

Immunocompromised patients with sepsis may face higher mortality at hospitals treating small numbers

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Sepsis treatment. Credit: ATS

Immunosuppressed patients with sepsis appear more likely to die if they are treated in a hospital caring for a relatively small number of these

patients, according to new research published online in the *Annals of the American Thoracic Society*.

Sepsis, a leading cause of death in U.S. hospitals, occurs when the body produces an out-of-control

In "Hospital Volume of Immunosuppressed Sepsis Patients and Sepsis Mortality," Jared A. Greenberg, MD, MSc, and coauthors analyzed the medical records of 350,183 [patients](#) with [sepsis](#) at 60 U.S. hospitals. One of five of those patients was classified as being immunocompromised based on being HIV-positive or having an intrinsic immune disorder, having a blood cancer or being prescribed an immunosuppressive drug for certain medical conditions while hospitalized.

"While there is a lot of focus on improving sepsis outcomes through early interventions, some patients have poor outcomes from sepsis because their chronic medical conditions may worsen after the initial infectious insult," said Dr. Greenberg, an assistant professor and critical care physician at Rush University Medical Center in Chicago, Illinois. "We hypothesized that septic patients who are immunocompromised may have improved outcomes if they are managed at hospitals that have the most experience managing immunocompromising conditions."

The study found:

- 15 percent of immunosuppressed patients with sepsis died during hospitalization compared to 12 percent of non-immunosuppressed patients with sepsis at all hospitals.
- At hospitals seeing fewer than 225 immunosuppressed patients with sepsis each year, these patients were 38 percent more likely to die while hospitalized, compared to 21 percent more likely to die at hospitals that saw 225 or more of these patients yearly.
- Above 225, caring for greater numbers of immunosuppressed

patients with sepsis (one hospital treated 1,056 such patients) did not appear to reduce mortality.

- Immunosuppressed patients with sepsis were more likely than non- immunosuppressed patients to return to their homes after discharge, rather than another health facility, 60 percent vs. 50 percent, respectively.

The authors said this last finding was a surprise. They believe that non-immunosuppressed patients may have been more likely to be experiencing declining states of health prior to sepsis than immunosuppressed patients, as they were more likely to be older and to be admitted directly from other health care facilities.

Researchers adjusted their findings for a range of factors, including severity of sepsis when hospitalized, other medical problems and whether a patient's infection was hospital acquired.

Study results do not explain why immunosuppressed patients fared better at hospitals treating large numbers of such patients. They speculate that "immunosuppressed patients with sepsis had improved survival at hospitals where clinicians had greater familiarity caring for immunosuppressed patients."

Without this familiarity, the authors write, physicians might miss atypical signs of sepsis in an immunocompromised patient and therefore miss the opportunity to treat the disease early before it gets out of control. It is also possible that the physicians may not comply with the Surviving Sepsis Campaign's international guidelines for clinical care, which many studies have shown reduce sepsis mortality, according to the authors.

Dr. Greenberg said the study is important for administrators and clinicians focused on improving quality of sepsis care because "patients

with a medical condition that is relatively uncommon at a hospital may have worse outcomes from sepsis than patients with the same [conditions](#) who are managed at hospitals where the condition is more common."

He added that more research was necessary to determine the "mechanism of this finding" before suggesting that an immunosuppressed patient should seek out a specific hospital based on the number of immunosuppressed patients treated by that [hospital](#).

More information: "Study finds immunocompromised #sepsis patients are more likely to survive if treated at a hospital that cares for large numbers of such patients" *Annals of the American Thoracic Society*, 2018.

Provided by American Thoracic Society

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