
Three-Year Mortality of ICU Survivors With Sepsis



Sepsis is a common cause of ICU admissions and mortality, with its incidence increasing over recent decades. Although hospital mortality has declined, long-term mortality remains high, with 1-year mortality rates for survivors ranging from 7% to 44% and over 2-year mortality exceeding 53%. Factors contributing to this risk are debated, including the direct effects of sepsis, comorbidities, age, and the severity of acute illness.

Studies reveal conflicting findings: some attribute long-term mortality to pre-existing comorbidities, while others suggest sepsis itself, especially acute organ dysfunction, plays a significant role. The complex interplay of patient characteristics, comorbidities, and critical illness highlights the need for further exploration.

A recent study assessed the 3-year mortality of ICU sepsis survivors and disentangle the effects of sepsis-related multi-organ failure, infection, and inflammation on outcomes. It compared these survivors with two control groups—those with non-sepsis infections and non-infectious inflammatory illnesses—discharged alive from the hospital.

The study analysed adult ICU survivors admitted between 2007 and 2019 with sepsis, infection, or inflammatory illnesses. Patients were categorised within the first 24 hours of ICU admission using APACHE IV diagnoses. Data from 78 Dutch ICUs, recorded in the NICE registry, were linked to a healthcare insurance claims database to track 3-year mortality.

The 3-year mortality rate after hospital discharge was 32.7% for sepsis patients, 33.6% for infection patients, and 23.8% for inflammatory illness patients. After adjustment, the hazard ratio (HR) for death within 3 years was 1.00 for infection patients (indicating no difference compared to sepsis patients) and 0.88 for inflammatory illness patients, suggesting a lower mortality risk compared to sepsis patients.

Sepsis and infection patients had comparable 3-year mortality rates (~33%), significantly higher than the inflammatory illness group (23.8%). Severe inflammatory illness, however, had worse outcomes than sepsis. Infection, whether accompanied by sepsis or not, was a major determinant of poor long-term outcomes. This suggests that the infection itself, combined with organ failure, plays a critical role in mortality rather than sepsis alone. Despite comparable illness severity (SOFA scores and organ failure rates), inflammatory illness patients had better outcomes than infection groups, except for severe inflammatory conditions, which showed higher mortality.

These results align with previous research showing excess long-term mortality in sepsis patients compared to general hospitalised patients. However, this study uniquely focused on ICU populations and matched cohorts for comparability, highlighting that infection-related factors largely drive poor outcomes.

Variability in outcomes within inflammatory conditions and the overlap in organ failure between sepsis and infection patients underscore the need for better markers of inflammatory and infectious responses to understand their long-term effects.

In summary, infection, with or without sepsis, significantly impairs long-term survival, while severe inflammatory responses also contribute to elevated mortality. Future research should focus on distinguishing the contributions of infection and inflammation to improve outcomes.

Sepsis and non-sepsis infection patients had a significantly higher 3-year mortality rate (one-third) compared to inflammatory illness patients,

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with approximately 10% more deaths. The lack of a mortality difference between sepsis and infection patients indicates that ICU admission due to infection is a key factor in long-term risk. These findings highlight the importance of improving post-ICU care for survivors of sepsis, infections, and severe inflammatory illnesses.

Source: [Critical Care](#)
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Published on : Tue, 10 Dec 2024