## Blood Transfusion Guidelines in Massive Obstetric Hemorrhage


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| • Hemorrhage suspected | • Early diagnosis of possible hemorrhage  
• *Early move of patient to OR*  
• Communicate emergency to hemorrhage team | • Notify anesthesia stat on transfer to OR  
• Anesthesia monitoring per ASA standards |
| • Volume resuscitation with crystalloids until blood products (O-neg) available | • Start IV access in both arms; use 14G catheters over needles.  
• Place CVC with multi-lumens with large diameters (ex: 14G, 16G, and 18G in triple lumen); Or, place CVC/PAC introducer  
• Request O D-negative blood from blood bank (4 units now and prepare packs of 4 to send until crossmatched blood is ready)  
• Request BB to start thawing all frozen products for the “OB Hemorrhage Pack” | • There is no benefit of colloids over crystalloids for volume resuscitation  
• Give pre-warmed fluids  
• Use normal saline (0.9% NaCl) without glucose  
• Do not delay initial transfusion due to lack of crossmatched blood if patient hemorrhaging |
| • Send type and crossmatch  
• Assess Hgb/Hct and coagulation profile  
• Order “OB Hemorrhage Pack”  
• 8 units PRBCs  
• 6 to 8 units FFP  
• 2 platelet aphaeresis packs  
• 2 cryoprecipitate doses | • Draw two to three tubes of blood for type and crossmatch  
• Draw additional blood and send for CBC, DIC Profile (PT, PTT, platelets, fibrinogen, FDP and/or D-dimer), Chemistry, (electrolytes) | • Blood bank needs several tubes of blood to type and cross larger volumes of blood products  
• Create proactive plan for ordering blood (i.e., BB continues to prepare and send blood products in the same sequence as initial orders unless notified). |
- Maintain Hgb >8 g/dL
- Transfuse to goal of 10 g/dL (provides margin of safety)
- Transfuse PRBCs and FFP simultaneously or by altering 1 unit of PRBC and then 1 unit FFP, ongoing basis
- If blood not available, request and transfuse Group O D negative (begin with 4 units)
- 1 unit of PRBC increases Hgb 1 g/dL (ex: Hgb 5, transfuse at least 3 units to correct for stable patient)
- If patient bleeding, add significantly more units for continuing blood loss
- 2-person check for “right patient – right blood”
- Use blood warmer, blood filter from blood bank, blood tubing
- May use pressure bags with PRBC and FFP
- Use 0.9% NaCl as mainline solutions to run PRBCs
- Use Rapid Volume Infuser if available
- Notify Cell-Saver operator/team
- Continue to use O-negative; then ABO group specific when blood group identified by blood bank
- Do not delay initial transfusion due to lack of crossmatched blood if patient hemorrhaging
- Blood bank to auto send blood when crossmatch complete
- Number 1 reason for blood transfusion reactions – patient receives wrong blood. Confirm pt ID with 2 identifiers, armband, witness, use standardized guidelines.
- Assign extra RNs (usually 2) to witness blood in OR if any delay occurs in transfusion
- Continue to send BB tubes of blood as requested for ongoing crossmatching
- Replace blood filters every 2 units PRBCs or per BB policy
- Do NOT use lactated ringers or any solution with calcium

| Maintain platelets >75,000 | Transfuse platelet apheresis large pack | Anticipate large percentage of platelets rendered useless in transfusion. |
| Transfuse to 100,000 as goal (provides margin of safety) | Anticipate platelets <50,000 after 2x blood volume loss | Have second pack ready in OR. |
| One unit platelet apheresis increases platelet count 35,000 to 50,000. | Transfuse FFP in 1:1 or 1:1.5 ratio to PRBCs | Do NOT use pressure bags |
| Maintain PT & aPTT <1.5 x control | Anticipate need to transfuse early | Transfuse early to prevent and/or abate DIC |
| Maintain Fibrinogen >100 mg/dL | Transfuse early to prevent and/or abate DIC | Takes 30 minutes to thaw, order early |
| | OB pt may need more than non-pregnant patient due to increased blood volume. | |
- Apheresis If Fibrinogen <80 mg/dL
- Transfuse cryoprecipitate
- Hemostasis no longer occurs is fibrinogen <75 mg/dL.
- Critically low fibrinogen level likely reached when 1.5x blood volume lost.
- 4 units FFP increase fibrinogen 200–500 mg/L (volume = 1,000 mL or 1 liter)
- 2 pools of cryoprecipitate increase fibrinogen 320-400 mg/L (volume = 150 to 200 mL); complete dose can be administered more rapidly than fibrinogen equivalent
- If DIC present, blood products ineffective, evaluate pt for undiagnosed von Willebrand Factor deficiency. If this congenital bleeding disorder known, administer DDAVP (Medscape)
- Transfuse Desmopressin (DDAVP)
  - Dose 0.3 ug/kg
  - Limit repeat doses to every 6 to 8 hours
  - DDAVP promotes release of von Willebrand’s Factor from vascular endothelium.
  - Improves hemostasis in healthy volunteers and patients with disorders related to aspirin, NSAIDs, cirrhosis; but, its effect in massive hemorrhage is unknown.
- If DIC present, blood products ineffective, patient unstable – Recombinant Factor VIIa (rVIIa)
- Give Recombinant Factor VIIa (rVIIa)
  - 90 ug/kg (dose not standardized).
  - FDA off label use has been reported in OB literature. Side effects may include thrombosis and its sequelae.
  - Dose supplied in kit form – reconstitute prior to administration. May need two vials per dose – based on patients weight
  - Repeat the dose of rVIIa 2 hours after first dose.

Table adapted from:
