Hypotensive Resuscitation in Patients with Hemorrhagic Shock After Trauma

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The ROC team has initiated a new research project in the ED to determine the feasibility and safety of hypotensive resuscitation for the early resuscitation of patients with traumatic shock compared to standard fluid resuscitation.

Field Trial of Hypotensive Resuscitation versus Standard Resuscitation in Patients with Hemorrhagic Shock After Trauma: A Pilot Trial

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Study Intervention

- Subjects who are severely injured will be screened for enrollment prior to hospital arrival by British Columbia Ambulance Service paramedics
- Blunt and penetrating trauma patients with a prehospital systolic blood pressure (SBP) 90 mmHg are eligible. An intravenous is initiated and subjects are randomized
- Randomize to hypotensive resuscitation group: if the SBP is 70 mmHg, a 250cc bag of normal saline will be hung and maintained at a keep the vein open rate only
- If the SBP is < 70, the 250cc of normal saline will be given as a bolus. This process will be repeated until the SBP is 70 mmHg. The protocol will continue until 2 hours after ED arrival or until hemorrhage control has been achieved. Blood products can be given as needed
- Randomize to standard fluid resuscitation group: a 1000cc bag of NS will be hung and a 2000cc bolus will be given as rapidly as possible. Recheck SBP then the normal saline bolus will be stopped when the SBP exceeds 110 mmHg and restarted as necessary to maintain a goal SBP of 110 mmHg. Blood products can be given as needed
In-hospital Care

- Treatment according to randomization will continue for 2 hours after hospital arrival or until hemorrhage control is achieved whichever is first. Blood products are allowed
- A research designate will:
  - Document time of arrival and 2 hour end time for study period
  - Ensure the patient receives fluid management according to randomization group for the full 2 hour period or until hemorrhage control is achieved
  - Monitor IV fluid intake and ensure IV fluid documentation is complete
  - Obtain informed consent to continue participation in the study if feasible

Benefits

This feasibility study will determine if paramedics and hospital staff can provide care according to this trial design. If successful, a definitive trial will be launched to evaluate the effect on survival.

Risks

Hypotensive resuscitation could result in decreased organ perfusion resulting in acidosis, renal failure and increased risk of death. Conventional resuscitation may be associated with increased bleeding coagulopathy, acidosis, multi organ failure increased risk of renal failure and death.