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Joe DiBello
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Title: BOVA is Superior to sPESI in Identification of High Risk Pulmonary Embolism Patients

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Introduction: Prognostic models exist for the purpose of stratifying patients with acute pulmonary embolism. Of these, the Pulmonary Embolism Severity Index (PESI) and the simplified PESI (sPESI) are the most well-known, although more recent composite models, like the BOVA score, are now being studied and implemented. Comparative efficacy of these scores to predict long term mortality is not well established.

Methods: We performed a retrospective analysis of all consecutive patients diagnosed with PE using computed tomography scan from 2014-2016 at an urban tertiary-referral medical center. Cox proportional hazard analyses were performed to compare the performance of two prognostic models – sPESI and BOVA – to predict all-cause in-hospital and cumulative one-year mortality.

Results: The all-cause in-hospital mortality rate was 6.0%, and cumulative one-year mortality rate was 21.3%.

In adjusted analyses, a BOVA score >4 was significantly associated with an increased in-hospital mortality (HR 3.5, 95% CI: 1.4-9.0, p = 0.009) and one-year mortality (HR 2.0, 95% CI: 1.0-3.9, p = 0.04), as compared to a BOVA score <4. However, the sPESI (p = 0.14) did not show a significant association with one-year mortality.

In identifying in-hospital mortality, the sPESI had high sensitivity (100%) and low specificity (10.1%), whereas the BOVA score had low sensitivity (20.0%) and high specificity (92.7%). Similar trends were seen for one-year mortality.

Conclusion: In this study, a high BOVA score was found to be the best predictor of both short and long-term mortality in PE patients. A low sPESI score identified with high sensitivity patients with low-risk PEs.