Abstract: **P6463**

**Prognostic value of respiratory index (RI) in hemodynamically stable patients with acute pulmonary embolism: the RI-MODEL study**

**Authors:**
MC Vedovati¹, LA Cimini¹, L Pierpaoli², S Vanni³, M Cotugno⁴, P Pruszczzyk⁵, F Di Filippo², V Stefanone³, L Guirado Torrecillas⁴, M Kozlowska⁵, MG De Natale¹, F Mannucci³, G Agnelli¹, C Becattini¹, ¹University of Perugia, Internal and Cardiovascular Medicine – Stroke Unit - Perugia - Italy, ²Santa Maria delle Croci Hospital - Ravenna - Italy, ³Careggi University Hospital (AOUC) - Florence - Italy, ⁴Hospital Universitario Virgen Arrixaca - Murcia - Spain, ⁵Medical University of Warsaw - Warsaw - Poland,

**Topic(s):**
Pulmonary Circulation, Pulmonary Embolism, Right Heart Failure – Epidemiology, Prognosis, Outcome

**Citation:**
Background The accuracy of the 2014 ESC model to predict 30-day mortality in hemodynamically stable patients with acute pulmonary embolism (PE) is relatively limited.

Purpose The aims of this study in hemodynamically stable patients with acute PE were i) to evaluate the prognostic value of a novel respiratory index (RI) (oxygen saturation in air to respiratory rate ratio) and ii) to assess the accuracy of the RI-model (simplified Pulmonary Embolism Severity Index [sPESI] + RI), both in predicting 30-day mortality.

Methods A collaborative database of hemodynamically stable patients with PE was divided into two cohorts (derivation and validation) with equal numbers of patients, based on a temporal criterion. Study outcome was 30-day all-cause-death. Discrimination and calibration were assessed in the derivation and validation cohorts by the c-statistics and by the Hosmer-Lemeshow test, respectively.

Results 30-day all-cause-death occurred in 7.5% of the 319 patients in the derivation cohort (mean age 72 years, females 53%). The RI was an independent predictor of 30-day mortality (p=0.004). A RI =3.8 was associated with an increased death rate compared to higher RI values (15.4% vs 5.0%, OR 3.4, 95% CI 1.5-8.1). When the RI=3.8 was integrated in the sPESI, the novel RI-model showed a good discriminatory power (c-statistics 0.703, 95% CI 0.603-0.803).

In the 319 patients of the validation cohort (30-day mortality 6.9%, mean age 71 years, females 55%) the discriminatory power of the RI-model was confirmed (c-statistics 0.838, 95% CI 0.768-0.907).

The RI-model and the 2014 ESC model had a c-statistics of 0.772 (95% CI 0.709-0.834) and of 0.687 (95% CI 0.620-0.753) in the overall population, respectively.

Conclusion In this study, the RI independently predicted 30-day mortality in hemodynamically stable patients with acute PE. A clinical model including RI showed a better discriminatory value than 2014 ESC model and could be used for risk stratification in these patients.