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LETTER TO THE EDITOR OPEN ACCESS

Critical Appraisal of Circadian Blood Pressure Patterns as Predictors of Mortality in the Intensive Care Setting

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To the Editor,

We have recently, with great interest, read the recent article by Zhao et al., "Association of 24-h Blood Pressure Pattern with Mortality in ICU Patients: A Retrospective Cohort Study" [1]. The study provides valuable insight into the prognostic role of ambulatory blood pressure monitoring (ABPM) patterns in critically ill patients, an area with limited prior evidence. The authors report that non-dipper and reverse-dipper patterns were associated with higher all-cause mortality, potentially offering a simple yet powerful risk stratification tool in the intensive care unit (ICU) setting.

However, some methodological limitations should be considered. First, the retrospective single-center design and reliance on electronic health records raise the risk of selection bias and missing data [2]. Second, the study's definition of dipping status was based on a fixed percentage threshold (10%), which, while conventional, may not optimally discriminate risk in heterogeneous ICU populations [3]. Additionally, the absence of repeated ABPM assessments limits the ability to account for hemodynamic variability over the ICU stay.

Another concern is the potential confounding effect of disease severity, vasoactive medication use, and mechanical ventilation. These factors can substantially influence circadian BP profiles in ICU patients, yet the multivariate models may not have fully adjusted for them [4]. Moreover, causality cannot be inferred, as abnormal BP patterns may be more reflective of critical illness severity than independent predictors of mortality [5]. A stratified analysis by diagnosis, hemodynamic status, or therapeutic interventions could have helped clarify this issue.

Finally, while the authors suggest incorporating BP pattern analysis into routine ICU monitoring, the clinical feasibility and cost-effectiveness of continuous or repeated ABPM in this setting remain uncertain [3]. Prospective multicenter studies are needed to validate these findings, explore dynamic BP pattern changes during recovery, and determine whether targeted interventions to restore normal dipping patterns can improve survival outcomes.

Sincerely,

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Conflicts of Interest

The authors declare no conflicts of interest.

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