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A simple clinical prognosis tool to predict mortality after a "first" hospitalization for COPD

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Chronic obstructive pulmonary disease (COPD) is a very prevalent disease associated with high mortality, morbidity, healthcare utilization and cost. Predictors of outcomes following a hospitalization for COPD have been the objects of many studies; however, few have reported outcomes following the first hospitalization for COPD. The objective is to provide a simple score sheet to estimate a one-year mortality risk for patients hospitalized for COPD for the "first" time. Using linked administrative and clinical data, we conducted a retrospective cohort study of 1129 COPD patients, 40–84 years old, hospitalized for the first time in a regional hospital (Sherbrooke (QC), Canada) between 04/2006 and 03/2013. One-year mortality after discharge was analyzed using multiple logistic regression on a derivation sample and validated on a testing sample. A total 12.5% of patients died within one year from discharge. The most significant predictors of mortality were age (OR (95% CI): 1.055 (1.026–1.085)), Charlson comorbidity index (OR (95% CI): 1.262 (1.099–1.449)), being diagnosed of cancer (OR (95%CI): 2.928 (1.456-5.885)), having a severe COPD exacerbation (OR (95% CI): 2.548 (1.571–4.132)), the number of prior hospitalizations (OR (95% CI): 1.323 (1.097–1.595)), and a COPD duration >3 years (OR (95% CI): 1.710 (1.058–2.763)). Using estimates of the logistic model, a simple clinical prognosis tool was proposed. The model shows good discrimination in both the derivation and validation cohorts (C-statistic >0.78). It was concluded that one over eight patients discharged alive from a first COPD hospitalization die the following year. It is thus important to identify high risk patients in order to plan and manage appropriate treatment.

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