Early Use of Vasopressors After Injury: Caution Before Constriction

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Objective: Recent evidence suggests that overly aggressive crystalloid resuscitation is associated with poor outcome. This has led to a renewed interest in the use of vasopressors for hemodynamic support during resuscitation after injury. We sought to characterize early vasopressor (EV) use and aggressive early crystalloid resuscitation (ECR) and their association with mortality in severely injured patients.

Methods: Data were obtained from a multicenter, prospective, cohort study designed to evaluate the outcome of blunt injured adults in hemorrhagic shock. Early deaths (<48 hours) were excluded from the analysis. A single Cox proportional hazard regression model was used to evaluate the effects of EV use (levophed, phenylephrine, dopamine, or vasopressin) and aggressive ECR on mortality at 12 and 24 hours postinjury, while controlling for important physiologic, injury, resuscitation, and patient demographic confounders.

Results: Cox proportional hazard regression revealed that EV use within 12 hours after injury was independently associated with over an 80% higher risk of mortality (hazard ratio [HR] 1.81, 95% confidence interval [CI] 1.1–2.9, p = 0.013), and was independently associated with over a twofold higher risk of mortality at 24 hours (HR 2.15, 95% CI 1.4–3.4, p = 0.001). These findings were consistent across all vasopressor subtypes. Aggressive ECR was independently associated with a 40% reduction in mortality (HR 0.594, 95% CI 0.37–0.95, p = 0.030).

Conclusion: These findings provide evidence that the early use of vasopressors for hemodynamic support after hemorrhagic shock may be deleterious, and should be used cautiously and not in place of aggressive crystalloid resuscitation after severe blunt injury.

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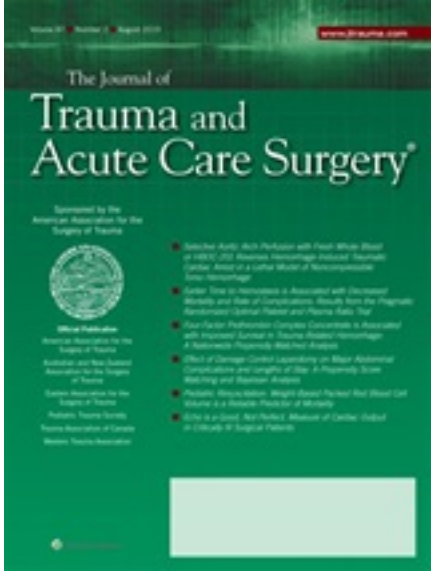

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