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Fever control using external cooling reduces early mortality in septic shock patients

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Fever control using external cooling in sedated patients with septic shock is safe and decreases vasopressor requirements and early mortality, according to a new study from researchers in France.

"The benefits and risks of fever control in patients with severe sepsis remains a matter of controversy," said lead author Frédérique Schortgen, MD, PhD, of the Henri Mondor Hospital in Créteil, France. "In our study, external cooling to achieve normothermia in patients with septic shock was safe, accelerated hemodynamic stabilization, decreased vasopressor requirements, increased the rate of shock reversal, and decreased early mortality."

The findings were published online ahead of print publication in the American Thoracic Society's *American Journal of Respiratory and Critical Care Medicine*.

In the multicenter trial, 200 febrile adults with septic shock from seven participating ICUs, all of whom were receiving vasopressor treatment, mechanical ventilation and sedation, were randomized to external cooling (n = 101) or no external cooling (n = 99). Patients underwent cooling for 48 hours to maintain a core body temperature between 36.5°C and 37°C. Vasopressors were tapered to maintain a mean arterial pressure target of 65 mmHg or more in both groups.

After two hours of treatment, body temperature was significantly lower in the cooling group. The percentage of patients with a 50 percent

vasopressor dose decrease vs. baseline was significantly higher in the cooling group from 12 hours of treatment; this difference was not significant at 48 hours. Shock reversal during the ICU stay was significantly more common in the cooling group, as was day-14 mortality. All comparisons remained significant after adjustment for baseline vasopressor dose and sepsis severity scores.

The study had several limitations. Patients in the cooling group had a lower baseline dose of vasopressors, perhaps indicating lower illness severity, although all other variables associated with outcomes in sepsis were well balanced between the two treatment groups. In addition, the study was not blinded, and life-supporting treatments given before inclusion during the early stage of sepsis were not recorded.

"Although cooling prevented early deaths in our patients, mortality reduction was not significant at ICU or hospital discharge, and we cannot make definitive conclusions on the effects of cooling on mortality from our data" said Dr. Schortgen. "Larger studies are needed to confirm the positive effects of cooling on mortality we observed and to examine whether fever control provides any additional benefits in patients with severe sepsis."

Provided by American Thoracic Society

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