The Importance of IC/TLC in the Assessment of Patients with Emphysematous COPD

SYNOPSIS OF:

The inspiratory capacity/total lung capacity ratio as a predictor of survival in an emphysematous phenotype of chronic obstructive pulmonary disease.


The objective of this study was to analyze the association between IC/TLC and survival in patients with emphysematous COPD.

The study investigators conducted a retrospective analysis of pulmonary function (PF) data of 39,050 patients, collected from 1978 to 2009. The authors evaluated the association between survival in emphysematous COPD patients and the IC/TLC ratio, evaluated both as dichotomous (≤25% vs >25%) and continuous predictors.

The authors demonstrated that the IC/TLC ratio correlated with the risk of death in patients with emphysematous COPD. Patients with an IC/TLC ratio ≤25% had a median survival of 4.3 years vs. 11.9 years for patients with an IC/TLC ratio >25%. (Figure 3)

The authors concluded that the IC/TLC ratio:

1. Like the BODE index, has a strong correlation with COPD survival;
2. As a single predictor variable in patients with COPD, will allow clinicians to better evaluate and risk-stratify patients with emphysematous COPD;
3. Is easy to obtain, and is recommended in the assessment of patients with emphysematous COPD.

An analysis of the IC/TLC ratio as a continuous predictor of the risk of death showed that over the entire range of IC/TLC (8%–63%), a 10% decrease in IC/TLC was associated with a 66% increase in the risk of death. Compared to patients with IC/TLC >45%, patients with IC/TLC >35% to ≤45% were at 76% increased risk of death; patients with IC/TLC >25% to ≤35% were at 182% increased risk of death; and patients with IC/TLC ≤25% were at 423% increased risk of death. (Table 4)

<table>
<thead>
<tr>
<th>Variable</th>
<th>HR</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC/TLC levels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;35% to ≤45% vs &gt;45%</td>
<td>1.76</td>
<td>1.07–2.89</td>
<td>0.025</td>
</tr>
<tr>
<td>&gt;25% to ≤35% vs &gt;45%</td>
<td>2.02</td>
<td>1.76–4.53</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>≤25% vs &gt;45%</td>
<td>5.23</td>
<td>3.28–8.35</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Abbreviations: CI, confidence interval; HR, hazard ratio; IC, inspiratory capacity; TLC, total lung capacity.

Figure 3 Patient survival by IC/TLC. Abbreviations: IC, inspiratory capacity; TLC, total lung capacity; PFT, pulmonary function test.
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TLC ≥ LLN

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Obstruction

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Lung Volumes

DLCO ≥ LLN

Normal

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CW and NM disorders

ILD Pneumonitis

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