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- **High versus Low Blood-Pressure Target in Patients with Septic Shock**
- **Albumin Replacement in Patients with Severe Sepsis or Septic Shock**
- **A Randomized Trial of Protocol-Based Care for Early Septic Shock**

High versus Low Blood-Pressure Target in Patients with Septic Shock

BACKGROUND
- The Surviving Sepsis Campaign recommends targeting a mean arterial pressure of at least 65 mm Hg during initial resuscitation of patients with septic shock. However, whether this blood-pressure target is more or less effective than a higher target is unknown.

METHODS
- In a multicenter, open-label trial, we randomly assigned 776 patients with septic shock to undergo resuscitation with a mean arterial pressure target of either 80 to 85 mm Hg (high-target group) or 65 to 70 mm Hg (low-target group). The primary end point was mortality at day 28.

High versus Low Blood-Pressure Target in Patients with Septic Shock

RESULTS

- At 28 days, there was no significant between-group difference in mortality, with deaths reported in 142 of 388 patients in the high-target group (36.6%) and 132 of 388 patients in the low-target group (34.0%) (hazard ratio in the high-target group, 1.07; 95% confidence interval [CI], 0.84 to 1.38; P=0.57).

- There was also no significant difference in mortality at 90 days, with 170 deaths (43.8%) and 164 deaths (42.3%), respectively (hazard ratio, 1.04; 95% CI, 0.83 to 1.30; P=0.74). The occurrence of serious adverse events did not differ significantly between the two groups (74 events [19.1%] and 69 events [17.8%], respectively; P=0.64).

- However, the incidence of newly diagnosed atrial fibrillation was higher in the high-target group than in the low-target group.

- Among patients with chronic hypertension, those in the high-target group required less renal-replacement therapy than did those in the low-target group, but such therapy was not associated with a difference in mortality.

High versus Low Blood-Pressure Target in Patients with Septic Shock

CONCLUSIONS

- **Targeting a mean arterial pressure of 80 to 85 mmHg, as compared with 65 to 70 mmHg, in patients with septic shock undergoing resuscitation did not result in significant differences in mortality at either 28 or 90 days.**

Albumin Replacement in Patients with Severe Sepsis or Septic Shock

BACKGROUND

- **Although previous studies have suggested the potential advantages of albumin administration in patients with severe sepsis, its efficacy has not been fully established.**

METHODS

- **In this multicenter, open-label trial, we randomly assigned 1818 patients with severe sepsis, in 100 intensive care units (ICUs), to receive either 20% albumin and crystalloid solution or crystalloid solution alone. In the albumin group, the target serum albumin concentration was 30 g per liter or more until discharge from the ICU or 28 days after randomization. The primary outcome was death from any cause at 28 days. Secondary outcomes were death from any cause at 90 days, the number of patients with organ dysfunction and the degree of dysfunction, and length of stay in the ICU and the hospital.**

Albumin Replacement in Patients with Severe Sepsis or Septic Shock

RESULTS

- **During the first 7 days, patients in the albumin group, as compared with those in the crystalloid group, had a higher mean arterial pressure (P=0.03) and lower net fluid balance (P<0.001). The total daily amount of administered fluid did not differ significantly between the two groups (P=0.10).**

- **At 28 days, 285 of 895 patients (31.8%) in the albumin group and 288 of 900 (32.0%) in the crystalloid group had died (relative risk in the albumin group, 1.00; 95% confidence interval [CI], 0.87 to 1.14; P=0.94).**

- **At 90 days, 365 of 888 patients (41.1%) in the albumin group and 389 of 893 (43.6%) in the crystalloid group had died (relative risk, 0.94; 95% CI, 0.85 to 1.05; P=0.29). No significant differences in other secondary outcomes were observed between the two groups.**

Albumin Replacement in Patients with Severe Sepsis or Septic Shock

CONCLUSIONS

- **In patients with severe sepsis, albumin replacement in addition to crystalloids, as compared with crystalloids alone, did not improve the rate of survival at 28 and 90 days.**

A Randomized Trial of Protocol-Based Care for Early Septic Shock

BACKGROUND

- **In a single-center study published more than a decade ago involving patients presenting to the emergency department with severe sepsis and septic shock, mortality was markedly lower among those who were treated according to a 6-hour protocol of early goal-directed therapy (EGDT), in which intravenous fluids, vasopressors, inotropes, and blood transfusions were adjusted to reach central hemodynamic targets, than among those receiving usual care.**
- **We conducted a trial to determine whether these findings were generalizable and whether all aspects of the protocol were necessary.**

A Randomized Trial of Protocol-Based Care for Early Septic Shock

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METHODS

- **In 31 emergency departments in the United States, we randomly assigned patients with septic shock to one of three groups for 6 hours of resuscitation: protocol-based EGDT; protocol-based standard therapy that did not require the placement of a central venous catheter, administration of inotropes, or blood transfusions; or usual care. The primary end point was 60-day in-hospital mortality. We tested sequentially whether protocol-based care (EGDT and standard-therapy groups combined) was superior to usual care and whether protocol-based EGDT was superior to protocol-based standard therapy. Secondary outcomes included longer-term mortality and the need for organ support.**

A Randomized Trial of Protocol-Based Care for Early Septic Shock

RESULTS

- We enrolled 1341 patients, of whom 439 were randomly assigned to protocol-based EGDT, 446 to protocol-based standard therapy, and 456 to usual care. Resuscitation strategies differed significantly with respect to the monitoring of central venous pressure and oxygen and the use of intravenous fluids, vasopressors, inotropes, and blood transfusions.

- By 60 days, there were 92 deaths in the protocol-based EGDT group (21.0%), 81 in the protocol-based standard-therapy group (18.2%), and 86 in the usual-care group (18.9%) (relative risk with protocol-based therapy vs. usual care, 1.04; 95% confidence interval [CI], 0.82 to 1.31; P=0.83; relative risk with protocol-based EGDT vs. protocol-based standard therapy, 1.15; 95% CI, 0.88 to 1.51; P=0.31).

- There were no significant differences in 90-day mortality, 1-year mortality, or the need for organ support.

A Randomized Trial of Protocol-Based Care for Early Septic Shock

CONCLUSIONS

- **In a multicenter trial conducted in the tertiary care setting, protocol-based resuscitation of patients in whom septic shock was diagnosed in the emergency department did not improve outcomes.**

JAMA

Mortality Related to Severe Sepsis and Septic Shock Among Critically Ill Patients in Australia and New Zealand, 2000-2012

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THE LANCET

Haemodynamic-guided fluid administration for the prevention of contrast-induced acute kidney injury: the POSEIDON randomised controlled trial

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Thanks for your attention