AVERT Shock: Arginine Vasopressin During the Early Resuscitation of Traumatic Shock (AVERTShock)

This study has been completed.

Sponsor:
University of Pennsylvania

Collaborators:
National Trauma Research Institute
United States Department of Defense

Information provided by (Responsible Party):
University of Pennsylvania

ClinicalTrials.gov Identifier:
NCT01611935

First received: June 1, 2012
Last updated: June 14, 2017
Last verified: June 2017
History of Changes

Full Text View | Tabular View | No Study Results Posted | Disclaimer

How to Read a Study Record

Purpose

Trauma patients, who are transfused with multiple blood products to treat shock due to blood loss, frequently develop inappropriately low vasopressin levels. Vasopressin is a hormone necessary to maintain an adequate blood pressure and low levels have been associated with the need for increased transfusions, vasopressors and additional morbidity. Vasopressin is routinely used in the ICU to treat septic shock and other disease processes resulting in decreased vasopressin levels and low blood pressure. This study will investigate the potential benefit of early vasopressin supplementation during the resuscitation of trauma patients and the applicability of using copeptin as a vasopressin biomarker. Trauma patients who receive 6 or more units of blood product within 12 hours of arrival will be randomized to receive a vasopressin bolus plus infusion or a similar volume of a placebo (normal saline) for 48 hours. Serial blood samples will be taken for 5 days post-injury. Clinical and demographic data will be recorded prospectively.

Condition	Intervention	Phase
Traumatic Shock	Drug: Vasopressin	Phase 2

Study Type: Interventional
Study Design: Allocation: Randomized
Intervention Model: Parallel Assignment
Masking: Quadruple (Participant, Care Provider, Investigator, Outcomes Assessor)
Primary Purpose: Treatment

Official Title: AVERT Shock: Arginine Vasopressin During the Early Resuscitation of Traumatic Shock

Resource links provided by NLM:

Genetics Home Reference related topics: neurohypophyseal diabetes insipidus

MedlinePlus related topics: Diabetes Insipidus Shock

Drug Information available for: Arginine Argipressin Arginine Hydrochloride Vasopressin

U.S. FDA Resources

Further study details as provided by University of Pennsylvania:

Primary Outcome Measures:

- Number of Blood Products Transfused [Time Frame: 48 hours following the initiation of therapy]

Secondary Outcome Measures:

- Need for Vasopressor Requirement [Time Frame: 48 hours following the initiation of therapy]
- Development of Complications [Time Frame: 30 days post injury]

  Variables will include intra-abdominal hypertension, open abdomen free days, ventilator-free days, ICU-

free days, development of ARDS, development of renal failure, development of multiple organ failure, volume of crystalloid requirement within 48 hours post injury, and mortality.

Enrollment:	100
Actual Study Start Date:	May 1, 2013
Study Completion Date:	September 6, 2016
Primary Completion Date:	September 6, 2016 (Final data collection date for primary outcome measure)

Arms	Assigned Interventions
Active Comparator: Vasopressin Vasopressin will be given as an initial bolus (4 Units) followed by an infusion titrated between 0 units/min to 0.04 units per min to maintain a mean arterial blood pressure greater than or equal to 65 mmHg	Drug: Vasopressin After receiving greater than 6 units of blood product within the first 12 hours of admission, trauma patients will be randomized to either normal saline or vasopressin. Subjects will receive an initial 4 unit bolus followed by an infusion of 0 to 0.04 units titrated to maintain a mean arterial blood pressure of equal to or greater than 65 mmHg for a total of 48 hours.
Placebo Comparator: Normal Saline An initial bolus of normal saline will be given (10 cc) and an infusion of 0.1 ml per minute will be started and titrated down in as the mean arterial blood pressure reaches 65 mmHg or more.	Drug: Vasopressin After receiving greater than 6 units of blood product within the first 12 hours of admission, trauma patients will be randomized to either normal saline or vasopressin. Subjects will receive an initial 4 unit bolus followed by an infusion of 0 to 0.04 units titrated to maintain a mean arterial blood pressure of equal to or greater than 65 mmHg for a total of 48 hours.

Detailed Description:

Trauma remains the leading cause of death for those under the age of 40 in the United States, with a large percentage of patients dying from blood loss within the initial post-injury hours. Although resuscitation with intravenous fluids and blood products has remained the gold standard over the last twenty years, vigorous volume resuscitation may not be curative and has been associated with the development of serious complications including coagulopathy, acute lung injury, and abdominal compartment syndrome. Massive resuscitation also profoundly alters the neuroendocrine milieu needed to maintain vasomotor tone and these severely injured patients may progress to a state of recalcitrant hypotension, multi-organ failure, and ultimately death. The inclusion of vasoactive hormones during resuscitation could potentially prevent the profound hypotension seen in late stage shock, limit the need for aggressive volume and blood product resuscitation, and decrease the incidence of resuscitation-associated complications. As such, there exists an urgent need to evaluate novel resuscitation strategies that target neuroendocrine deficiencies in hemorrhagic shock. The hormone arginine vasopressin (AVP), in particular, may prove a useful adjunct during resuscitation. Secreted by the posterior pituitary, vasopressin is essential for maintaining vasomotor tone during hemorrhagic shock and low levels are associated with the development of catecholamine-resistant hypotension and profound venodilation. Trauma patients who require more than 5 units of blood products during their initial resuscitation are at risk for developing a vasopressin insufficiency, the need for vasopressor support, and often require longer ICU stays. Vasopressin has enjoyed widespread off-label use as a vasopressor in cardiac arrest, septic shock, and post-cardiopulmonary vasodilatory shock. The central hypothesis is that trauma patients who present in hemorrhagic shock are at risk for vasopressin deficiency

and would benefit from early vasopressin supplementation. This study will investigate if early use of vasopressin during the resuscitation of traumatic shock results in fewer blood transfusions, a decreased need for crystalloid resuscitation, and a lower incidence of resuscitation related complications.

Eligibility

Ages Eligible for Study:	18 Years to 65 Years (Adult)
Sexes Eligible for Study:	All
Accepts Healthy Volunteers:	No

Criteria

Inclusion Criteria:

- Trauma patients between the ages of 18 and 65 who require 6 or more units of blood product during their initial 12 hours of resuscitation will be considered for enrollment.

Exclusion Criteria:

- Patients with a traumatic brain injury requiring neurosurgical operative intervention or who have neurologic trauma deemed non-survivable will also be excluded.
- Patients with an active coronary syndrome, history of myocardial infarction or coronary artery disease will be excluded.
- Patients with known renal dysfunction requiring dialysis will be excluded.
- Patients who are pregnant will be excluded.
- Patients less than 18 years old will be excluded.
- Patients who have opted out by bracelet identification or by listing themselves on the "Non-Participant" roster.
- Patients under the jurisdiction of the department of corrections and considered prisoners prior to the initiation of the research intervention will be excluded

Contacts and Locations

Choosing to participate in a study is an important personal decision. Talk with your doctor and family members or friends about deciding to join a study. To learn more about this study, you or your doctor may contact the study research staff using the Contacts provided below. For general information, see Learn About Clinical Studies.

Please refer to this study by its ClinicalTrials.gov identifier: NCT01611935

Locations

United States, Pennsylvania

Hospital at the Unversity of Pennyslvania
Philadelphia, Pennsylvania, United States, 19104

Sponsors and Collaborators

University of Pennsylvania

National Trauma Research Institute

United States Department of Defense

Investigators

Principal Investigator: Carrie A Sims, MD, MS University of Pennsylvania

More Information

Responsible Party: University of Pennsylvania
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Individual Participant Data (IPD) Sharing Statement:
Plan to Share IPD: No

Keywords provided by University of Pennsylvania:
trauma
shock
vasopressin
blood transfusion

Additional relevant MeSH terms:

Shock	Vasopressins
Diabetes Insipidus	Arginine Vasopressin
Shock, Traumatic	Hemostatics
Pathologic Processes	Coagulants
Kidney Diseases	Vasoconstrictor Agents
Urologic Diseases	Antidiuretic Agents
Pituitary Diseases	Natriuretic Agents
Endocrine System Diseases	Physiological Effects of Drugs
Wounds and Injuries	

ClinicalTrials.gov processed this record on September 13, 2017