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Letter to the Editor: Evaluation of P-POSSUM Risk Scoring System in Prediction of Morbidity and Mortality after Pancreaticoduodenectomy

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Dear Editor,

We read with great interest the article by Bodea et al., entitled "*Evaluation of P-POSSUM Risk Scoring System in Prediction of Morbidity and Mortality after Pancreaticoduodenectomy*" (1). The authors should be congratulated for evaluating perioperative risk prediction in pancreaticoduodenectomy, where accurate estimation of postoperative outcomes remains of considerable clinical importance.

However, we would like to seek clarification regarding the methodology used to estimate postoperative morbidity.

The authors state that physiological scores, operative severity scores, and the predicted risks of complications and death were calculated using the online calculator available at http://www.riskprediction.org.uk/index-pp.php. Subsequently, the manuscript reports predicted morbidity, observed-to-estimated morbidity ratios (O Morb/E Morb), receiver operating characteristic (ROC) analyses for morbidity, and discusses the predictive performance of P-POSSUM for postoperative morbidity throughout the Results and Discussion sections.

Nevertheless, the manuscript does not specify the mathematical model used to generate these morbidity estimates. The original POSSUM model introduced separate logistic regression equations for postoperative morbidity and mortality(2). In contrast, the Portsmouth modification (P-POSSUM) was developed to improve the calibration of the original mortality equation, thereby providing more accurate mortality prediction(3). Consequently, it remains unclear whether the reported morbidity estimates were derived using the original POSSUM morbidity equation, an implementation incorporated within the online calculator, or another validated prediction algorithm.

Interestingly, the published literature appears to demonstrate two different methodological approaches. Earlier studies generally estimated postoperative morbidity using the original POSSUM

morbidity equation while reserving P-POSSUM for mortality prediction(3). In contrast, more recent studies, report "P-POSSUM morbidity" or "P-POSSUM predicted morbidity" without explicitly describing the mathematical model used to derive these estimates. (4,5)Whether these studies used the original POSSUM morbidity equation through an online implementation or another validated prediction model remains unclear. This methodological heterogeneity makes comparisons across studies difficult and may limit reproducibility.

Furthermore, the online calculator cited in the Methods section is no longer publicly accessible. Consequently, readers are unable to verify the computational algorithm used or independently reproduce the reported morbidity estimates. Under these circumstances, explicit reporting of the underlying prediction equation or software implementation becomes particularly important for methodological transparency.

We would therefore appreciate clarification regarding the following questions:

1. Which mathematical equation was used to generate the reported morbidity estimates?
2. Did the online calculator calculate morbidity using the original POSSUM morbidity equation, or was another validated morbidity prediction model implemented?
3. If an alternative computational algorithm was used, could the authors provide the corresponding reference or mathematical formulation?

We believe that clarification of these methodological aspects would improve the transparency of the present study and facilitate more consistent interpretation of future studies employing POSSUM-based risk prediction models.

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