

Evidence-Based Practice (EBP) - E157

Poster

Abstract Title:

Permissive Hypotension in the Adult Trauma Patient: Does it Help or Hinder Patient Outcome?

Authors:

Alexis T. Frederick RN, MSN, CEN, ACNP-BC

Background & Purpose:

Most conventional emergency management protocols call for the use of rapid IVF administration; usually 2L of isotonic solution followed by blood products, to maintain a normal SBP and MAP. Currently there is considerable debate in the trauma community about the administration of crystalloid IV fluids in hypotensive trauma patients, with suspected uncontrolled bleeding, prior to the surgical control of hemorrhage. The focus of this poster is to discover whether there is enough evidence to support the use of permissive hypotension as a safe and effective clinical guideline for the treatment and management of the adult trauma patient to increase patient outcome and decrease patient mortality.

Study/Project Design:

A meta-analysis containing 1 systematic review, 1 integrative review and 6 research studies were appraised.

Setting:

1 Level 1 Trauma Center (randomized), 4 Laboratories (animal model), 2 Multiple Site Reviews (prospective studies)

Sample:

The research studies included 2 using a swine model (24/ 27), 2 using Sprague-Dawley rats (120 /40) and 2 using human subjects (598/110).

Procedures:

The studies were found by using several terms and their combinations, such as permissive hypotension, adult trauma resuscitation, clotting cascade in trauma patients, effect of blood pressure on hemorrhage volume, and shock. All studies from 1992 and forward were accepted. A collective findings table was utilized to appraise all research collected.

Findings/Results:

The research, with the exception of Dutton et al. (2002), supports the use of permissive hypotension in the medical management of the adult trauma patient during the preoperative phase or golden hour of care. "There is overwhelming experimental evidence to suggest that administration of resuscitative fluids is not entirely innocuous" (Chiara, 2008). The majority of the literature reviewed concludes that aggressive IV fluid administration in the presence of uncontrolled bleeding in an adult trauma patient has been proven to hemodilute the patient, altering the clotting cascade thus enhancing the amount of blood lost. After the findings of Dutton and colleagues, concerns that the avoidance of fluids within the golden hour may lead to tissue hypoperfusion / hypoxia, organ failure and death prior to the surgical control of bleeding (Stahel, 2009). Currently, there is no clear cut universal consensus pertaining to the optimal approach to IV fluid resuscitation in the adult trauma patient and more research is needed.

Discussion/Conclusions/Implications:

After a critique of all the literature reviewed it is recognized that there is a need for further research. Experimental work in the small animal model has shown a positive trend in improving patient outcome when the practice of permissive hypotension is utilized within the preoperative phase of care. However this has yet to be replicated in a valid randomized clinical trial using human subjects. Although it is recognized that this may be difficult to do, there is not sufficient research that states this theory should be adopted into conventional practice. It is also recommend that further research with both animal then human models be conducted to evaluate the long term effects of permissive hypotension.