



Effective Health Care

Vasoactive Agents and Septic Shock

Nomination Summary Document

Results of Topic Selection Process & Next Steps

- Vasoactive agents and septic shock was found to be addressed by a recent Cochrane Collaboration review on *Vasopressors for Hypotensive Shock*. Given that the existing report covers this nomination, no further activity will be undertaken on this topic.
 - Havel C, Arrich J, Losert H, Gamper G, Müllner M, Herkner H. Vasopressors for hypotensive shock. *Cochrane Database of Systematic Reviews* 2011, Issue 5. Art. No.: CD003709. DOI: 10.1002/14651858.CD003709.pub3 (last search date March 2010).
<http://www2.cochrane.org/reviews/en/ab003709.html>
- There are still many outstanding questions regarding vasoactive agents in septic shock, leading to significant practice variation. This topic could potentially be considered for new research in comparative effectiveness.

Topic Description

Nominator: Government agency

Nomination Summary: The nominator is interested in the comparative effectiveness of vasopressors, inotropes, and volume in the management of septicemia with hypotension (septic shock).

Population(s): Patients with septic shock, stratified by comorbidities

Intervention(s): Vasopressors (specifically mentioned are dopamine, ephedrine, epinephrine, levarterenol, mephentermine, metaraminol, methoxamine, phenylephrine), inotropes (e.g., dobutamine, isoproterenol), amount of intravenous volume support initially and over several days

Comparator(s): See above

Outcome(s): Patient survival

Key Questions from Nominator:

1. What is the comparative effectiveness of different vasopressors, inotropes, and volume in the management of septicemia with hypotension?

Considerations

- The topic meets EHC Program appropriateness and importance criteria. (For more information, see <http://effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/how-are-research-topics-chosen/>.)

- This topic was found to be addressed by a 2011 Cochrane Collaboration review titled *Vasopressors for Hypotensive Shock*. This review assessed 26 comparisons of vasoactive agents in 23 randomized controlled trials to determine if the use of vasopressors for hypotensive shock reduced mortality, morbidity, and quality of life.

Importance of New Research

- The 2011 Cochrane review, which was comprehensive for all vasoactive agents, found insufficient evidence to recommend the use of any one vasopressor over another and concluded that further research on the topic is needed. There are still many outstanding questions regarding vasoactive agents in septic shock, leading to significant practice variation.

Research Gaps

- Systematic reviews and editorials identified a number of methodological gaps, including small sample sizes, underpowered trials, and lack of subgroup analyses. Most existing and in-process trials have small study populations (less than 50 patients), and subgroup analyses were identified in only 2 of the 15 in-process studies identified.
- Gaps regarding the administration, timing, action, and outcomes for specific vasoactive agents were identified by systematic reviews and editorials. Norepinephrine is widely assessed, but other vasoactive agents are less so. In particular, newer studies on vasopressin and terlipressin provide conflicting evidence on the timing, critical subpopulations, dosage of administration, and outcomes.
- We identified no studies on the impact of vasoactive agents on long-term health or quality of life or on racial disparities or comorbidities in the use of vasoactive agents for treating septic shock.