Review: long acting β2 agonists and inhaled corticosteroids reduce exacerbations in chronic obstructive pulmonary disease


Clinical impact ratings GP/FP/Primary care ***** IM/Ambulatory care ***** Internal medicine *****

Respirology *****

What are the effects of common treatments for chronic obstructive pulmonary disease (COPD) on patient outcomes?

**METHODS**

**Data sources:** Medline (1980 to 1 May 2002), Cochrane Database of Systematic Reviews, bibliographies of published articles, and experts.

**Study selection and assessment:** English language randomised controlled trials with ≥3 months of follow up in adults with COPD that assessed long acting (LA) β2 agonists (β2As); LA inhaled anticholinergics (tiotropium); combined short acting (SA) β2As and SA anticholinergics; inhaled corticosteroids; combined inhaled corticosteroids and LA β2As; pulmonary rehabilitation (with ≥6 wks follow up); long term nocturnal non-invasive mechanical ventilation; domiciliary O2 therapy; or disease management. Analysis was restricted to RCTs with blinded ascertainment of outcomes (only drug interventions)*, (~90%)* follow up data, and well balanced baseline characteristics in treatment and control groups.

**Outcomes:** COPD exacerbations and mortality.

*Information provided by author.

**MAIN RESULTS**

The results are summarised in the table.

**CONCLUSION**

Long acting (LA) β2 agonists (β2As) and inhaled corticosteroids, with and without LAβ2As, reduce exacerbations but not mortality in patients with chronic obstructive pulmonary disease.

Abstract and commentary also appear in ACP Journal Club and Evidence-Based Nursing.

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**Summary of efficacy data for interventions for chronic obstructive pulmonary disease**

<table>
<thead>
<tr>
<th>Comparisons</th>
<th>Exacerbation</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAβ2As v placebo</td>
<td>RRR 21% (10 to 31)</td>
<td>RRR 24% (−48 to 61)†</td>
</tr>
<tr>
<td>Tiotropium v placebo</td>
<td>RRR 26% (11 to 38)</td>
<td>NA</td>
</tr>
<tr>
<td>Tiotropium v LAβ2As</td>
<td>RRR 7% (−8 to 20)†</td>
<td>NA</td>
</tr>
<tr>
<td>Tiotropium v ipratropium</td>
<td>RRR 22% (5 to 37)</td>
<td>NA</td>
</tr>
<tr>
<td>SAβ2As + anticholinergic v SAβ2As</td>
<td>RRR 32% (9 to 49)</td>
<td>RRR 18% (−66 to 308)†</td>
</tr>
<tr>
<td>SAβ2As + anticholinergic v ipratropium</td>
<td>RRR 4% (−35 to 66)†</td>
<td>RRR 25% (−41 to 2053)†</td>
</tr>
<tr>
<td>Inhaled corticosteroids v placebo</td>
<td>RRR 24% (20 to 28)</td>
<td>RRR 22% (−5 to 42)†</td>
</tr>
<tr>
<td>Inhaled corticosteroids + LAβ2As v placebo</td>
<td>RRR 30% (22 to 38)</td>
<td>RRR 48% (−34 to 80)†</td>
</tr>
<tr>
<td>Inhaled corticosteroids + LAβ2As v inhaled corticosteroids</td>
<td>RRR 20% (10 to 29)</td>
<td>NA</td>
</tr>
<tr>
<td>Inhaled corticosteroids + LAβ2As v inhaled corticosteroids</td>
<td>RRR 10% (−2 to 20)†</td>
<td>NA</td>
</tr>
<tr>
<td>Supplemental O2 v usual care (patients with resting PaO2 &lt; 60 mm Hg sea level)</td>
<td>NA</td>
<td>RRR 10% (−24 to 35)†</td>
</tr>
<tr>
<td>Supplemental O2 v usual care (patients with resting PaO2 ≥ 60 mm Hg sea level)</td>
<td>NA</td>
<td>RRR 39% (18 to 54)</td>
</tr>
<tr>
<td>Disease management v usual care</td>
<td>NA</td>
<td>RRI 16% (−15 to 58)†</td>
</tr>
<tr>
<td>Pulmonary rehabilitation v usual care, placebo, or education</td>
<td>NA</td>
<td>RRR 37% (−4 to 62)†</td>
</tr>
</tbody>
</table>

*LAβ2As = long acting β2 agonist; SAβ2As = short acting β2 agonist; NA = not assessed. Other abbreviations defined in glossary; RRR, RRI, and CI calculated from data in article. †Not significant.
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**Notes**