HEM Hemorrhage

longlives ANESTHESIA PATHWAYS

Acute massive bleeding

Start

1. **Call for "ANESTHESIOLOGIST STAT"**
2. **Open IV fluids and assess for adequate access**
   (Confirm large-bore IV access; Consider A-line, CVC)
3. **Turn FiO_2 to 100% and turn down anesthetics**
4. **Call blood bank**
   - Assign 1 person in OR as primary contact for blood bank
   - Activate Massive Transfusion Protocol (2 options)
     - MTP Level 1: 2 units O neg, then 4 RBC, 4 FFP, 1 PLT
     - Transfuse in ratio of 1 FFP: 1 PRBC
     - Do not wait for lab results for initial transfusion
     - Continue MTP transfusions if evidence of coagulopathy and significant bleeding
   - Transfuse Platelets, if indicated (1 platelet pack per 6 PRBC)
5. **Send labs** (tube colors)
   - ABG, CBC (lavender), PT/PTT/INR/fibrinogen (light blue), K^+ (mint green), ionized Ca^{++} (gold), lactate (gray - on ice)
   - Consider i-Stat for rapid results (Hg, K^+, INR)
6. **Request Level 1 Rapid Infuser or High Flow Ranger**
7. **Consider Cell Salvage if indicated**
8. **Keep patient warm**
9. **Discuss management plan with Surgical, Anesthesia and Nursing teams**
   - Consider surgical consultation (Vascular, CT, etc.)
10. **Consider**
    - Electrolyte disturbances (Hyperkalemia, Hypocalcemia)
    - Un-crossmatched type O blood if crossmatched unavailable
    - Damage control surgery (pack, close, resuscitate)
    - Special patient populations (see table)
    - Hematology consult; Postop ICU Care
    - Foley placement

DRUG DOSES and treatments

HYPOcalcemia treatment

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

HYPERkalemia treatment

Calcium Gluconate	30 mg/kg IV
-or-	
Calcium Chloride	10 mg/kg IV
Insulin/dextrose	10 units regular IV 1-2 amps D50W as needed
Sodium bicarbonate if pH < 7.2	1-2 mEq/kg IV slow push

SPECIAL PATIENT POPULATIONS

OBSTETRIC

Go to: >> CHKLST PPHEM

TRAUMA: give Antifibrinolytic – EITHER:

Tranexamic acid:	1000 mg IV over 10 minutes followed by 1000 mg over the next 8 hours
-or-	
Aminocaproic acid:	4-5 g in 250 mL NS/LR IV over first hour followed by: Continuing infusion of 1 g/hour in 50 mL NS/LR IV for 8 hrs

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NON-SURGICAL UNCONTROLLED BLEEDING despite massive transfusion:

- Consider giving Recombinant Factor VIIa: 40 mcg/kg IV
  - Surgical bleeding must first be controlled
  - **Use with CAUTION** in patients at risk for thrombosis
  - **Do NOT use if** pH < 7.2

PROVIDENCE ANESTHESIOLOGY ASSOCIATES