

## Global cardiovascular risk in COPD

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**Background:** Chronic obstructive pulmonary disease (COPD) is associated with cardiovascular events (CVE), but its impact on overall mortality has not been well quantified. We determined the impact of global CVE risk assessment on total mortality in subjects with COPD.

**Methods:** We examined the severity of COPD in 6,266 U.S. adults aged  $\geq 40$  years in relation to the estimated 10-year risk of CVE. COPD was defined by spirometry and severity was classified on the basis of forced expiratory volume in one second (FEV1): mild (FEV1  $\geq 80\%$ ), moderate (50% FEV1  $< 80\%$ ) or severe (FEV1  $< 50\%$ ). Cox proportional hazards regression was used to evaluate the relationship of global CVE risk combined with COPD status to CVE and all-cause mortality over a mean follow-up of 98.8  $\pm$  51.3 months.

**Results:** The proportion of individuals at high risk of CVE ranged from 25% (without COPD) to  $> 50\%$  (with moderate/severe COPD) ( $p < 0.05$ ). When global CVE risk scores were low, mortality was also low ( $< 10/1000$  person-years) regardless of COPD severity and mortality was high when CVE global risk was high ( $> 50/1000$  person-years). Global CVE risk improved prediction for both CVE and total mortality in COPD patients ( $p < 0.0001$ ) with a net reclassification improvement of 17.1% ( $p < 0.0001$ ) and 13.0% ( $p < 0.0001$ ), respectively, beyond lung function measures.

**Conclusion:** The addition of global CVE risk scores to lung function data significantly improves risk-stratification of COPD patients for CVE and total mortality and thus adds to predicting long-term survival of COPD patients.

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