The BODE index predicted death in chronic obstructive pulmonary disease


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

Respirology ★★★★★

In patients with chronic obstructive pulmonary disease (COPD), how well does an index comprising the risk factors that reflect the respiratory, perceptual, and systemic aspects of the disease predict outcome?

METHODS

**Outcomes**

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Hazard ratio (95% CI)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death from all causes</td>
<td>1.34 (1.26 to 1.42)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Death from respiratory causes</td>
<td>1.62 (1.48 to 1.77)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

*BODE = body mass index, airflow obstruction, dyspnoea, and exercise capacity.
†The hazard ratio is for each 1 point increase in the BODE score.

**Commentary**

Patients with COPD are often under treated, leading to much preventable morbidity, lost productivity, and economic cost. Identifying at risk patients could substantially improve outcomes. The FEV₁ is the single best variable to stratify COPD severity. However, it does not accurately predict dyspnoea symptoms, exercise tolerance, and mortality. This is because COPD is a systemic disease, and airflow limitation alone does not capture all aspects of disease severity. FEV₁ may overestimate exercise tolerance because of dynamic hyperinflation or other non-ventilatory limitations. On the other hand, dyspnoea may even be absent because the patient has unconsciously narrowed their “envelope” of activity. Cigarette smoking also contributes to other causes of mortality in COPD, including cancer and cardiovascular disease, and is not reflected in the FEV₁.

The study by Celli et al introduces the BODE index, which promises to be a very useful prognostic tool. The BODE index was constructed by broadening existing prognostic indicators and adding independent predictors of mortality to the FEV₁. It is much more accurate and precise across the spectrum of COPD than any single prognostic factor. The mortality rate was double in the second cohort in this investigation, indicating that the index applied equally to more severe patients. It also predicted the 50% non-respiratory deaths.

New evidence-based guidelines for COPD emphasise early disease identification and stratification, using office spirometry. This facilitates implementation of exciting new long acting inhaled bronchodilators, pulmonary rehabilitation, oxygen treatment, and volume reduction surgery.

The BODE index adds another dimension to this effort by identifying at risk patients, who are most in need of our interventions. It goes beyond FEV₁ alone, using easily implemented office tools: the MMRC dyspnoea scale, stage of COPD, and the distance walked in 6 minutes as an indication of exercise capacity. It also encourages non-pulmonologists, who care for 80% of these patients, to obtain office spirometry and help identify those who are undiagnosed.

For correspondence: Dr B R Celli, St. Elizabeth’s Medical Center, Tufts University School of Medicine, Boston, MA, USA. bcelli@copdfund.org

Source of funding: no external funding.

www.evidence-basedmedicine.com