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High-sensitivity troponin I and all-cause mortality in patients with stable COPD: an analysis of the COSYCONET study

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High-sensitivity troponin I is a strong predictor of all-cause mortality in patients with stable COPD independent from established mortality predictors of COPD and irrespective of their cardiovascular risk profile <http://bit.ly/352ZtDw>

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ABSTRACT Chronic obstructive pulmonary disease (COPD) is a leading cause of death with a considerable part of the population dying from cardiovascular diseases. High-sensitivity troponin I (hs-TnI) might help to better identify COPD patients at high risk of mortality. We aimed to study the predictive value of hs-TnI for all-cause mortality beyond established COPD assessments, and after consideration of relevant cardiovascular risk factors and prevalent cardiovascular diseases, in a broad population with stable COPD.

Circulating hs-TnI concentrations together with a wide range of respiratory and cardiovascular markers were evaluated in 2085 patients with stable COPD across all severity stages enrolled in the multicentre COSYCONET cohort study. The primary outcome was all-cause mortality over 3 years of follow-up.

Hs-TnI was detectable in 2020 (96.9%) patients. The median hs-TnI concentration was 3.8 ng·L⁻¹ (interquartile range 2.5–6.6 ng·L⁻¹), with levels above the 99th percentile reference limit of 27 ng·L⁻¹

observed in 1.8% of patients. In Cox regression analyses including adjustments for airflow limitation, dyspnoea grade, exercise capacity and history of severe exacerbations, as well as traditional cardiovascular risk factors, estimated glomerular filtration rate, ankle-brachial index, N-terminal pro-brain natriuretic peptides and prevalent cardiovascular diseases, hs-TnI was a significant predictor for all-cause mortality, both as a continuous variable (hazard ratio (HR) for log hs-TnI 1.28, 95% CI 1.01–1.62) and categorised according to the cut-off of 6 ng·L⁻¹ (HR 1.63, 95% CI 1.10–2.42).

In patients with stable COPD, hs-TnI is a strong predictor of all-cause mortality beyond established COPD mortality predictors, and independent of a broad range of cardiovascular risk factors and prevalent cardiovascular diseases. Hs-TnI concentrations well below the upper reference limit provide further prognostic value for all patients with COPD when added to established risk assessments.