

LETTER TO EDITOR

Lactate/Albumin Ratio vs. NEWS-Lactate in Sepsis-Induced Acute Kidney Injury Prognosis; Comment on Le Xuan et al. Study

Qing-Bao Jiang¹, Guo-Ming Zhang^{2*}

1. Department of Laboratory Medicine, Daqing Hospital of Traditional Chinese Medicine, Daqing 163311, Heilongjiang, People's Republic of China

2. Department of Laboratory Medicine, Shuyang Hospital, The Affiliated Shuyang Hospital of Xuzhou Medical University, Shuyang 223600, Jiangsu, People's Republic of China

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Dear Editor,

We read with great interest the article by Le Xuan et al. that evaluated the prognostic utility of the lactate/albumin ratio (LAR) and National Early Warning Score 2-Lactate (NEWS2-L) in predicting sepsis-associated acute kidney injury (SA-AKI) (1). Their work highlights the potential of simple indices to stratify risk in critically ill patients, yet several methodological and interpretative issues merit further discussion. The study population was defined according to the Sepsis-3 consensus, which characterises sepsis as life-threatening organ dysfunction caused by a dysregulated host response to infection (2).

First, while the authors report the highest area under the receiver operating characteristic (ROC) curve (AUC = 0.800) for LAR compared with NEWS-Lactate (AUC = 0.772), they acknowledge overlapping confidence intervals. However, they did not formally report whether the difference reached statistical significance. According to Table 3, DeLong's test suggested that the LAR was not significantly superior to the NEWS-Lactate ($p = 0.3$) (1). This raises the need for caution in asserting that the LAR "outperforms" the NEWS-Lactate, since its discriminative power may be equivalent.

Second, the diagnostic strategy relies solely on serum creatinine to define AKI while omitting the urine output criterion. The KDIGO guidelines emphasise that creatinine-only definitions may underestimate AKI incidence, particularly in oliguric patients with modest creatinine changes (3). Moreover, the study did not integrate emerging biomarkers such as neutrophil gelatinase-associated lipocalin (NGAL) or cystatin C, which have demonstrated superior sensitivity for early AKI detection (4). Hence, the reported diagnostic accuracy of the LAR may be partially confounded by limitations in

the reference standard.

Third, all biomarkers were assessed at a single time point on admission. SA-AKI is a dynamic process, and trends in lactate or albumin levels may offer additional prognostic insight. Prior studies have shown that lactate clearance is more predictive of outcome than admission values alone are (5). Without serial monitoring, the study risks oversimplifying the temporal relationship between metabolic derangements and kidney dysfunction.

Fourth, the study compared the LAR and NEWS-L with severity scores such as the Sequential Organ Failure Assessment (SOFA) score and Acute Physiologic Assessment and Chronic Health Evaluation (APACHE) II; however, these scores were originally designed to predict overall mortality rather than renal-specific outcomes. The modest AUCs for these scores (0.63–0.64) are therefore not unexpected (6). While the LAR and NEWS-Lactate may indeed have merits, it would be more appropriate to compare them against kidney-specific models or validated sepsis-AKI risk scores (7, 8).

Finally, the single-centre retrospective design, which was conducted in a military hospital, may limit generalisability. The sepsis case-mix, resuscitation protocols, and thresholds for renal support vary significantly across institutions. External validation across heterogeneous cohorts is essential before the LAR or NEWS-Lactate can be recommended for routine risk stratification (9, 10).

In summary, Le Xuan et al. provided valuable data supporting the potential utility of albumin-index ratios in SA-AKI prediction (1, 2). Nevertheless, the interpretation of the superiority of the LAR over the NEWS-Lactate should be tempered, and the reliance on creatinine-only AKI diagnosis, single-point measurements, and limited comparators highlights the need for prospective, multicentre validation. Future research incorporating dynamic biomarker trajectories and broader definitions of AKI may better elucidate the role of the LAR in sepsis care.

*Corresponding Author: Guo-Ming Zhang, Department of Laboratory Medicine, Shuyang Hospital, Shuyang Affiliated Hospital of Xuzhou Medical University, No. 9, Yingbin Road, Shuyang, China. Tel: 086052787790051, Email: gm@xzhmu.edu.cn; zly52120@163.com, ORCID: <https://orcid.org/0000-0003-0662-1302>.

1. Declarations

1.1. Acknowledgments

None.

1.2. Author contributions

Guo-Ming Zhang and Qing-Bao Jiang: conceptualisation, writing – original draft; Guo-Ming Zhang and Qing-Bao Jiang: investigation, writing – review & editing; Guo-Ming Zhang: conceptualisation, supervision, writing – review & editing. All authors read and approved the final version of manuscript.

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1.4. Conflict of Interest

The authors declare that they have no conflicts of interest.

1.5. Data Availability

Not applicable.

1.6. Using artificial Intelligence Chatbots

The idea for this letter, as well as the writing and conceptualisation stages, was conducted without the use of artificial intelligence technologies.

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