Massive Transfusion Protocols: The Unintended Impact on Organ Donation

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Disclosures:
Nothing to Disclose

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Objectives

**Identify**
Identify the effects of massive transfusion protocols on the organ donors

**Explore**
Explore challenges encountered with donors receiving massive transfusion of blood products

**Determine**
Determine how to proceed with obtaining donor ABO type and HLA tissue typing
Case Presentation

- Brain dead donor who came into the hospital following a motor vehicle accident
- Patient received massive transfusion protocol en route to the hospital
  - Blood products given were O negative
- ABO type was determined to be O negative
- Family members were not aware of the patient’s blood type
Massive transfusion protocols

- Massive bleeding considered a major cause of death
- Massive transfusion protocols led to improved outcomes in trauma patients
- More common over the past few years

- J Trauma Acute Care Surg. 2019 Mar;86(3):493-504
Massive transfusion protocols

• Rapid transfusion of blood products in the trauma patient
  • Whole blood
  • Packed red blood cells
  • Fresh frozen plasma
  • Platelets
• Blood type O negative
• Allowed on EMS ambulances and helicopters
Donor ABO Challenges

- Pre-transfusion blood sample
- Documentation from blood bank
- Family awareness of donor’s blood type
ABO Policy
2.6.A Deceased Donor Blood Type Determination

• Be drawn on two separate occasions
• Have different collection times
• Be submitted as separate samples
• Have results indicating the same blood type
Case Presentation

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What's next?
Donor ABO Results after Massive Transfusion

- ABO cannot be determined
- ABO confirmed as blood type O
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LifeGift experience

2 donors in a five-day period with massive transfusion of whole blood

1 more donor in the following 45 days

All donors suffered extensive traumatic injuries

No pre-transfusion blood sample available
Case Presentation

- ABO type administratively determined to be AB
- Tests required to generate organ match lists
  - ABO type
  - HLA tissue typing
  - Serology testing
    - Could run pre-serology results
HLA Tissue Typing

Whole blood includes lymphocytes
HLA Tissue Typing

- Consulted with several HLA lab directors
  - No experience = No definitive answer
  - Very small transfusion-associated microchimerism
  - Unlikely to disturb tissue typing in organ donors
HLA Tissue Typing Options

- Blood sample
- Lymph nodes
HLA Tissue Typing Results

- Blood sample sent to regular lab
- Lymph node sample sent to local lab
Case Presentation

- Match lists generated
- Organs allocated
- Organ recovery surgical procedure scheduled
Donor Recovery Outcomes

All suitable organs were pursued

All allocated organs were recovered for transplant
All transplant centers were confused

No ABO source documentation
Conclusions

• Massive transfusion protocols increasing in frequency
  • Whole blood becoming widely available to EMTs

• Pre-transfusion blood samples ideally taken prior to transfusion
  • 2 samples with different times
  • Challenging during emergent resuscitation efforts

• HLA Tissue typing effects to be determined
  • No discrepancies on our small sample of cases
  • LifeGift to continue inguinal lymph nodes and blood sample on these cases