

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.

French A, Balfe D et al. International Journal of COPD (2015) 10: 1305-1312.

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 ($\leq 25\%$ 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 $\leq 25\%$ had a median survival of 4.3 years vs. 11.9 years for patients with an IC/TLC ratio $> 25\%$. (Figure 3)

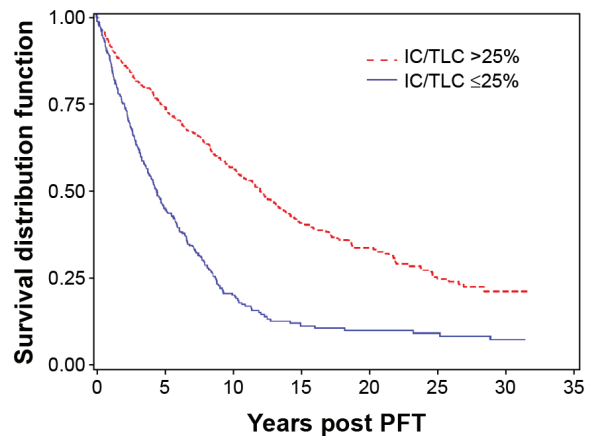


Figure 3 Patient survival by IC/TLC.

Abbreviations: IC, inspiratory capacity; TLC, total lung capacity; PFT, pulmonary function test.

Variable	Hazard Ratio		
	HR	95% CI	P-value
IC/TLC levels			
>35% to $\leq 45\%$ vs $> 45\%$	1.76	1.07–2.89	0.025
>25% to $\leq 35\%$ vs $> 45\%$	2.82	1.76–4.53	<0.0001
$\leq 25\%$ vs $> 45\%$	5.23	3.28–8.35	<0.0001

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

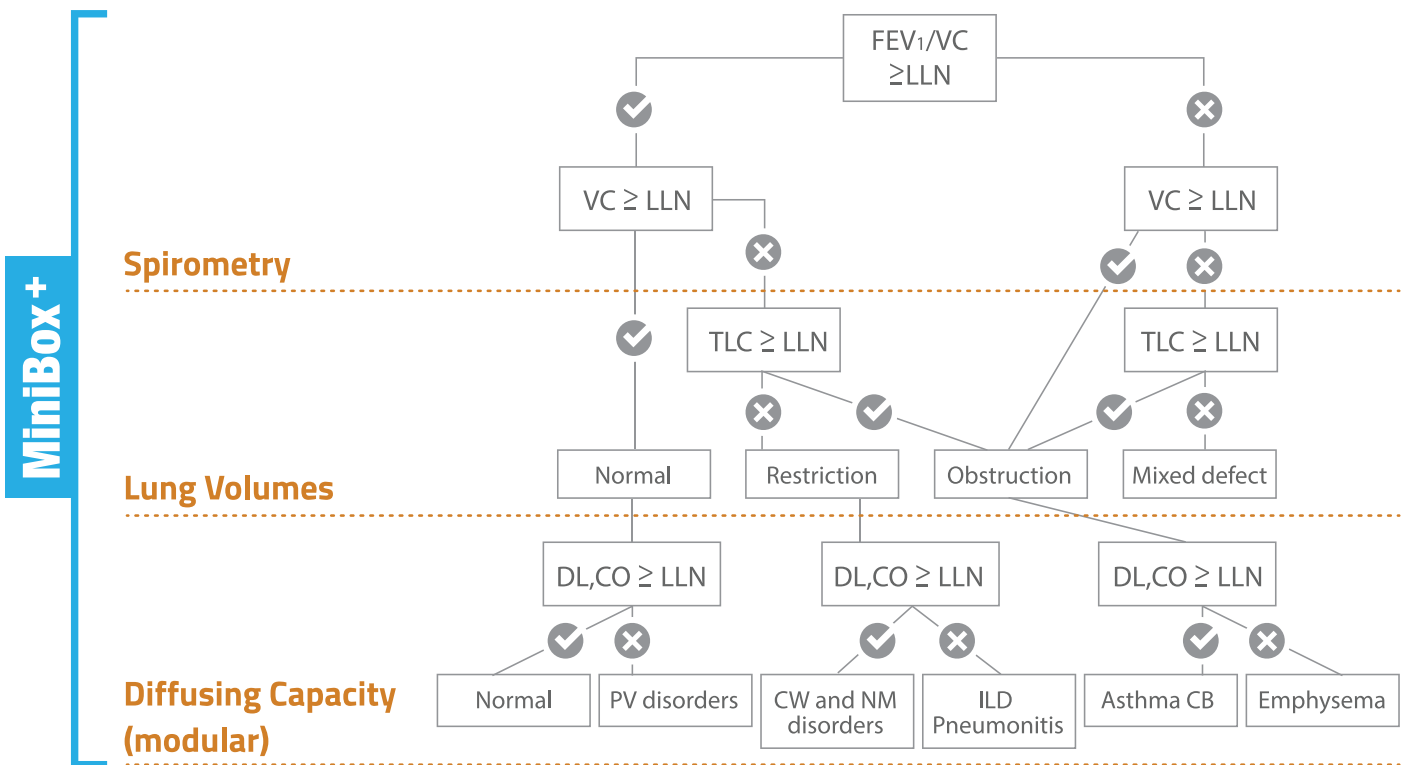
An analysis of the IC/TLC ratio as a continuous predictor of the risk of death showed that over the entire range of IC/TLC (8%–63%), a 10% decrease in IC/TLC was associated with a 66% increase in the risk of death. Compared to patients with IC/TLC $> 45\%$, patients with IC/TLC $> 35\%$ to $\leq 45\%$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

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.

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2V. Brusasco, R. Crapo and G. Viegi. 2005. ATS/ERS Task Force: Standardisation of Lung Function Testing. Eur Respir J2005; 26, 948-968

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