Mortality prognostic ability of PRISM, PIM-3, and PELOD-2 in paediatric multiple organ dysfunction syndrome

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Correspondence
To the Editors

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Dear Editors,

In paediatric intensive care units (PICUs), the use of mortality prediction scores is critical for assessing the quality of care provided to critically ill children, particularly those suffering from Multiple Organ Dysfunction Syndrome (MODS), which is commonly encountered among PICU patients. These scores are crucial in clinical decision-making, especially in resource-limited settings, as they objectively quantify the severity of a patient’s condition and estimate mortality risks. Scores such as PRISM-III/IV, PIM-3, and PELOD-2 have been pivotal for over two decades in dynamically evaluating and identifying risks across paediatric age groups, enabling early detection of potential complications or death. This is of particular importance in regions like Vietnam, where the mortality rates for children with MODS can be as high as 51% to 63%.

Findings from a recent systematic review and meta-analysis further reinforce the value of these scores, revealing their strong discriminatory power in mortality prediction within PICU settings. Such findings emphasize the urgent need for effective and reliable prognostic tools in these challenging healthcare contexts.

Corroborating these findings, two research articles published in the prestigious Sri Lanka Journal of Child Health provide further insights. The study by Shenoy S, et al. highlighted the efficacy of the PELOD-2 and PRISM-III scores in predicting mortality among critically ill paediatric patients, showcasing excellent discrimination and good calibration. The substantial sample size and thorough methodology of this study enhance the credibility of these scoring systems in a PICU context.

Furthermore, a subsequent study by Vaja M, et al. compared the PRISM IV and PIM-3 scores as prognostic tools. Their findings suggest that both scores are effective in predicting mortality, with PRISM IV slightly outperforming PIM-3. This study underscores the subtle yet important differences among various scoring systems and their adaptability to different clinical settings. These research efforts collectively contribute to the expanding evidence base, affirming the value of multiple scoring systems in paediatric critical care, particularly for MODS children.

Our recent study also extends these findings. We found that both the PELOD-2 and its modified version outperformed PIM-3 in predicting mortality in Vietnamese children with MODS. Notably, the modified PELOD-2, with fewer parameters, demonstrated comparable predictive accuracy to the original PELOD-2. The convergence of these findings from diverse geographic and clinical settings suggests a broader applicability of the PELOD-2 and PIM-3 scores in paediatric critical care. These tools not only aid in prognosis but also potentially guide clinical decision-making and resource allocation. Moreover, the modified PELOD-2 score, with its streamlined parameters, offers a practical and efficient alternative without compromising predictive accuracy.

In the light of these studies, we advocate for the increased integration of these scoring systems into routine clinical practice. Additionally, we encourage further research to refine these tools, making them more adaptable to various clinical settings and patient populations. Undoubtedly, the ongoing evolution of these scoring systems will enhance our ability to prognosticate and improve outcomes for children with MODS worldwide.

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