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## Serum Cardiac Troponin Elevation and Sepsis Mortality



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Sepsis, as defined by Sepsis-3, is a life-threatening organ dysfunction caused by a dysregulated response to infection, with high mortality rates, especially in septic shock. Sepsis can cause acute myocardial injury, and high-sensitivity cardiac troponin (hs-cTn) assays are increasingly used to detect cardiac injury in these patients. While previous studies linked elevated cTn levels to higher mortality in sepsis, they lacked consistency in patient selection, cTn assessment, and control of confounding factors.

Given the limited research on hs-cTn in modern settings, a recent systematic review evaluated the association between early hs-cTn levels and short-term mortality in ICU and ED patients with sepsis based on the Sepsis-3 criteria.

The review used random effect models to calculate the pooled unadjusted and adjusted odds ratios (OR and aOR) for elevated vs. normal hs-cTn levels and the crude standardised mean difference (SMD) of hs-cTn levels between survivors and non-survivors.

The review included 6,242 patients from 17 studies, with short-term mortality rates ranging from 16.9% to 53.8%. A crude analysis showed that non-survivors had higher hs-cTn levels than survivors. Elevated hs-cTn was associated with increased mortality. However, when adjusted for confounders, the prognostic effect of elevated hs-cTn was no longer significant.

The study highlights that myocardial injury in sepsis is multifactorial and that hs-cTn assays may detect myocardial injury more effectively than conventional assays. The review differs from earlier studies that did not use the Sepsis-3 definition or included patients without organ dysfunction. The results suggest that elevated hs-cTn in septic patients correlates with increased organ dysfunction, not just myocardial injury.

Although hs-cTn elevation alone may not independently predict mortality, it remains a valuable biomarker for identifying patients at higher risk of adverse outcomes and could be useful in clinical risk stratification. Further studies are needed to explore hs-cTn's role in prognosis and compare its effectiveness to other biomarkers in sepsis.

This review provides updated insights into the clinical practice of sepsis, demonstrating that elevated hs-cTn levels in septic patients are linked to an increased risk of short-term mortality. While hs-cTn serves as a valuable biomarker for risk classification in sepsis, the association between early hs-cTn elevation and mortality is weakened after adjusting for confounding factors. This suggests that hs-cTn is not independently associated with mortality risk in sepsis under the current Sepsis-3 definition.

Source: [Critical Care](#)  
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