Blood Transfusion – Promoting Safe Nursing Practice and Massive Transfusion Update

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Objectives

- Explain how to enhance patient safety using the concepts presented in blood transfusion management
- Discuss evidence-based practice in management of massive transfusion protocols
- Discuss the signs/symptoms and collaborative management of TACO & TRALI

Specialty Products

- Leukoreduced
- Irradiated
- Washed

Massive Transfusion vs Massive Transfusion Protocol

- Massive transfusion is defined as the replacement of PRBC’s (usually 10 units of blood) in 24 hours
- The primary goals of a Massive transfusion protocol are:
  - 1. Timely, coordinated access to adequate blood supply
  - 2. Prevention of coagulopathy in the exsanguinating patient
- Patients CAN be massively transfused without ever enacting a massive transfusion protocol

Massive Transfusion Cont.

- (Massive Transfusion Protocols): may apply to the following cases:
  - Known patient, known time: transplant surgeries, whipple procedures, tumor resections.
  - Unknown patient, trauma: ER trauma, ruptured aorta, GI bleed, obstetric hemorrhage.

Nursing Practice and Massive Patients CAN be massively transfused without ever enacting a massive transfusion protocol.
Massive Transfusion Protocol Cont.

- Ratio examples: 4:2:1, 5:5:1, 4:4:1
- Labs monitored: H/H, Pt Cl, Pt/INR, PTT, FIB, ABG’s
- Goals of MTP:
  1. Prevent coagulopathy
  2. Provide enough product to prevent ‘bleeding out’
  3. Prevent organ failure, cardiac damage and hypoxia

Massive Transfusion Protocol Concerns

- Hypothermia
- Citrate Toxicity resulting in metabolic alkalosis and hypocalcemia
- Hyperkalemia

TRALI

- Transfusion Associated Acute Lung Injury
- Symptoms include respiratory distress and severe hypoxia within 6h of transfusion with the ABSENCE of other causes of acute lung injury, hypotension, fever.
- Clinically: O₂ sat ≤90% on room air, bilateral infiltrates on frontal chest x-ray, no evidence of left atrial hypertension

TACO

- Transfusion Associated Circulatory Overload
- Patient’s cardiovascular system is unable to handle the additional workload from the transfusion, manifesting in congenital heart failure
- Symptoms include respiratory distress, hypoxemia, cough, headache, chest tightness, hypertension, jugular vein distension

Questions?
Mikhail, J. Massive Transfusion in Trauma: Process and Outcomes.


Kor, D. Blood Transfusion; Top blood transfusion-related complication more common than previously reported. Medical Devices & Surgical Technology Week, 2015:672-676.


References