Title: Comparing early versus late administration of vasopressors in septic shock

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Introduction: The Centers for Medicare and Medicaid Services developed the SEP-1 criteria with a goal to reduce preventable sepsis-related mortality by ensuring high quality sepsis care. The SEP-1 criteria requires vasopressors be initiated within six hours of sepsis presentation if hemodynamic stability is not achieved through fluid resuscitation. The objective of this study was to determine if early initiation of vasopressors in patients with septic shock decreases sepsis-related mortality.

Methods: This retrospective cohort study included patients who were diagnosed with septic shock and received a vasoactive agent. The primary outcome was to compare 28-day mortality between patients with early vasopressor initiation, defined as vasopressor initiation less than two hours after septic shock onset, and late vasopressor initiation, defined as vasopressor initiation greater than or equal to two hours after septic shock onset. Key secondary outcomes included time to normalization of mean arterial pressure (MAP) and time to second vasopressor.

Results: A total of 86 patients were included (early vasopressor initiation, n=42; late vasopressor initiation, n=44). The SOFA scores in the early vasopressor initiation and late vasopressor initiation groups were well matched (10.6 ±3.2 vs. 9.9 ±3.4; p=0.337). The average time to vasopressor was 0.61 ±0.57 hours in the early vasopressor initiation group and 10.1 ±13.2 hours in the late vasopressor initiation group. The 28-day mortality rate was lower in the early vasopressor initiation group versus late vasopressor initiation group (33% vs. 55%; p=0.048). Patients in the early vasopressor initiation group had a more rapid normalization of MAP (8.3 ±13.2 vs. 19.7 ±25.9 hours; p=0.013) and quicker time to second vasopressor (9.9 ±12.1 vs. 3.1 ±28.0 hours; p=0.041) compared to the late vasopressor initiation group.

Conclusions: In patients with septic shock, early vasopressor initiation was associated with a decrease in 28-day mortality compared to late vasopressor initiation.