



Bronchodilator with Benefits? Budesonide-formoterol rescue inhaler for asthma

CLINICAL QUESTION

What is the effectiveness of as-needed budesonide with beta-agonist as an asthma-reliever?

BOTTOM LINE

In adults, as-needed budesonide-formoterol likely reduces the proportion with severe exacerbations versus short-acting beta-agonists (SABA) (example in mild asthma: from ~12% with SABA to 5.6% at 1 year). It is likely comparable to maintenance inhaled corticosteroids (ICS). Evidence in children is limited.

EVIDENCE

- Results statistically significant unless indicated.
- Five systematic reviews of randomized controlled trials (RCTs).¹⁻⁵ RCTs reported due to heterogeneous populations. Patients with uncontrolled mild asthma, and exacerbations defined as requiring oral steroids, unless indicated.
- As-needed budesonide-beta agonist versus SABA.
 - 2554 adults, ~50% on maintenance ICS (stopped). Follow-up: 52 weeks.⁶
 - Proportion with ≥ 1 exacerbation: 5.6% (budesonide 200ug-formoterol) versus 12% (terbutaline), number needed to treat (NNT)=16.
 - Proportion with clinically meaningful improvement in asthma control: 42% versus 38% (terbutaline), NNT=22.

- 2516 adults, ~25% on maintenance ICS (continued). Follow-up: 52 weeks:⁷
 - Proportion with first exacerbation: 5.3% (budesonide 160ug-salbutamol) versus 9.4% (salbutamol), NNT=25.
 - Asthma control: No difference.
- 3132 adults, moderate-severe asthma, on maintenance ICS +/- long-acting beta-agonist (continued). Follow-up: 24 weeks.⁸
 - ≥1 exacerbation (emergency department visit): 4.8% (budesonide-320ug-salbutamol) versus 6.3% (salbutamol), not statistically different (PEER calculation). Annualized rate statistically significant.
 - Proportion with clinically meaningful improvement in asthma control: 67% versus 63% (salbutamol). NNT=25.
- 360 children (mean age: 10). Follow-up: 52 weeks.⁹
 - ≥1 exacerbation: 9% (budesonide 100ug-formoterol) versus 16% (salbutamol), not statistically different.
 - Asthma control: No difference.
- As-needed budesonide-formoterol versus maintenance ICS. Systematic review (4 RCTs, 8065 patients).¹ Follow up: 52 weeks.
 - ≥1 exacerbation: No difference.
 - Asthma control (scale: 0-30, lower=fewer symptoms, minimally clinically important difference=0.5): 0.12 points worse with budesonide-formoterol.
 - Other systematic review: Similar.²
- Adverse effects: Budesonide-formoterol.¹
 - Versus SABA: 44% versus 49% (SABA), NNT=20.
 - Versus maintenance steroids: No difference.
- Limitations: Most RCTs industry sponsored, few hospitalizations.

CONTEXT

- Guidelines:¹⁰
 - ≥12years: Budesonide-formoterol 200/6mcg (single puff) preferred reliever.
 - Ongoing symptoms: Budesonide-formoterol maintenance (1 puff twice daily) and reliever. Maintenance: Up to 2 puffs twice daily.
- Cost (90 days): \$180 (budesonide-formoterol one puff/day), \$25 (salbutamol four puffs/day), \$90 (budesonide twice/day).¹¹

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