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Angiotensinogen: a new era beyond lactate as a biomarker?

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Dear editor

In a recent brief report [1], Dr.Chappell and colleagues compared the predictive value of angiotensinogen, renin, and lactate for 30-day mortality in patients with sepsis or septic shock. The study included a total of 103 sepsis patients. The results showed that serum angiotensinogen concentration had a stronger association with mortality than either serum renin or lactate, suggesting that angiotensinogen may serve as a clinical predictor superior to lactate. We believe several points should be noted when interpreting these findings.

First, lactate is widely recognized as an important biomarker in critically ill patients, primarily reflecting an imbalance in tissue oxygen supply and consumption, which is commonly used to assess tissue perfusion and disease severity in septic shock. However, although this study included patients with sepsis or septic shock, we observed that the baseline systolic blood pressure in both the survival and non-survival groups was approximately 100 mmHg (survival group: 102.1 ± 23.5; non-survival group: 106.0 ± 21.9, $p = 0.464$), indicating that these patients were not in a state of severe shock or, at the very least, retained a degree of hemodynamic stability. Additionally, the baseline lactate levels were also relatively low and similar between the two groups (survival group: 2.6 [1.8–3.8]; non-survival group: 2.2 [1.6–6.1], $p = 0.629$). This raises the question of whether the study sample might skew toward a less severe sepsis population, which could influence the relative performance of angiotensinogen and lactate as predictive markers (as patients with relatively stable circulation tend to have normal lactate levels).

Moreover, this study found no significant difference in survival analysis between high and low lactate groups, which is inconsistent with previous findings in septic shock [2–4]. This lack of difference may be attributed to specific characteristics of the patient cohort or sample heterogeneity, which may limit the generalizability of this study's findings to sepsis patients.

Future studies with larger, more diverse sepsis cohorts are needed to validate these findings and further explore the potential of angiotensinogen as a routine prognostic marker in sepsis or septic shock. Given lactate's established role in assessing sepsis severity and predicting outcomes, future research should also investigate whether angiotensinogen can complement lactate or other established biomarkers to provide additional prognostic value. Also, longitudinal studies could help clarify the dynamic changes in angiotensinogen levels over time and their correlation with patient outcomes, offering a more comprehensive understanding of angiotensinogen's role in the complex pathophysiology of sepsis.

Finally, we extend our gratitude to Dr. Chappell and colleagues for their valuable work, and we hope our perspectives contribute to a deeper understanding of these findings.

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Dr. Xinyuan Ding raised the clinical issue and Dr. Yanfei Shen wrote the letter. All authors have reviewed and approved the letter.

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Declarations

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Not applicable.

Consent for publication
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Competing interests
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