

P 8 Hemorrhage

Acute massive bleeding

START

- 1 **Call for help (Anesthesia FW 662-4351)**
 - ▶ Ask: “Who will be the crisis manager?”
 - 2 **Open IV fluids and assess for adequate IV access**
 - 3 **Turn FiO₂ to 100% and turn down volatile anesthetics**
 - 4 **Call blood bank (662-2121)**
 - ▶ Activate massive transfusion protocol
 - ▶ Assign 1 person as primary contact for blood bank
 - ▶ Order blood products (in addition to PRBCs)
 - 10 cc/kg FFP : 10 cc/kg PRBCs
 - RBC:FFP:platelets = 1:1:1
 - If indicated, 10 cc/kg of platelets
 - 5 **Request rapid infuser (or pressure bags)**
 - 6 **Discuss management plan between surgical, anesthesiology and nursing teams**
 - 7 **Call for surgery consultation (vascular, trauma) Amion or Remis**
 - 8 **Keep patient warm (convection & blood warmers)**
 - 9 **Send labs (CBC, ABG, DIC Screen, iCa)**
 - ▶ Fill tubes from massive transfusion cooler and ABG
 - 10 **Consult MMC Massive Transfusion Policy**
- 11 **Consider...**
 - ▶ Electrolyte disturbances (hypocalcemia and hyperkalemia)
 - ▶ Uncrossmatched type O blood if crossmatched blood not available
 - ▶ Damage control surgery (pack, close, resuscitate)
 - ▶ Special patient populations (see considerations below)

DRUG DOSES and treatments

HYPOCALCEMIA treatment

Give calcium to replace deficit (calcium chloride or calcium gluconate)

HYPERKALEMIA treatment

1. Calcium chloride • 10 mg/kg IV
2. Insulin • IV/SC 0.1 Unit/kg + Dextrose IV 0.25 -1 gram/kg
3. Sodium bicarbonate • 1 – 2 mEq/kg
If pH < 7.2 slow IV push

NON-SURGICAL UNCONTROLLED BLEEDING

Despite massive transfusion of PRBC, FFP, platelets and cryo:

- Consider giving Recombinant factor VIIa: 40-80 mcg/kg IV (Pharmacy 662-3333)
 - Surgical bleeding must first be controlled
 - **Use with CAUTION** in patients at risk for thrombosis
 - **DO NOT use** when PH <7.2