

Evidence-Based Practice (EBP) - E189

Poster

Abstract Title:

The Use of Post Arrest Hypothermia in Trauma Resuscitation Patients: Is it Useful?

Authors:

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Background & Purpose:

One of the main goals towards survival of post cardiac arrest patients with return of spontaneous circulation (ROSC) has been the implementation of therapeutic hypothermia protocols. While these protocols are usually instituted in those patients who meet criteria for use, we aimed to determine its substantial benefit and use in trauma patients in the initial and sustained resuscitative phase who suffer cardiac arrest. Additionally, the current literature is void of any studies of the use of this protocol in trauma resuscitation patient populations.

Study/Project Design:

A 3-year retrospective chart review of trauma admissions suffering cardiac arrest post injury.

Setting:

A 13-bed Trauma Resuscitation Unit that receives greater than 6,500 trauma admissions per year.

Sample:

All trauma admissions from 2009 - 2011 sustaining cardiac arrest following trauma. Total sample size was 782. 301 survived cardiac arrest.

Procedures:

We conducted an analysis of retrospectively collected data on all patients admitted between January 1, 2009 and December 31, 2011 suffering cardiac arrest post injury either prior to arrival, upon arrival, or during trauma resuscitation care and who survived. Survivors were classified by mechanism of injury, those meeting the hypothermia therapy protocol inclusion criteria based on the existing evidence, those meeting the inclusion criteria of the implemented institutional hypothermia therapy protocol, and those meeting the inclusion criteria who were ultimately cooled. Further analysis was conducted on data of those meeting the evidence based inclusion criteria but did not meet the institutional inclusion criteria to determine the reason for exclusion.

Findings/Results:

Of the 782 trauma patients with cardiac arrest after traumatic injury, 301 (38.5%) survived the cardiac arrest. The mechanism of injury of the survivors included 143 (47.5%) penetrating trauma, 132 (43.8%) blunt trauma, and 26 (8.6%) other. Thirty seven survivors (12.2%) met the inclusion criteria based on existing evidence, with 26 (70%) of those patients suffering blunt trauma, 8 (21.6%) suffering penetrating trauma, and 3 (8.1%) as other. Five of the 37 survivors (13.5%) also met the inclusion criteria for the use of the institutional hypothermia protocol, with only 1 (20%) of the patients cooled and 4 (80%) not cooled. Of the remaining 32 survivors, 15 (46.8%) were excluded from the institutional hypothermia protocol for cooling due to hemorrhage, 4 (12.5%) due to exceeding the maximum window of 6 hours for treatment, and 5 (15.6%) due to sepsis.

Discussion/Conclusions/Implications:

While the known protective effects of TH on the brain and myocardium have shown to decrease mortality and improve neurological outcomes, no literature exists for its use in trauma resuscitation patients. Our review of its use in post arrest trauma patients suggests most survivors would not meet the inclusion criteria, most likely due to hemorrhage. Therefore, its use may be of little substantial benefit in these patients. Additionally, future research should be considered for use specifically in elderly post arrest trauma patients whose outcomes are already less than optimal following trauma.