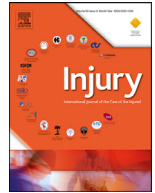




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## Letter to the Editor

## Considerations in hypothermia and polytrauma patients

To the editor:

We read with great interest the recently published article by Berwin et al. [1] about the management of polytrauma patients.

We commend the authors for this educational article. We would like to add some information about the management of accidental hypothermia in the polytrauma patient that should be considered. Accidental hypothermia increases mortality in polytrauma patients and should always be suspected in polytrauma patients [2]. Pre-hospital evaluation of hypothermia can be challenging. Clinical staging of hypothermia can be based on the Swiss staging system but may be unreliable when there are coexisting conditions like polytrauma [3]. The measurement of core temperature with a suitable thermometer is the best method to evaluate the hypothermia staging for treatment and triage purposes. In the intubated trauma patient, a probe in the distal third of the esophagus is an easy and reliable option (if no contraindication exists) that correlates well with core temperature [4,5]. However, the staging of the temperature in the awake patient can be challenging. Some devices in different anatomical places (urinary probe, rectal probe, epitympanic infrared or epitympanic thermistor-based probe, cutaneous devices) have been tested. The epitympanic thermistor-based probes are reliable for core temperature monitoring if they are designed for field use in cold environments, but availability is limited [6,7].

The hypothermia staging should modify the hospital allocation decision. When accidental hypothermia below 28°C is confirmed, cardiac arrest can occur easily, even more, if the hypovolemic shock is present or there is a heat redistribution by general anesthesia. Considering transferring trauma patients to an ECMO center should be taken into account in this scenario [8]. A few confirmed or suspected trauma cases with accidental hypothermia have been successfully resuscitated using ECLS (Extra Corporeal Life Support) [9,10]. In non-trauma cardiac arrest hypothermic patients, two prediction scores for ECLS resuscitation have been published, the HOPE ([www.hypothermiascore.org](http://www.hypothermiascore.org)) and the ICE score [11,12]. However, no prognostic scores have been developed to predict the ECLS therapy's success for trauma patients with hypothermia undergoing ECLS resuscitation. ECLS resuscitation can be complicated by volume depletion, traumatic and hypothermic coagulopathy, and the availability of cannulation sites for ECMO due to trauma injuries. If active bleeding is present or suspected, a FAST (focused assessment with sonography in trauma) and TEE (transesophageal echography) exams before ECMO entry should be considered [13]. If cannulation is finally performed, heparin-coated cannulas or decrease usual heparin circuit requirements are strategies to avoid increase bleeding, taking into account the fibrinolysis from trauma and hypothermia. Educational strategies to include

hypothermia management in the rescue-chain of survival in polytrauma patients should be promoted.

## Authors' contribution

**RB:** Conceived this letter, took part in manuscript preparation, and took responsibility for the paper as a whole.

**MA:** Conceived this substantially to the revision and design of the manuscript.

**IS:** Conceived this substantially to the revision of the manuscript.

**GS:** Conceived this substantially to the revision and design of the manuscript.

All authors read and approved the final manuscript.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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