



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Hemorrhage Control and Resuscitation

The Safety of Early, Fresh Whole Blood (FWB) Transfusion among Severely Battle Injured at US Marine Corps Forward Surgical Care Facilities in Afghanistan

In Afghanistan, care of the acutely injured trauma patient commonly occurred in facilities with limited blood banking capabilities. Apheresis platelets were often not available. Component therapy consisted of 1:1 packed red blood cells and fresh frozen plasma. FWB transfusion often augmented therapy in the severely injured patient. The NHRC and NMCSO collaborated to analyze the safety of FWB use in a resource-limited setting. Using the NHRC's comprehensive EMED, severely injured Service Members presenting to three US Marine Corps expeditionary surgical care facilities in Helmand Province, Afghanistan, between January 2010 and July 2012 were examined. Included in the review were patients with ISS of 15 or higher receiving blood transfusions. A total of 61 patients were identified; all were male Marines with a mean age of 23.5 years (standard deviation = 3.6), 89 percent were injured by blasts, and 74 percent suffered at least one traumatic amputation. The group receiving FWB was noted to have higher ISSs and lower blood pressure and base deficits on arrival, and all but one (25/26, 96 percent) were injured by blasts. Results showed that traumatic coagulopathy was significantly less common in the group receiving FWB. Multivariable models found no other significant differences between the treatment groups. The early use of FWB in a resource-limited setting seemed to confer a benefit in reducing traumatic coagulopathy in this population. More research is needed to determine the overall safety of FWB use.

In a resource-limited setting where TBIs are prevalent, the early use of FWB seems to confer a benefit in reducing traumatic coagulopathy. This finding is particularly noted when associated with procoagulant use. NHRC's findings contribute to a developing body of literature advocating for FWB use in appropriate settings. FWB is potentially a superior therapy for casualties requiring massive transfusion in facilities with limited blood-banking capabilities. The small sample size of the study precludes further statement on the overall safety of FWB use, and further research on the topic is needed. These findings may have significant implications to physicians developing contingency plans for trauma care delivery during times of natural or manmade disasters.