

## Study finds that two treatment strategies for severe sepsis show similar survival rates

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A comparison of two strategies for treating severe sepsis or septic shock finds that using lactate levels measured in blood samples showed a similar short-term survival rate compared to a treatment regimen using central venous oxygen saturation measured using a specialized catheter, according to a study in the February 24 issue of *JAMA*.

In the United States, the rate of severe [sepsis](#) hospitalizations has doubled during the last decade, with estimates indicating that at least 750,000 persons are affected annually. Approximately 500,000 patients with severe sepsis in the United States are initially treated in emergency departments every year. Among suggested treatment strategies is the controversial issue of the method of determining tissue oxygen delivery, according to background information in the article.

"Citing a single-center study, the Surviving Sepsis Campaign guidelines recommend the use of central venous oxygen saturation (ScvO<sub>2</sub>) or mixed venous oxygen saturation to assess the balance of tissue oxygen delivery and consumption; however, since its publication in 2001 a substantial amount of controversy about this single-center study has been generated in the scientific community. Additionally, recently published practice surveys have indicated that the time, expertise, and specialized equipment required to measure ScvO<sub>2</sub> collectively pose a major barrier to the implementation of protocol-driven quantitative resuscitation programs. In contrast, lactate clearance, derived from calculating the change in lactate concentration from 2 blood specimens drawn at different times, potentially represents a more accessible method to assess

tissue oxygen delivery," the authors write.

Alan E. Jones, M.D., of the Carolinas Medical Center, Charlotte, N.C., and colleagues compared outcomes between early resuscitation for patients with severe sepsis or [septic shock](#) targeting lactate clearance as the marker of adequate [oxygen delivery](#) vs. targeting ScvO<sub>2</sub> measured using a central venous catheter connected to a computerized system. The primary measured outcome was death while in the hospital. The randomized trial included 300 patients with severe sepsis and evidence of hypoperfusion (decreased blood flow to the body tissues) or septic shock who were admitted to the emergency department at 1 of 3 hospitals between January 2007 and January 2009. The patients were randomly assigned to one of the two resuscitation protocols.

The researchers found that 34 patients (23 percent) in the ScvO<sub>2</sub> group died while in the hospital compared with 25 (17 percent) in the lactate clearance group, with the observed difference not reaching the predefined threshold difference of 10 percent. There were no differences in treatment-related adverse events between the groups.

"These data support the substitution of lactate measurements in peripheral venous blood as a safe and efficacious alternative to a computerized spectrophotometric catheter in the resuscitation of sepsis," the authors write.

**More information:** *JAMA*. 2010;303[8]:739-746.

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