Letter to Editor

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Methodological Concerns Regarding the Use of Standard Pulmonary Embolism Scores for Predicting Thrombolysis

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Dear Editor,

The article by Ebor et al. titled "The Role of Standard Scoring Systems in Predicting Early Thrombolysis in Patients with Acute Pulmonary Embolism Presenting to the Emergency Department" addresses an important clinical question regarding early identification of pulmonary embolism (PE) patients who may require thrombolytic therapy [1]. However, several methodological concerns limit the interpretability of the conclusions.

The primary concern relates to the conceptual framework of the study. The Wells Score and Revised Geneva Score were originally developed as diagnostic probability tools, whereas the simplified Pulmonary Embolism Severity Index (sPESI) was designed for prognostic risk stratification, particularly mortality prediction, rather than treatment selection [2–4]. Evaluating these instruments as predictors of thrombolysis introduces a mismatch between the intended purpose of the scores and the investigated outcome. Hence, the observed lack of predictive accuracy may reflect inappropriate extrapolation beyond the validated clinical roles of these tools rather than poor score performance per se.

Another important limitation concerns the definition of the primary outcome. The manuscript repeatedly refers to "predicting the need for thrombolysis"; however, the actual measured endpoint appears to be whether thrombolysis was administered. These are not equivalent outcomes. Thrombolytic treatment decisions are influenced by multiple clinician-dependent and institutional factors, including contraindications, imaging availability, local practice patterns, and physician preference. Current guideline-based reperfusion decisions rely mainly on hemodynamic instability, right ventricular dysfunction, myocardial injury, clinical deterioration, and bleeding risk rather than diagnostic probability scores alone [5].

Selection bias also substantially affects interpretation of the diagnostic scoring systems. The study excluded patients with negative CTPA findings and analyzed only confirmed PE cases [1]. Under such conditions, statements regarding misclassification of "low-risk" patients become problematic because the cohort no longer reflects the intended diagnostic population in which Wells or Geneva scores are normally applied [2,3]. Diagnostic probability tools should ideally be evaluated in an undifferentiated suspected PE population, not exclusively among confirmed cases.

In addition, the statistical approach appears limited for the stated objective. Only 16 patients underwent thrombolysis, restricting statistical power and preventing multivariable modeling [1]. Although the authors appropriately acknowledged the inability to perform logistic regression, the manuscript nevertheless discusses several variables as predictors of thrombolysis. Given the small event number, these associations should be interpreted cautiously.

Finally, variables identified as associated with thrombolysis, including hypotension, right ventricular strain, inotropic requirement, and central PE burden, are already established components of contemporary clinical deci-

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sion-making for reperfusion therapy [5,6]. Therefore, the observed associations may partially reflect circular reasoning rather than independent predictive utility.

Despite these concerns, the study raises a clinically relevant question and may help stimulate future prospective investigations focused on integrated bedside risk models for acute PE management.

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