

Physiologically-guided Balanced Resuscitation: An Evidence-based Approach for Acute Fluid Management in Paediatric Major Trauma

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Abstract

Trauma is a major cause of death, and haemorrhage represents an important target for improving outcomes after severe injury. Volume replacement with crystalloids in resuscitation might become harmful in large amounts because of coagulopathy. A fine balance must be achieved between haemodynamic and haemostatic resuscitation. Permissive hypotension refers to permitting some degree of hypotension in such adult patients in an attempt to attain this fine balance. For patients who require a significant volume of blood product resuscitation, the term ‘massive transfusion protocol’ (MTP) is used. There is very little data on transfusion protocols for paediatric trauma patients, and children respond to hypovolemic shock in a different physiological manner compared to adults. Hence, concepts such as permissive hypotension may not be appropriate when treating children involved in major trauma. We recently embarked on a plan to streamline the management of blood transfusion in massive bleeding during paediatric trauma, to reduce the logistical problems associated with the transport of blood products from the blood bank to the patient. From this, we evolved a MTP for paediatric major trauma. Nonetheless, further studies will be needed to see if there is indeed improved outcome after MTP in paediatric major trauma as current evidence is extrapolated from adult studies.

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