICS superior to LTRAs for mild/moderate asthma.<sup>1-3</sup>
    - Largest Cochrane review (19 trials, 3,333 children):<sup>1</sup> LTRA had statistically significantly more asthma exacerbations requiring oral corticosteroids (18.8%) versus ICS (13.3%), Number Needed to Harm (NNH)=21.
  - Three systematic reviews assess LTRA as step-up therapy to ICS (4-16 weeks).<sup>3,4,5</sup> Exacerbation compared in one RCT each:
    - LTRA+ICS versus ICS same dose:<sup>6</sup>
      - 279 children, no difference.
    - LTRA+ICS low dose versus ICS moderate dose:<sup>7</sup>
      - 165 children, no difference.
    - LTRA+ICS versus LABA+ICS:<sup>7</sup>
      - 167 children, no difference.
      - Composite endpoint (exacerbations, asthma control days and FEV1) found LTRA inferior to LABA, NNH=6.
    - Network meta-analysis (35 RCTs) found ICS+LABA best, ICS+LTRAs, medium/high-dose ICS and low-dose ICS tied for second, LTRA alone and placebo last.<sup>8</sup>

- RCTs comparing LTRAs to placebo report conflicting results.<sup>9,10</sup>

### Context:

- Children age  $\leq 5$  years are included in few RCTs and fail to show consistent benefit.<sup>11,12</sup>
  - Guidelines state LTRA “are not advocated and/or should be avoided” until further evidence in this age group.
- LTRAs were the second most commonly prescribed drug in children aged 0-11 from 2007-2009 (USA).<sup>14</sup>
- Parental concern about ICS safety, including growth effects, may impact decision making and compliance.<sup>15</sup> No difference between LTRA and ICS in rates of adverse events, but more patients on LTRAs withdrew from studies due to poor asthma control.<sup>1</sup>
- LTRAs have demonstrated some benefit in various subgroups including allergic rhinitis,<sup>16,17</sup> exercise induced bronchospasm,<sup>18</sup> and specific genotypes.<sup>19</sup> Limited research suggests superior outcomes with ICS in these groups.<sup>16-19</sup>

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### Disclosure:

Authors do not have any conflicts to disclose.

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