Tidewater EMS Council, Inc.

Whole Blood w/ARC Administration (Pediatric)

GOALS

- Initiate early resuscitation with whole blood to provide rapid correction of anemia, coagulopathy, acidosis, and hypothermia
- Use warmed whole blood to replace the loss of the oxygen carrying capabilities due to hemorrhage and treat all four parts of the **Death Diamond of Trauma: Coagulopathy, Acidosis, Hypothermia, Hypocalcemia**
- Provide direct replacement of all blood components at once with administration of whole blood, minimizing complications and complexity of component therapy

TREATMENT

- Indications for medical etiology may include: GI Bleed, OBGYN emergencies (ruptured ectopic pregnancy, severe vaginal bleeding, etc.), vascular emergencies (uncontrolled bleeding from shunt, fistula, etc.), hemorrhage secondary to recent major surgery, or other medical hemorrhage situations
- Keep trauma patients covered, well oxygenated, and stop active hemorrhage
- Any trauma patient with concern for hemorrhage and a systolic blood pressure ≤ 70 mmHg may receive Whole Blood administration
- Patients still showing signs of shock after the administration of 10 cc/kg of Whole Blood may receive an additional 10 mL/kg administration of Whole Blood if available, with Medical Control Order only
- Large bore IV/IO 20 g or higher is required for blood transfusion
- Do not give medications through the whole blood IV/IO set
- Utilize alternate access for medication administration via IV/IO while blood products are being administered
- Clinical criteria for whole blood may include anticoagulant medications (not anti-platelet):
  - Anticoagulants include: Heparin, Lovenox, Coumadin, Eliquis, Xarelto, Paradaxa, etc.
  - Antiplatelets include: Aspirin, Plavix, Effient, Aggrenox, Ticlid, etc.
- **Contraindications** to ARC Bundle: Time of Injury > 1 hr, Hemorrhage from Medical Etiology

SPECIAL CONSIDERATIONS

- Individual and/or agency use requires OMD approval and successful completion of a TEMS OMD committee approved course
- Transport should not be delayed for the administration of Whole Blood
- Transport to the closest appropriate facility based on trauma center criteria and TEMS trauma triage plan
- Stop the transfusion immediately if a patient shows signs of an adverse reaction at any point, monitor the patient closely, and incorporate other appropriate protocol(s) as needed
- If whole blood is immediately available, consider attempting resuscitation and incorporating this protocol on patients experiencing cardiac arrest from penetrating trauma with minimal downtime, pseudo PEA, etc.
- Pre-hospital providers should transfer trauma patients with uncontrolled airway, uncontrolled hemorrhage, or if there is CPR in progress to the closest hospital for stabilization and transfer
- An existing catheter can be utilized as an alternative site to administer Whole Blood when IV or IO access is unsuccessful or inappropriate

PEDIATRICS

- See Whole Blood Protocol (Adult) for age range ≥ 14yo
- Not indicated for age < 5yo

Whole Blood w/ARC Administration (Pediatric)

Clinical Criteria for Whole Blood:

Systolic Blood Pressure ≤ 70

OR

Penetrating Trauma Any 1 below:
Blunt Trauma or Medical Etiology Any 2 below:

- Systolic Blood Pressure ≤ 90
- Narrow Pulse pressure ≤ 45
- Heart Rate >120
- Shock Index (HR/SBP) ≥ 1.2
- ETCO2 < 25
- AMS without obvious head trauma
- Anti-coagulant use (not anti-platelet)
- Obvious significant external hemorrhage

Treatment per Bleeding Control Protocol

Patient 5-13yo with Hemorrhage?

NO

YES

Meets Clinical Criteria for Whole Blood?

NO

EXIT to APPROPRIATE Protocol

YES

Transport to CHKD

P Administer 10 mL/kg Low Titer Type O+ Whole Blood IV/IO

Monitor for Adverse Reaction
Reassess All Vitals Every 5 min:
HR, RR, SPo2, ETCo2, EKG, Temp

HR >120, SBP ≤70, or Shock Index ≥1.2?

NO

YES

M P Administer 10 mL/kg Low Titer Type O+ Whole Blood IV/IO

Monitor for Adverse Reaction
Reassess All Vitals Every 5 min:
HR, RR, SPo2, ETCo2, EKG, Temp

M Contact Medical Control

ARC Bundle

15mg/kg Tranexamic Acid (TXA) IV/IO (max 1g) *over 1 minute*
AND
30mg/kg Calcium Gluconate IV/IO (max 1g)

Contraindications:
Time of Injury > 1 hour
Hemorrhage from Medical Etiology

DO NOT administer in the same IV/IO line as WHOLE BLOOD without flushing thoroughly

Adverse Reactions

Discontinue transfusion IMMEDIATELY if there are signs of an adverse reaction at any time:

- Hives, itching, or wheezing
- Any indication of Anaphylaxis
- Unexplained syncope

Incorporate other associated protocol(s) as needed to treat adverse reactions