

Letter-to-Editor

Multimorbidity in sepsis-associated acute kidney injury: Methodological gaps

Sir,

The report by Malla *et al*¹ (2025) provides valuable insights into the burden of multimorbidity in critically ill patients with sepsis-associated acute kidney injury (SA-AKI). The authors effectively highlight the impact of multimorbidity, defined as the coexistence of two or more chronic conditions, on poor clinical outcomes in this patient population².

The increasing prevalence of multimorbidity, particularly in countries under epidemiological and demographic transition like India, makes this an important area research domain³. The study finding that multimorbidity is associated with worse outcomes, such as higher rates of mechanical ventilation and hospital mortality, is consistent with existing knowledge about how chronic conditions can reduce physiological reserve and worsen the effects of acute illnesses like sepsis with increased risk of multiorgan failure⁴. Nevertheless, there are some gaps in the reported methodology, whose clarification would improve the study comprehension.

First, the authors mention exclusion of chronic kidney disease (patients) from their sample, but the definition and staging based on eGFR was not reported in the methods. The authors state the exclusion was to ensure the findings reflect the acute impact of sepsis rather than the effects of pre-existing kidney conditions, but the exclusion criteria remain ambiguous. Even patients with moderate CKD are known to be at a higher risk of developing AKI due to reduced renal reserve⁵. Clarifying the CKD definition would therefore enable a more precise interpretation of the study findings.

Second, the study's definition of multimorbidity as the presence of two or more chronic conditions is standard. However, the reported prevalence appears to be mostly driven by hypertension and diabetes mellitus, which were the most common comorbidities,

affecting the SA-AKI patient cohort. Consequently, the true burden of multimorbidity in the sample may be understated because the assessment seems to be limited to only a few conditions. Instead, a comprehensive assessment of multimorbidity should screen for a standardised panel of conditions including those that are highly prevalent in older adults but may not be directly linked to sepsis outcomes, such as thyroid disorders, asthma, and depression².

While the study's focus on diabetes and hypertension is relevant given their known association with kidney function decline and immune dysregulation⁶, the absence of other chronic conditions may lead to an underestimation of the actual multimorbidity burden in this patient population. Moreover, the likely underestimation of multi morbidity in this study suggests that the observed association with AKI may be overstated; the true association is likely weaker.

Finally, while the study detected a substantial burden of multiple comorbidities in the patients, it did not report on specific combinations, such as the odds of developing SA-AKI in patients with a diabetes-hypertension dyad. Analyzing these specific combinations would provide a more nuanced understanding of how different chronic conditions interact to adversely influence clinical outcomes in SA-AKI patients. Crucially, the omission of this analysis undermines a more nuanced discussion on the pathognomic role of multimorbidity in SA-AKI.

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References

1. Malla SS, Kola VR, Agiwal V, Pant HB. Prevalence & risk factors of multi-morbidity in critically ill patients with sepsis-associated acute kidney injury (SA-AKI). *Indian J Med Res* 2025; *161* : 665-71.
2. Puri P, Girotra S, Ghosh A. Overview of multimorbidity research in India: A scoping review. *J Multimorb Comorb* 2025; *15* : 26335565251355837.
3. Pati S, Hussain MA, Swain S, Salisbury C, Metsemakers JF, Knottnerus JA, *et al.* Development and validation of a questionnaire to assess multimorbidity in primary care: An Indian experience. *Biomed Res Int* 2016; *2016* : 6582487.
4. Yende S, Iwashyna TJ, Angus DC. Interplay between sepsis and chronic health. *Trends Mol Med* 2014; *20* : 234-8.
5. Chawla LS, Eggers PW, Star RA, Kimmel PL. Acute kidney injury and chronic kidney disease as interconnected syndromes. *N Engl J Med* 2014; *371* : 58-66.
6. Kovesdy CP. Epidemiology of chronic kidney disease: An update 2022. *Kidney Int Suppl* (2011) 2022; *12* : 7-11.

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