EAST MULTICENTER STUDY PROPOSAL

(Proposal forms must be completed in its entirety, incomplete forms will not be considered)

GENERAL INFORMATION

Study Title:
Prospective Analysis of Type A Plasma as an Alternative to AB Plasma in Massive Transfusion

Primary investigator / Senior researcher:
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Co-primary investigator:
Martin Zielinski

BACKGROUND AND SIGNIFICANCE

Type AB (universal donor) is considered by most to be the optimal plasma type for massive transfusion protocols (MTP's) because of its universal compatibility. However, since only 2% of the population is blood type AB, availability of type AB plasma can be scarce, particularly when large quantities are needed for severe injuries or multiple patients. Type A plasma has been used as an alternative to type AB plasma in case series (1,2) with no reported complications. Many blood banks have existing policies for using type A plasma during AB plasma shortages. However, no large studies have measured the effect of such a policy on fulfilling the plasma need during MTP's and its complication rate. We hypothesize that type A plasma use can decrease or eliminate delays in providing plasma to patients receiving blood products according to an MTP.

The specific aims of this multicenter study are:

Primary aim:

1. Determine whether using type A plasma, as an alternative to or in addition to AB plasma as part of a massive transfusion protocol, reduces delays in plasma delivery.

Secondary aims:

1. Determine whether type A plasma, as an alternative to or in addition to AB plasma as part of a massive transfusion protocol, is associated with transfusion reaction.

2. Determine whether type A plasma, as an alternative to or in addition to AB plasma as part of a massive transfusion protocol, reduces mortality

EXPERIMENTAL DESIGN/METHODS

Inclusion Criteria:
Patients ≥ 15 years, meeting MTP criteria

Exclusion Criteria:
Centers may not participate if they: Do not have an MTP, do not keep at least 2 units of thawed plasma or cannot achieve an IRB exemption from the requirement for informed consent for prospective de-identified data collection

Subjects may not be included if they: Died before ACTIVATION of the MTP, imposed limits upon their resuscitation (Jehovah's witnesses, DNR, withdrawal of care in the first 8 hours)

Therapeutic Interventions:

Centers using thawed plasma for MTP's are eligible to participate. Centers must keep at least 2 units of either AB or type A plasma thawed and ready. Using each institution's specific MTP, in circumstances where the MTP demands delivery of thawed plasma and the patient's blood type has not yet been determined, type AB or type A will be dispensed according to the MTP. According to local protocol, centers may choose to pre-titer an inventory of low-titer group A plasma. Routinely testing or keeping low titer A plasma available requires extra tech time and potential issues associated with blood wastage but this choice will be left to individual centers.

By collecting each center's number and type of available units and then measuring time between activation and availability of thawed plasma units, we will determine whether availability of thawed type A plasma increases rate of plasma delivery to the patient and decreases the delays required to thaw additional AB plasma.

If no specific interventions are required and this is only a retrospective or prospective observational study, include that language here. Such as: "Prospective observational study only. Patients will be managed according to surgeon's discretion."

Outcomes Measures:
Primary Outcome:
(List here)
Time between MTP activation and availability of plasma for initial and subsequent cycles

Secondary Outcomes:
(List here)
Transfusion reactions
Mortality

Variables:

Institutional Data
Number of annual trauma service evaluations aged ≥ 15 years
Mean ISS
thawed plasma of each type
MTP cooler contents for each round (RBC, plasma, platelet)
Whether type A is used (Y/N)
If YES to type A, is low-anti-B titer required/used
If YES, what titer (eg, <1:16)
Whether type AB is used (Y/N)
Overall center mortality in 2014

Data for Each Case
Age
Gender
ISS
Penetrating/Blunt
Injury time
Admission BP
Admission HR
Admission GCS
Admission time
Time MTP activation
Time to first cooler available
First cooler make-up (inc type)
Time to request of 2nd cooler (or availability time of #1 if automatic)
Time to 2nd cooler available
2nd cooler make-up (inc type)
Time to request of 3rd cooler (or availability time of #2 if automatic)
Time to 3rd cooler available
3rd cooler make-up (inc type)
Cooler request, prep, makeup, etc
Total RBC in 8hrs, 24hrs and 28 days
Total plasma 8hrs, 24hrs and 28 days
Total platelet in 8hrs, 24hrs and 28 days
IVF in 8hrs and 24hrs
Mortality at 8hrs, 24hrs and 28 days from arrival
Transfusion reactions reported to blood bank

Data Collection and Statistical Analysis:

Data will be collected in RedCap

- Time to between MTP activation (or cooler request) and availability of plasma will be compared for cases in which type A was used and cases in which type AB was used. Whether the center uses type A and whether type A was used for initial or subsequent rounds of the MTP will be used as an independent variable in a regression analysis to determine whether an association exists between type A use and plasma availability, correcting for center-specific factors.
- It is not expected that this study will be adequately powered to determine a mortality benefit with the use of type A plasma but this analysis will be performed.
- Data will be reported as adjusted odds ratios with 95 % confidence intervals. Statistical significance will be set at a $p<0.05$.

Consent Procedures:

This is a prospective observational study, designed to prospectively record data on patients who are managed according to institutional patient management protocols. Thus, waiver of informed consent is requested. Data will be recorded on a data sheet and transferred to a secured database that is devoid of patient identifiers.

Risk/ Benefit Analysis:

Limited availability of AB plasma can result in delayed availability of FFP for MTP. Use of type A may therefore prevent delay, achieve optimal FFP:RBC ratios and improve outcome. If reduction of delays can be achieved with low incidence of complications, low-titer type A may be adopted more widely.

Instructions for submitting data collection tools:
All data submissions should be entered through the EAST Multicenter Trial Taskforce website portal. Instructions can be found on the EAST website. The data collection sheet located under the Multicenter Trial Taskforce heading for this study can be utilized to record the data, and then the information transferred to the portal entry system. For any questions regarding this study, please contact the PI.

References:

1. Zielinski MD, Schrager JJ, Johnson P, Stubbs JR, Polites S, Zietlow SP, Jenkins DH, Robinson BR. Multicenter Comparison of Emergency Release Group A versus AB Plasma in Blunt-Injured Trauma Patients. Clin Transl Sci. 2014 Sep 9, epub.
2. Zielinski MD1, Johnson PM, Jenkins D, Goussous N, Stubbs JR. Emergency use of prethawed Group A plasma in trauma patients. J Trauma Acute Care Surg. 2013;74(1):69-74.