



Aims:

- Outline the principles of pre-hospital fluid resuscitation
- Define the indications for pre-hospital fluid resuscitation in trauma patients
- Outline the issues surrounding resuscitation of the non-traumatic shocked patient

Background:

Trauma patients

In the pre-hospital setting, in situations where blood and blood products are not available, administration of intravenous fluids is restricted to a volume sufficient to maintain certain clinical or physiological end points. A strategy of permissive hypotension may have morbidity and mortality advantages in the setting of ongoing uncontrolled haemorrhage. For patients with moderate or severe head injury, any period of significant hypotension increases mortality so resuscitation principles for these patients may be altered.

Medical patients

There are a number of medical causes of hypotension and fluid resuscitation may not always be the correct treatment. Sepsis, anaphylaxis, and profound hypovolaemia (for example from ongoing GI losses) are examples of conditions in which pre-hospital administration of fluids would be appropriate.

Policy:

Trauma

When splintage and haemorrhage control has been maximised then fluids should be administered according to the following guidelines:

Head Injury:

- Infuse 250 ml boluses of crystalloid to achieve systolic blood pressure of 100mmHg

Blunt Injury (without head injury) and penetrating injury:

- Infuse 250ml boluses of crystalloid to achieve verbal contact which is taken to indicate adequate cerebral perfusion. The absence of a radial pulse should also prompt consideration of intravenous fluid administration
- Where verbal contact is not achievable (unconscious/ventilated patient) – infuse 250ml boluses of crystalloid to achieve systolic blood pressure of 80mmHg.
- Where patients demonstrate signs of haemodynamic compromise, the receiving Emergency Department should be informed during the pre-alert call, and consideration given to requesting that blood and clotting factors be made available. With blood available the decision to transfuse or not can be made by the receiving trauma team.

Non-trauma

- Patients with medical causes of shock may generate a HEMS response if they are critically unwell or have become unwell in a remote location
- Fluid resuscitation is not always the most appropriate treatment of shock and each patient should have a focused clinical assessment to determine the underlying aetiology
- Once it is decided that fluid resuscitation is required, the type, volume and rate of fluid administered is dependent on the individual clinical situation. For example, patients with distributive shock (such as sepsis or anaphylaxis) are likely to require large volumes of fluid in the early stages of their treatment and it may be appropriate to begin to provide this volume as soon as possible, in the pre-hospital phase.