Source Of Infection Affects Hospital Mortality In Septic Shock Patients In The ICU

In ICU patients who have septic shock, the anatomic source of infection has a strong effect on the chances of survival, according to a new study from researchers in Canada.

"Understanding the local infection source in patients with septic shock may influence treatment strategies and clinical outcomes," said researcher Peter Dodek, MD MHSc, professor of critical care medicine at the University of British Columbia in Vancouver. "Accordingly, we examined the relationship between anatomic source of infection and hospital mortality in nearly 8,000 patients who had septic shock and who were admitted to ICUs in Canada, the United States and Saudi Arabia."

"We found that there are meaningful differences in hospital mortality among anatomic sites of infection in these patients."

The results of the study will be presented at the ATS 2013 International Conference.

This retrospective, multicenter, cohort study included 7,974 patients from 29 academic and community hospitals. The researchers examined the relationship between 20 anatomic sources of infection and hospital survival, adjusting for predisposing factors including year and source of admission, age, sex, comorbidities, community- vs. hospital-acquired infection andandorganism type. They also adjusted for other potential mediating factors such as Acute Physiologic and Chronic Health Evaluation (APACHE) II score, number of Day 1 organ failures, bacteremia, appropriateness of antibiotic treatment, and adjunct therapy.

After adjustment for these possible confounders, infections in eight anatomic sites were associated with significantly higher chances of survival compared to the lung, including genitourinary infections secondary to hydronephrosis and pyelonephritis, intra-abdominal infection secondary to cholecystitis/cholangitis and enterocolitis/diverticulitis, skin and soft tissue infection secondary to cellulitis/abscess/necrotizing fasciitis/decubitus ulcer, surgical site infection, intravascular catheter-related infection, and other infection sources. Infections related to hydronephrosis were associated with the highest chance of survival.

Infections in four anatomic sites were associated with significantly lower chances of survival (compared to lung): intra-abdominal infection secondary to ischemic bowel, disseminated infections, and central nervous system infections. Infections related to ischemic bowel were associated with the lowest chance of survival.

Further adjustment for the timing of initiation of antibiotic treatment did not significantly alter these relationships.

"Knowing that the source of infection can affect mortality in ICU patients who have septic shock may help guide treatment in these patients," said Dr. Dodek. "Further research should examine whether targeted treatment of the anatomic source of infection improves outcomes. In addition, these findings support stratification by anatomic source of infection of patients who are enrolled in clinical trials of sepsis treatments."

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