



# Coughing up the evidence: Bronchodilators or inhaled steroids for post-infectious cough

## CLINICAL QUESTION

**Do bronchodilators or inhaled corticosteroids (ICS) improve post-infectious cough in adults without asthma?**

## BOTTOM LINE

**Data is very limited with only two ICS randomized controlled trials (RCTs) (163 patients) and one bronchodilator RCT (92 patients). For adults, post-infectious cough scores may improve ~50% on placebo and ~5-10% more with ICS over 2 weeks. Ipratropium/salbutamol may resolve cough in more patients than placebo at day 10 (69% versus 37%) but most patients (>80%, regardless of treatment) will have cough resolution by day 20.**

## EVIDENCE

- Differences statistically significant unless noted.
- ICS versus placebo:
  - Four systematic reviews of treatments for persistent cough (4-9 RCTs, 335-750 patients): Interpretation limited by inclusion of RCTs with acute (<3 weeks)<sup>1,2</sup> and chronic (>8 weeks)<sup>2,3</sup> cough, and multiple drug classes.<sup>4</sup>

- Most useful systematic review<sup>2</sup> (2 RCTs, 163 patients), mostly subacute cough (3-8 weeks):
  - ICS 0.42 (standard mean difference) better than placebo. In clinical terms, placebo improved cough scores at ~2 weeks by ~50-56% and ICS improves ~2-13% more.
  - Largest RCT<sup>5</sup> (133 patients) also reported:
    - Additional outcomes (days off work, nocturnal awakenings, adverse effects): No difference.
    - Proportion of non-smokers with >50% cough improvement: 81% versus 54% (placebo), number needed to treat (NNT)=4.
      - No improvement among smokers.
    - Limitations: Not all patients had post-infectious cough; study industry funded.
- Bronchodilators versus placebo:
  - One RCT<sup>6</sup> of 92 patients (cough duration 3-4 weeks): Combination of nebulized salbutamol/ipratropium versus placebo.
    - Proportion with ongoing cough at day 10: 37% versus 69% placebo, NNT=3.
    - No difference at day 20 (both >80% resolved).
    - Limitations: Small studies; non-validated cough scores; multiple outcomes.

## CONTEXT

- Post-infectious cough is a cough persisting 3-8 weeks after an acute respiratory illness.<sup>7</sup>
- One RCT<sup>8</sup> compared beclomethasone and placebo in 72 patients with prolonged acute cough (10 days-3 weeks), so likely not true post-infectious (subacute) cough.
  - ICS improved 3 of 6 outcomes over placebo on device-measured cough, but no difference in patient-reported symptoms.
- Guidelines suggest considering a trial of inhaled ipratropium or, if refractory, inhaled corticosteroids.<sup>9</sup>
- RCTs above did not include patients with COVID-19.

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