

Adult Trauma Massive Transfusion Guideline

Purpose: To provide Trauma Surgeons with guidance regarding safe, efficient and effective procurement and delivery of blood products is provided for hemodynamically unstable patients needing rapid transfusion (rapid restoration of intravascular blood volume while maintaining oxygen carrying capacity and coagulability of the blood).

Scope: Trauma patients requiring a transfusion approximating or exceeding the patient's blood volume within a 24 hour interval.

Protocol:

A. Physician Responsibilities:

1. Initiate and then manage the MTP.
2. Complete the MTP order set, ensuring that all prerequisite orders have been completed.
3. Review and give orders for rapid TEG analysis and interventions utilizing interpretation guide in MTP appendix.
4. Give orders to correct medically significant hypothermia, hypocalcemia; or electrolyte, osmolar, blood gas and acid-base disturbances.
5. Order the cessation of the MTP when the patient's condition stabilizes or end point resuscitation goals are met.

B. Nursing Responsibilities:

1. Activate Transfusion Team when indicated.
2. Notify the Blood Bank of the initiation of the MTP. This is the responsibility of the charge nurse, patient's primary nurse, or designee, under the direction of the physician managing the MTP.
3. Properly identify the patient per hospital policy.
4. Ensure 2 large bore (18 gauge or larger) IV's (or comparable access) are patent and secure.
5. Draw blood specimens for analysis as outlined in MTP protocol.
6. Initiate the MTP worksheet. Follow orders as per the MTP order set.
7. Arrange for transport of massive transfusion packs from the Blood Bank to the patient location.
8. Document patient information on blood administration record.

9. Administer blood products, using pressure bags or rapid transfusion as indicated.

NOTE: Do not transfuse platelets or cryoprecipitate through Level I or warming device. May utilize pressure bag.

10. Monitor patient temperature, vital signs, respiratory status, cardiac rhythm and response to transfusion.

10. Monitor for complications: Hypothermia, hyperkalemia, hypocalcemia, altered oxygen carrying capacity, transfusion reaction.

11. Maintain normothermia (35°C - 37°C) by administering fluids warmed to 40°C; utilizing Bair Hugger or Gaymar Wraps as needed; increasing ambient room temperature; utilizing ventilator humidifier as necessary.

12. Notify Blood Bank when cessation of MTP has been ordered by physician managing the protocol.

C. Blood Bank Responsibilities:

1. Prepare blood products as per the MTP Blood Product Shipment & Lab Value Schedule located in MTP protocol.

2. Provide type specific or crossmatched blood whenever possible. Patients can be transfused with un-crossmatched blood if the physician determines the risks involved with transfusing un-crossmatched blood to be less detrimental to the patient than the risks of delaying transfusion.

3. Notify nursing unit if any issues arise regarding the procurement or delivery of blood products.

D. Laboratory Responsibilities:

1. Have personnel available to draw blood specimens and perform lab tests as outlined on the MTP Blood Product Shipment & Lab Value Schedule.

E. Handling of Blood Products

1. Red blood cell products and plasma must remain in the blood product cooler until administered.

2. Platelets and Cryoprecipitate must remain at room temperature and are NEVER placed in the cooler.

3. Unused blood products are to be transported with the patient to any new location if still needed.

E. Termination of MTP:

1. The physician responsible for managing the MTP will order cessation of the MTP when the patient's condition stabilizes or end point resuscitation goals are met:

NOTE: Numerical transfusion-related resuscitation goals are general goals. Numerical goals should not take precedence over clinical and physiological assessment of the patient.

- a. Prothrombin Time less than 18 seconds; PTT less than 42 seconds
- b. Fibrinogen greater than 100 mg per dl
- c. Platelets greater than 50,000
- d. Hematocrit greater than 24%
- e. Base deficit less than 5.0
- f. Core temp greater than 35.5° Celsius

2. The patient's nurse or designee will notify the Blood Bank when cessation of the MTP has been ordered.

F. Re-initiation of MTP:

1. If the MTP has been discontinued prior to Shipment 10, the protocol may be reinitiated from the point at which it was discontinued.

References:

A. Bormanis, J. Development of a massive transfusion protocol. *Transfusion and Apheresis Science*. 2008; 38: 57-63.

B. Perkins, J, Cap.A, Weiss, B, et al. Massive transfusion and nonsurgical hemostatic agents. *Critical Care Medicine*. 2008; 36 (7) (Supl.); 5325 – 5339.

C. O'Keefe, T, Refaai M, Tchorz, K, et al. A massive transfusion protocol to decrease blood component use and costs. *Arch Surg*. 2008; 143 (7): 686-691.

REVIEW/REVISION HISTORY

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