

LETTER

Open Access

# The shock index for pre-hospital identification of trauma patients with early acute coagulopathy and massive bleeding

Pierre Pasquier<sup>1\*</sup>, Clément Dubost<sup>1</sup>, Brice Malgras<sup>2</sup>, Kevin Kearns<sup>1</sup> and Stéphane Mérat<sup>1</sup>

See related research by Tonglet et al., <http://ccforum.com/content/18/6/648>

We read with interest the article by Tonglet and colleagues [1], who evaluated the efficacy of the Trauma-Induced Coagulopathy Clinical Score (TICCS) to discern between major trauma patients who require damage control resuscitation and those who do not. TICCS, an easily and rapidly computed score by paramedics at a trauma scene, is based on three clinical components: general severity of the trauma, blood pressure (BP), and extent of tissue injuries. We would like to go further into the discussion and propose that shock index (SI) could be a more reliable component than BP for TICCS calculation. SI is defined as the ratio of heart rate (HR) to systolic BP. This easily calculable score has been demonstrated to be a pragmatic and useful guide for diagnosing acute hypovolemia, even in the presence of normal HR and BP. SI has been shown to correlate with other indices of end-organ perfusion, such as central venous oxygen saturation and arterial lactate concentration [2]. In place of HR or systolic BP alone, SI has been used as a marker for severity of injury and poor outcome in trauma patients. Rady and colleagues [3] found that, in a cohort of 275 adult patients, SI of more than 0.9 was associated with worse outcomes in trauma patients. Finally, a pre-hospital SI for trauma correlates with measures of hospital resource use and mortality [4,5]. We would like to know whether the authors could give their opinion regarding the calculation of SI for pre-hospital identification of trauma patients with early acute coagulopathy and massive bleeding, including its potential usefulness for TICCS evaluation.

## Abbreviations

BP: Blood pressure; HR: Heart rate; SI: Shock index; TICCS: Trauma-Induced Coagulopathy Clinical Score.

\* Correspondence: [pasquier9606@me.com](mailto:pasquier9606@me.com)

<sup>1</sup>Intensive Care Unit, Bégin Military Teaching Hospital, 69 avenue de Paris, 96160 Saint-Mandé, France

Full list of author information is available at the end of the article

## Competing interests

The authors declare that they have no competing interests.

## Author details

<sup>1</sup>Intensive Care Unit, Bégin Military Teaching Hospital, 69 avenue de Paris, 96160 Saint-Mandé, France. <sup>2</sup>Department of Surgery, Val-de-Grâce Military Teaching Hospital, 74 boulevard de Port Royal, 75005 Paris, France.

Published online: 27 March 2015

## References

1. Tonglet ML, Minon J, Seidel L, Poplavsky J, Vergnion M. Pre-hospital identification of trauma patients with early acute coagulopathy and massive bleeding: results of a prospective non-interventional clinical trial evaluating the Trauma Induced Coagulopathy Clinical Score (TICCS). *Crit Care*. 2014;18:648.
2. Rady MY. The role of central venous oximetry, lactic acid concentration and shock index in the evaluation of clinical shock: a review. *Resuscitation*. 1992;24:55–60.
3. Rady MY, Smithline HA, Blake H, Nowak R, Rivers E. A comparison of the shock index and conventional vital signs to identify acute, critical illness in the emergency department. *Ann Emerg Med*. 1994;24:685–90.
4. Vandromme MJ, Griffin RL, Kerby JD, McGwin Jr G, Rue 3rd LW, Weinberg JA. Identifying risk for massive transfusion in the relatively normotensive patient: utility of the prehospital shock index. *J Trauma*. 2011;70:384–8.
5. McNab A, Burns B, Bhullar I, Chesire D, Kerwin A. A prehospital shock index for trauma correlates with measures of hospital resource use and mortality. *Surgery*. 2012;152:473–6.