

Does the use of blood products in a pre-hospital setting increase survival to one month in trauma patients? A systematic review

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Background: Major haemorrhage is a leading cause of mortality for the traumatically-injured patient. While it is best practice to replace lost blood with blood products in the hospital setting, it is currently not established practice to transfuse hypovolaemic patients with blood products at the scene of trauma.

The evidence has been lacking to support this practice, but the findings of a major trial published in 2022, in combination with other studies in recent years, add to the evidence base and can now help to answer the question of whether the practice of pre-hospital transfusion improves mortality outcomes.

Aim: To analyse the evidence for the use of blood products in trauma patients in a pre-hospital setting and ascertain its impact, if any, on survival.

Methods: We performed a systematic review of the literature for studies where the effects of transfusing blood or blood products to adult trauma patients in the pre-hospital setting were compared to those of infusing crystalloid fluids alone. Primary outcome was one-month mortality. We obtained measures of effect for each study by calculating risk ratios with 95% confidence intervals. We performed a meta-analysis to assess pooled effect size.

Results: Analysis performed on a total of 1,393 patients across six studies (four randomised controlled trials, one cohort study and one case-control study) showed no statistically significant change in one-month mortality for the blood products group compared to the crystalloid fluid-only group (pooled risk ratio = 0.9, 95% CI = 0.77, 1.04). This result was similar to our separate analysis of the randomised controlled trials alone (pooled risk ratio = 0.91, 95% CI = 0.77, 1.08).

Conclusion: Based on data from the currently available literature, the administration of blood products to patients with haemorrhagic trauma in the pre-hospital setting does not lead to a statistically significant benefit in one-month survival when compared to resuscitation with fluids alone.

