

AAST Multicenter Trials Committee Update

Study highlight: A multi-institutional, prospective observational study on impact of pre-hospital whole blood on mortality in severely injured trauma patients

Hemorrhage is a major source of morbidity and mortality for trauma patients. Nearly 30% of pre-hospital trauma deaths and over 20% of in-hospital trauma deaths are due to hemorrhagic shock. Blood product transfusion until hemorrhage control is achieved has been shown to improve mortality. Trauma resuscitation in hemorrhagic shock has progressed from use of crystalloid fluids (CF), to balanced component transfusion therapy (BCT), and most recently toward the administration of whole blood (WB). Transfusion of WB or BCT restores the oxygen-carrying capacity of the circulating volume by maintaining oncotic pressure and hemoglobin concentrations, while decreasing the risk of trauma induced coagulopathy. WB was the mainstay of resuscitation in the military setting until the 1970's, at which point blood component storage and crystalloids evolved as an inexpensive alternative to increase circulating volume. However, lessons learned in the military setting have fueled, in part, the resurgence of WB use in civilian trauma. Optimizing both the product offered as well as the timing of administration could dramatically reduce mortality and the associated morbidity of trauma patients, diminishing a key preventable cause of death.

In a randomized control trial, Guyette *et al* demonstrated lower red blood cell transfusion requirement at 24 hours and improved hemostatic characteristics in those who received pre-hospital WB as compared to component therapy. Similarly, a single institution study by Braverman *et al* demonstrated improvement in shock index and ED mortality in those who received pre-hospital WB. However, large prospective studies examining the impact of pre-hospital WB on transfusion requirements and mortality is lacking.

The aim of this study is to investigate use of pre hospital WB + ED WB combined with component transfusions versus in-hospital WB combined with component transfusions alone, with specific attention to intensive care unit (ICU) length of stay (LOS), 4-hour and 24-hour packed red blood cells (pRBCs) transfusion volumes, and in-hospital mortality in adult civilian trauma patients sustaining injuries severe enough to merit administration of an MTP within the first 4 hours of arrival to the hospital. To our knowledge, there are presently no studies addressing this specific question.

If interested in participation in this study, please contact Dr. Asanthi Ratnasekera at

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