Resuscitation with pre-hospital blood products in adults with trauma-related haemorrhagic shock: the RePHILL RCT

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Plain language summary

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Plain language summary

Blood and plasma are life-saving treatments for people with severe bleeding following major traumatic injury. Until recently, they could only be administered in hospital. The Resuscitation with Pre-Hospital Blood Products (RePHILL) trial tested whether providing these treatments before the injured person arrives in hospital was better than current NHS treatment (a clear fluid called 0.9% saline).

We worked with NHS ambulance services, air ambulance charities, blood transfusion laboratories, blood bikers and the NHS major trauma networks to make blood and plasma available to patients outside the hospital. Blood banks prepared sealed boxes according to a schedule prepared by the research team. Half the boxes contained blood and plasma (treatment) and half contained salty water (control). The pre-hospital critical care teams did not know what was in the sealed boxes.

Critical care doctors and paramedics assessed people who had sustained major traumatic injuries. People with severe bleeding and a critically low blood pressure were recruited into the trial. The critical care team opened the sealed box and administered the contents of the box (blood/plasma or saline). The trial compared how effective the treatments were by looking at a combined outcome comprising (1) how quickly the body cleared a waste product called lactate and (2) whether the individual died.

Four hundred and thirty-two people participated in the trial, slightly less than the 490 planned due to the trial being interrupted by COVID-19. Two hundred and nine people were in the blood/plasma group and 223 in the 0.9% saline group. The combined outcome of lactate clearance and mortality was very similar between the two groups occurring in around 6 out of 10 people in each group.

Further research is required to work out who might benefit from pre-hospital blood/plasma and how best to measure that benefit in future trials.

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